

Power Systems

Managing system management services



Note

Before using this information and the product it supports, read the information in [“Safety notices” on page v](#), [“Notices” on page 31](#), the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125-5823.

This edition applies to IBM® Power Systems servers that contain the POWER9™ processor and to all associated models.

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Safety notices

Safety notices may be printed throughout this guide:

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

World Trade safety information

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

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

German safety information

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

Laser safety information

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

Laser compliance

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



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

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

- If IBM supplied the power cord(s), connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
 - For AC power, disconnect all power cords from their AC power source.
 - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
 - For racks with AC power, connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.

- For racks with a DC power distribution panel (PDP), connect the customer’s DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.



DANGER:

- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. For AC power, remove the power cords from the outlets.
3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
4. Remove the signal cables from the connectors.
5. Remove all cables from the devices.

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. For AC power, attach the power cords to the outlets.
5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
6. Turn on the devices.

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

(R001 part 1 of 2):



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

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet if provided, unless the earthquake option is to be installed..
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.

- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).



- Stability hazard:
 - The rack may tip over causing serious personal injury.
 - Before extending the rack to the installation position, read the installation instructions.
 - Do not put any load on the slide-rail mounted equipment mounted in the installation position.
 - Do not leave the slide-rail mounted equipment in the installation position.
- Each rack cabinet might have more than one power cord.
 - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
 - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (R001 part 1 of 2)

(R001 part 2 of 2):



CAUTION:

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack or if the rack is not bolted to the floor. 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 part 2 of 2)



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

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are little-to-no empty U-levels between devices installed in the rack cabinet below the 32U level, unless the received configuration specifically allowed it.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- If the rack cabinet you are relocating was supplied with removable outriggers they must be reinstalled before the cabinet is relocated.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 2083 mm (30 x 82 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet or in an earthquake environment bolt the rack to the floor.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

(L001)



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

(L002)

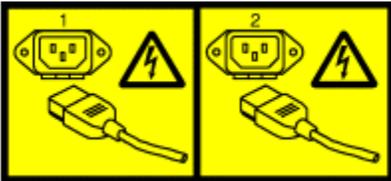


DANGER: Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices. In addition, do not lean on rack-mounted devices and do not use them to stabilize your body position (for example, when working from a ladder). Stability hazard:

- The rack may tip over causing serious personal injury.
- Before extending the rack to the installation position, read the installation instructions.
- Do not put any load on the slide-rail mounted equipment mounted in the installation position.
- Do not leave the slide-rail mounted equipment in the installation position.

(L002)

(L003)



or



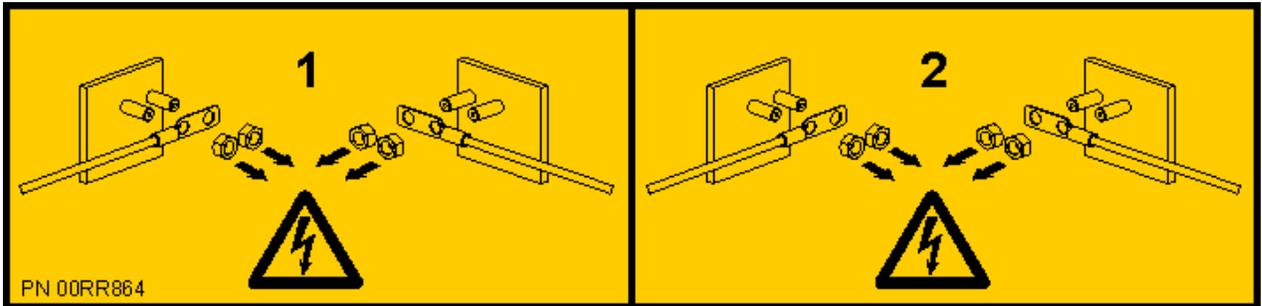
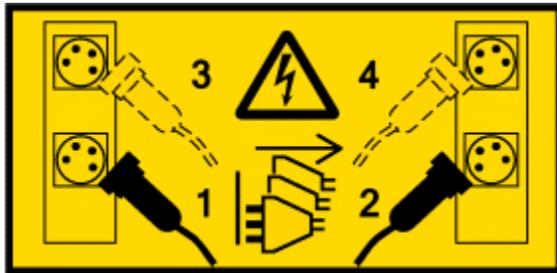
or



or



or



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

(L007)



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

(L008)



CAUTION: Hazardous moving parts nearby. (L008)

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



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

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

(C026)



CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. Although shining light into one end and looking into the other end of a disconnected optical fiber to verify the continuity of optic fibers may not injure the eye, this procedure is potentially dangerous. Therefore, verifying the continuity of optical fibers by shining light into one end and looking at the other end is not recommended. To verify continuity of a fiber optic cable, use an optical light source and power meter. (C027)



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



CAUTION: Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information:

- Laser radiation when open.
- Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

(C030)



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

Do Not:

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

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



CAUTION: Regarding IBM provided VENDOR LIFT TOOL:

- Operation of LIFT TOOL by authorized personnel only.

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

Freewheeling will cause uneven cable wrapping around winch drum, damage cable, and may cause serious injury.

- This TOOL must be maintained correctly for IBM Service personnel to use it. IBM shall inspect condition and verify maintenance history before operation. Personnel reserve the right not to use TOOL if inadequate. (C048)

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

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

The equipment is suitable for installation in the following:

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

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be 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.

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

Managing system management services

Use the menus within system management services (SMS) to view information about your system or partition and to perform tasks, such as changing the boot list and setting the network parameters. These menus can be used for AIX® or Linux® logical partitions, for the Virtual I/O Server (VIOS), and for the Integrated Virtualization Manager (IVM).

Starting system management services

Learn how to start system management services (SMS) from a partitioned or nonpartitioned server.

Related concepts

Power-on self-test keys

The power-on self-test (POST) keys can start services or can initiate service mode boots that are used for configuring the system and diagnosing problems.

Starting system management services from a logically partitioned server

Learn how to start system management services (SMS) from a partitioned server by using a Hardware Management Console (HMC).

About this task

If you have a logically partitioned system, complete the following steps:

Requirement: The logical partition must be shut down, and you must set the partition to start in SMS mode to access SMS.



1. In the navigation area, click the **Resources** icon , and then select **All Servers**.
2. Select the managed system that you want to work with.
3. Select the logical partition that you want to work with.
4. Select **Configuration > Manage Profiles**.
5. In the **Manage Profiles** window, select the logical partition that you want to work with.
6. Select **Actions > Edit**.
7. Click the **Settings** tab.
8. In the **Boot Modes** section, select **SMS**.
9. Click **OK**.
10. Restart the logical partition by selecting **Operations > Restart** in the HMC window. The SMS menus are displayed on the console.
11. If you do not already have a console for this session, select **Open a terminal window or console session**, and click **OK**.

Results

The system starts and the SMS menus are shown on the session's console.

Starting system management services from a nonpartitioned server

Learn how to start system management services (SMS) menus by using the Advanced System Management Interface (ASMI), the control panel, or from the AIX operating system or the control panel.

Starting the SMS menus from the ASMI

About this task

If the ASMI is available on a network-attached console and the system is in standby mode, complete the following steps:

Procedure

1. On the **ASMI Welcome** window, 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. Click **Save settings** and continue system server firmware boot.
4. Look for the power-on self-test (POST) indicators **memory, keyboard, network, speaker**, that are displayed across the bottom of the firmware console.
For details, see [“Power-on self-test keys” on page 29](#).
5. Press the numeric 1 key after the word **keyboard** is displayed and before the word **speaker** is displayed.
6. If requested, accept the firmware agreement
7. If requested, select a language. For details on the available languages, see [Selecting the language in system management services](#).
8. If requested, enter a password. Enter the administrator password that you set during initial system setup.

Starting the SMS menus when the ASMI is not available and the system is in standby

About this task

If the ASMI is not available and the system is in standby mode, complete the following steps:

Procedure

1. Press the power button on the control panel.
2. Look for the POST indicators **memory, keyboard, network, speaker**, that are displayed across the bottom of the firmware console.
For details, see [“Power-on self-test keys” on page 29](#).
3. Press the numeric 1 key after the word **keyboard** is displayed and before the word **speaker** is displayed.
4. If requested, accept the firmware agreement
5. If requested, select a language. For details on the available languages, see [Selecting the language in system management services](#).
6. If requested, enter a password. Enter the administrator password that you set during initial system setup.

Starting the SMS menus when the ASMI is not available and the system has already booted the AIX operating system

About this task

If the ASMI is not available and the system has already booted the AIX operating system, complete the following steps:

Procedure

1. Reboot the operating system.
2. Look for the POST indicators **memory, keyboard, network, scsi, speaker**, that are displayed across the bottom of the firmware console.
For details, see [“Power-on self-test keys”](#) on page 29.
3. Press the numeric 1 key after the word **keyboard** is displayed and before the word **speaker** is displayed.
4. If requested, accept the firmware agreement
5. If requested, select a language. For details on the available languages, see [Selecting the language in system management services](#).
6. If requested, enter a password. Enter the administrator password that you set during the initial system setup.

Using system management services

Learn how the system management services (SMS) menus can help you manage your system.

Related tasks

[Starting system management services](#)

Learn how to start system management services (SMS) from a partitioned or nonpartitioned server.

Menus and descriptions

Use the system management services (SMS) menus to perform various tasks.

Before you begin

If you have not completed the steps to start the system management services, see [“Starting system management services”](#) on page 1.

About this task

Notes:

- If the firmware console is a graphics terminal, you might need to enter the password for the service processor administrator user that was set by using the Advanced System Management Interface (ASMI).
- In a partitioned server, SMS menus display only those devices that are assigned to the partition that is being booted. In a partition that uses all the resources in a server, SMS menus display all devices in the system.
- In some of the following example menus, *Un* is used in place of *Ufeature_code.model.serial number* for legibility.

The following table contains the titles of the menus or tasks that can be accessed using the SMS menus. Use it to access and review the specific task that you want. The titles and menu contents are subject to change.

Menu or task	Description
Main menu	Displays the opening menu when the SMS menu is started.
Select language	Changes the language that is used by the SMS menus.
Setup remote IPL	Enables and sets up the remote startup capability of your server.
Adapter configuration	Sets both the network speed and the protocol.

<i>Table 1. SMS menus and descriptions (continued)</i>	
Menu or task	Description
Speed, duplex	Depending on the interface capabilities, you might be able to set the interface speed and duplex mode of the interface.
Protocol	Sets the appropriate protocol for your network.
Ping test	Tests the adapter network connection to a remote system.
Advanced setup: BOOTP	Changes the BOOTP values.
I/O device information	Displays information for various devices.
Select console	Selects which console to use to display the SMS menus.
Select boot options	Sets various options for the installation devices and boot devices. The Select boot options menu provides the following options: <ul style="list-style-type: none"> • select install or boot device • configure boot device order • multiboot startup • SAN zoning support
Normal mode boot or service mode boot	Performs a boot in the normal or service mode.
Hard drive	Displays a menu that identifies the different types of bootable disk drives installed on your system, for example, SAS or SAN.
Configure Boot Device Order	Sets the location of the device in the boot list. The Configure Boot Device Order menu provides the following options: <ul style="list-style-type: none"> • select boot device • display current settings • restore default settings

Main menu and navigation

From the main menu, you can select a language, set up remote IPLs, change SCSI settings, select a console, and select boot options.

About this task

After the SMS starts, a menu similar to the following example is displayed.

Main Menu

1. Select Language
2. Setup Remote IPL (Initial Program Load)
3. I/O Device Information
4. Select Console
5. Select Boot Options

Navigation keys:

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

Note: Depending on the firmware version that your system is running on, option 3 can show either **I/O Device Information** or **Change SCSI Settings**.

On all menus except the main menu, you can use several navigation keys:

M

Return to the main menu.

ESC

Return to the previous menu.

X

Exit the SMS and start the operating system.

If you enter X, you are asked to confirm your choice to exit the SMS menus and start the operating system.

When more than one page of information can be displayed, two more navigation keys are available:

N

Display the next page of the list.

P

Display the previous page of the list.

Note: The lowercase navigation key has the same effect as the uppercase key that is shown on the menu. For example, **m** or **M** returns you to the main menu.

On each menu, you can choose a menu item and press Enter (if applicable), or select a navigation key.

Selecting the language in system management services

You can choose from among a range of language options in the system management services.

About this task

When you select the **Select Language** option, you can change the language that is used by the SMS menus.

Note: If you change the language by selecting the **Select Language** option, only the language that is used by the firmware SMS menus is changed, not the operating system language.

Note: If you are using an ASCII terminal, it must support the ISO-8859 character set to correctly display languages other than English.

The available languages include the following:

1. ISO8859–1 English (United States)
2. ISO8859–1 French
3. ISO8859–1 German
4. ISO8859–1 Italian
5. ISO8859–1 Spanish
6. ISO8859-1 Portuguese (Brazil)
7. BIG5 Chinese (Traditional)
8. GB2312 Chinese (Simplified)
9. EUC-JP Japanese
10. EUC-KR Korean
11. UTF-8 English (United States)
12. UTF-8 Spanish
13. UTF-8 French
14. UTF-8 German
15. UTF-8 Italian
16. UTF-8 Portuguese (Brazil)
17. UTF-8 Chinese (Traditional)

- 18. UTF-8 Chinese (Simplified UTF)
- 19. UTF-8 Japanese
- 20. UTF-8 Korean

Setting up a remote IPL

Learn how to set up a remote initial program load (IPL) using the (SMS) menus.

About this task

When you select the **Setup Remote IPL** option, you can enable and set up the remote startup capability of your server or logical partition. A list of network interface card (NIC) adapters in the server is displayed.



Attention: In a partitioned server, only those network adapters that are assigned to the partition being booted are displayed in the NIC Adapters menu. In a single partition system, all the network adapters in the system are listed in the adapter parameters menu.

Here is an example display of the NIC Adapters menu.

NIC Adapters

	Device	Slot	Hardware Address
1.	Port 1 - 2 PORT Gigabit Et	Un-P1-T9	00096bff616b
2.	Port 2 - 2 PORT Gigabit Et	Un-P1-T10	00096bff616a
3.	10/100/1000 Base-TX PCI-X	Un-CB1-C03-T1	000295e3814f

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When you select an adapter, menus similar to the following examples might be displayed.

Select Internet Protocol Version.

- 1. IPv4 - Address Format 123.231.111.222
- 2. IPv6 - Address Format 1234:5678:90ab:cdef:1234:5678:90ab:cdef

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

Select Network Service

No alias : Port 1-IBM Host Ethernet Adapter: Un-P1-T6

- 1. BOOTP
- 2. ISCSI

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

Note: The menus depend on the options that you select. For example, if you select IPv6 as the Internet Protocol Version, the network interface card (NIC) might be configured for Trivial File Transfer Protocol (TFTP) boot. If you select IPv4, the NIC might be configured for BOOTP.

Related tasks

[Using system management services](#)

Learn how the system management services (SMS) menus can help you manage your system.

Selecting the BOOTP or TFTP option

If you select **BOOTP** or **TFTP** option, the adapter is set up (and the network parameters are entered) as usual. The **Network Parameters** menu is displayed.

About this task

After you select the **BOOTP** or **TFTP** option on the **Select Network Service** menu, the **Network Parameters** menu is displayed. The menus and options change depending on whether IPv4 or IPv6 was selected on the **Select Internet Protocol Version** menu. A menu similar to the following example is displayed.

```
Network Parameters
```

```
Port 1 - 2 PORT Gigabit Et    Un-P1-T9
 1. IP Parameters
 2. Adapter Parameters
 3. Ping Test
 4. Advanced Setup: BOOTP/TFTP
```

```
-----
Navigation keys:
```

```
M = return to main menu
```

```
ESC key = return to previous screen
```

```
X = eXit System Management Services
```

```
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting the IP (Internet Protocol) parameters option displays a menu similar to the following example.

```
IP Parameters
```

```
Port 1 - 2 PORT Gigabit Et    Un-P1-T9
 1. Client IP Address    [9.8.38.50]
 2. Server IP Address    [9.8.38.51]
 3. Gateway IP Address   [9.8.38.1]
 4. Subnet Mask          [255.255.255.000]
```

```
-----
Navigation keys:
```

```
M = return to main menu
```

```
ESC key = return to previous screen
```

```
X = eXit System Management Services
```

```
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

To change IP parameters, type the number of the parameters for which you want to change the value. Entering IP parameters on this menu automatically updates the parameters on the ping test menu.

Select the **Ping Test** option from the Network Parameters menu to test the network connection of an adapter to a remote system. After you select the ping test option, the Ping Test menu is displayed. Perform a Ping test by selecting the configuration options.

Notes:

- After you start the ping test, it might take 60 seconds or longer to return a result.
- After the ping test passes or fails, the firmware stops and waits for a key to be pressed before continuing.

Select the **Advanced Setup** option from the Network Parameters menu to configure the BOOTP or TFTP boot parameters. For BOOTP, the values 5, 512, 5, 0 and 0 are the respective default values for the following options.

```
Advanced Setup: BOOTP/TFTP
```

```
Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: U788D.001.23A0034-P1-T7
```

```
1. Bootp Retries      5
2. Bootp Blocksize   512
3. TFTP Retries      5
4. VLAN Priority      0
5. VLAN ID           0
```

```
-----
Navigation keys:
```

```
M = return to main menu
```

```
ESC key = return to previous screen
```

```
X = eXit System Management Services
```

```
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Select the **VLAN Priority** option from the Advanced Setup menu to set the VLAN priority, and select the **VLAN ID** option to set the VLAN ID.

Notes:

- The default setting of the **VLAN Priority** option is 0, but a decimal value in the range 0 - 7 can be set for the frame priority.
- An error message is displayed if a value greater than 7 is entered, in which case the default value is set back to the **VLAN Priority** option.
- The default value for the **VLAN ID** option is 0 and is reserved, because this frame does not belong to any VLAN.
- Values must be entered as a decimal numbers. Valid values for a **VLAN ID** must be in the range 1 - 4094. If the **VLAN ID** option is set to 0, VLAN tagging is disabled.
- An error message is displayed if a decimal value greater than 4094 is entered, in which case the default value is set back to the **VLAN ID** option.

Selecting the iSCSI option

If you select **iSCSI**, you can select which iSCSI alias to set up with network parameters. When you complete the tasks in the iSCSI menus, you can choose any of the other menus or tasks that are listed in Using system management services.

About this task

```
iSCSI Alias Selection
```

```
No alias : Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7
```

```
1. iSCSI_DISK1
2. iSCSI_DISK2
```

```
-----
Navigation keys:
```

```
M = return to main menu
```

```
ESC key = return to previous screen
```

```
X = eXit System Management Services
```

```
-----
Type menu item number and press Enter or select Navigation key: _
```

If you select an **iSCSI** alias, the **iSCSI Discovery Selection** menu is displayed.

ISCSI Discovery Selection

iscsi_disk1: Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7

1. Enter Static Parameters.
2. Ping Test.

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

When you select **Ping Test**, a menu similar to the following example is displayed.

ISCSI Ping Test Parameters

iscsi_disk1: Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7

Client IP Address

Server IP Address

Gateway IP Address

Subnet Mask

1. Execute ping test

Navigation keys:

M = return to main menu

ESC key = return to previous screen X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

When you select **Enter Static Parameters**, the **ISCSI Initiator Parameters** menu is displayed.

ISCSI Initiator Parameters

iscsi_disk1: Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7

1. Client IP Address []
2. Gateway IP Address []
3. Subnet Mask []
4. Set Initiator Name
5. Enter ISCSI Target Parameters

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

Use the **ISCSI Target Parameters** menu to set the target parameters.

ISCSI Target Parameters

iscsi_disk1: Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7

1. Target IP Address []
2. ISCSI PORT [3260]
3. Target lun [0]
4. Set ISCSI Target Name

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

Select **Target Name** to set the target name. If you select **Set Initiator Name** on the ISCSI Initiator Parameters menu or **Set ISCSI Target Name** on the **ISCSI Target Parameters** menu, a menu similar to the following example is displayed.

Enter Target Name

iscsi_disk1: Port 1-IBM 2 PORT 1000 Base-SX PCI-X Adapter: Un-P1-T7

1. Clear Current Name
 2. Edit Current Name
- []

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: 2

Must be at least 4 characters.

Press Backspace key to delete.

Press Enter key to save.

Press Esc key to exit without saving name.

Configuring adapters

You can set the network speed and set the protocol.

About this task

When you select the **Adapter Configuration** option, you can set the network speed and set the protocol as shown in the following menu.

Adapter Configuration

Port 1 - 2 PORT Gigabit Et Un-P1-T9

1. Speed, Duplex
2. Protocol

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

Selecting the speed, duplex option

When you select the **Speed, Duplex** option, the next Adapter Configuration menu is displayed.

About this task

An example of the **Speed, Duplex** menu follows. The options available on this menu depend on the capabilities of the chosen adapter. You can set the interface speed at which the adapter runs.

```
Speed, Duplex
Port 1 - 2 PORT Gigabit Et   Un-P1-T9
1. auto, auto

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen           X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Selecting the protocol option

When you select the **Protocol** menu, you can set the appropriate protocol for your network.

About this task

An example of the **Protocol** menu follows.

```
Protocol
Port 1 - 2 PORT Gigabit Et   Un-P1-T9
1. Standard <===
2. IEEE802.3

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen           X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

Changing SCSI settings

You can view and change the addresses of the SCSI controllers that are attached to your system.

About this task

When you select the **Change SCSI Settings** option, you can view and change the addresses of the SCSI controllers that are attached to your system.

Note: This menu item (task) is only available on systems that are on the 810_xxx or earlier firmware level.

```
SCSI Utilities
1. Hardware Spin Up Delay
2. Change SCSI Id

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen           X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

I/O device information

You can view a list of devices that are attached to certain storage subsystem controllers.

About this task

When you select the **I/O Device Information** menu, you're presented with a menu of installed subsystem controllers that are supported by the utility as shown in the following examples, depending on the firmware level.

The following menu is available for firmware level FW860_xxx, or later:

```
I/O Device Information
  1. SAN Device Information
  2. SAS Device Information

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

The following menu is available for firmware level FW910_xxx, or later:

```
I/O Device Information
  1. SAN
  2. SAS
  3. NVMe

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

The following menu is available for firmware level FW920_xxx, or later:

```
I/O Device Information
  1. SAN
  2. SAS
  3. NVMe
  4. Firmware device driver Secure Boot validation failures

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When the firmware is at a level FW950_xxx or later, you can select the SAN (storage area network) subsystem to display the following menu:

```
Select Fabric Type
  1. FCP
  2. FC NVMe over Fabric

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When you select a fabric type or a subsystem, a list of installed subsystem controllers is displayed, similar to the following example.

```
Select Media Adapter

1.  U9179.MHD.10057FP-V2-C3-T1   /vdevice/vfc-client@30000003
2.  U9179.MHD.10057FP-V2-C4-T1   /vdevice/vfc-client@30000004
3.  U9179.MHD.10057FP-V2-C5-T1   /vdevice/vfc-client@30000005

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When you select a controller, the controller is scanned for any attached devices. If there's an error in attempting to open the adapter, an informational SRC is logged. If the controller is successfully opened and scanned, a list of detected devices is displayed, similar to the following example.

```
Select Attached Device
Pathname: /vdevice/vfc-client@30000005
WorldWidePortName: c05076055a510004

1.  50050763030400bd,4000406500000000 32 GB Disk drive - bootable
2.  50050763030400bd,4005402900000000 32 GB Disk drive - reserved
3.  50050763030440bd,4000406500000000 32 GB Disk drive - bootable
4.  50050763030440bd,4005402900000000 32 GB Disk drive
5.  50050763031300bd,4000406500000000 32 GB Disk drive - bootable
6.  50050763031300bd,4005402900000000 32 GB Disk drive
7.  500507630313c0bd,4000406500000000 32 GB Disk drive - bootable
8.  500507630313c0bd,4005402900000000 32 GB Disk drive
9.  50050763032300bd,4000406500000000 32 GB Disk drive - bootable
10. 50050763032300bd,4005402900000000 32 GB Disk drive
11. 50050763032800bd,4000406500000000 32 GB Disk drive - bootable
12. 50050763032800bd,4005402900000000 32 GB Disk drive

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

The information that is shown in this menu identifies the type of devices that are available. For disk drives, an attempt is made to determine whether the drive is bootable or not. A reservation is also identified on a drive. If a reservation is identified on a drive, then the drive is unavailable for booting. This is the only SMS menu that lists a disk drive with a reservation.

If a disk drive is selected from the previous menu, a menu similar to the following example is displayed.

```
SAN Device Menu
Target Address: 50050763030400bd Lun Address: 4005402900000000
Pathname: /vdevice/vfc-client@30000005/disk@50050763030400bd,4005402900000000
Device: 32 GB Disk drive

1.  Display Inquiry Data
2.  Log Boot Status Informational SRC

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

When you select the **Display Inquiry Data** option, the selected drive gathers the standard inquiry data and displays it in a raw data format.

When you select the **Log Boot Status Informational SRC** option, the system attempts to determine whether the drive is bootable, and then will log an informational SRC.

SAS Devices

For SAS devices, additional information for the selected device might be available and it is displayed by selecting the **Display Device Details** option. If the device is an array, additional details about the array and its members might be available. This is illustrated by a menu similar to the following example.

SAS Device Menu

```
Target Address: 34e058dc5900 Lun Address: 0
Pathname: /pci@8000000020000155/pci1014,034A@0/sas/disk@34e058dc5900,0
Location Code: U78CD.001.FZH0295-P2-C5-T1-L34e058dc5900-L0
Device: SAS RAID Array
RAID Array ID: 11 Volume Set ID: 0
BUID: IBM-IPR-5 58DC5900-IBM IPR-5 58DC5900000034E0
```

1. Display Inquiry Data
2. Log Boot Status Informational SRC
3. Array Member Information

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If the Array Member Information menu item is selected, a menu similar to the following example is displayed.

SAS Device Details

1. UESLS.001.G63X008-P1-D2 600000 MB Disk drive
2. UESLS.001.G63X008-P1-D4 600000 MB Disk drive
3. UESLS.001.G63X008-P1-D6 1800000 MB Disk drive

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When one of the SAS disk drives is selected from the previous menu, a menu similar to the following is displayed.

SAS Device Details

```
Serial Number S41019AZ
Microcode level 680A (0x36383041)
FRU Number 00E9935
Part Number 00LY238
CCIN Number 59D2
```

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

NVMe Devices

For NVMe devices, information about defined namespaces might also be available. This is illustrated by a menu similar to the following example.

Select Media Adapter

1. U78D2.001.RCH0012-P1-C7 NVMe Flash Adapter

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When an adapter is selected from the previous menu, a menu similar to the following is displayed.

NVMe Adapter Information

```
Model Number ..... PCIe3 1.6TB NVMe Flash Adapter II x8
Serial Number ..... S3RVNA0J300151
NVM-e Version ..... 1.2
Firmware Revision ..... MB14MB14
Firmware Device Driver Level .. 110
```

1. Namespace information

Navigation keys:

M = return to main menu

ESC key = return to previous screen X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If the Namespace information menu item is selected, a menu similar to the following example is displayed.

Namespace Details

U78D2.001.RCH0012-P1-C7-L1 1490 GB Namespace - bootable

```
Namespace Globally Unique Identifier ..... 0x1000000413825005101304a30565233
IEEE Extended Unique Identifier ..... 0x0
Block Size ..... 4096
Size (blocks) ..... 390703446
Capacity (blocks) ..... 390703446
Utilization (blocks) ..... 390703446
Critical Warnings .....
- Available spare space below threshold
- Temperature is above over temperature or below under temperature
- Degraded NVM subsystem reliability
- Media in read only mode
```

Navigation keys:

M = return to Main Menu N = Next page of list

ESC key = return to previous screen X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

Advancing to the next page:

Namespace Details

```
- Volatile memory backup device failed
- Unrecognized indicators: 0xe0
Composite temperature (Fahrenheit / Celsius) ..... 109.13 / 42.85
Percentage of remaining spare capacity available .. 100%
Percentage of NVM subsystem life used ..... 0%
Data units read (1000 units of 512 bytes) ..... 0x7a1
Data units written (1000 units of 512 bytes) ..... 0x4cbf
Host read commands completed ..... 0xa0ea
Host write commands ..... 0x55f6c
Number of power cycles ..... 0x31
Power-ON hours ..... 0x6da
Media and Data Integrity Errors ..... 0x0
Number of error information log entries ..... 0x242
```

Navigation keys:

M = return to Main Menu

P = Previous page of list

ESC key = return to previous screen X = eXit System Management Services

Type menu item number and press Enter or select Navigation key: _

Firmware device driver Secure Boot validation failures

When the Secure Boot setting of the logical partition is either Enabled and Log only or Enabled and Enforced, this menu displays a list of PCI devices whose firmware device driver validation has failed. This is illustrated by a menu similar to the following example.

```

Select PCI function to see a description of the failure
1.  U78D2.001.RCH0012-P1-C49   Serial Attached Storage Controller
2.  U78D2.001.RCH0012-P1-C4-T1  PCIe2 4-port 1GbE Adapter
3.  U78D2.001.RCH0012-P1-C4-T2  PCIe2 4-port 1GbE Adapter
4.  U78D2.001.RCH0012-P1-C4-T3  PCIe2 4-port 1GbE Adapter
5.  U78D2.001.RCH0012-P1-C4-T4  PCIe2 4-port 1GbE Adapter
6.  U78D2.001.RCH0012-P1-C7     PCIe3 1.6TB NVMe Flash Adapter II
7.  U78D2.001.RCH0012-P1-C10-T1  PCIe2 4-Port (10GbE SFP+ & 1GbE RJ45) Adapter
8.  U78D2.001.RCH0012-P1-C10-T2  PCIe2 4-Port (10GbE SFP+ & 1GbE RJ45) Adapter
9.  U78D2.001.RCH0012-P1-C10-T3  PCIe2 4-Port (10GbE SFP+ & 1GbE RJ45) Adapter
10. U78D2.001.RCH0012-P1-C10-T4  PCIe2 4-Port (10GbE SFP+ & 1GbE RJ45) Adapter

```

```

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: _

```

A menu is displayed with a description of the problem when a listed device is selected from the previous menu. The problem description is displayed as shown in the following example menu.

```

Secure Boot validation problem description

The validation of the firmware device driver in the ROM image for the PCI
function failed. Recovery from this problem most often requires a microcode
refresh or an update to the most recent version.

If the Secure Boot setting is Enabled and Enforced, this must be corrected
for the PCI function to be a candidate for booting an operating system.

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: _

```

Selecting the console

You can select which console to use to display the SMS menus.

About this task

When you select the **Select Console** menu, you can select which console to use to display the SMS menus. This selection is available only for the SMS menus and does not affect the console that is used by the operating system.

Follow the instructions that are displayed on the console. The firmware automatically returns to the SMS main menu after the console is chosen.

Note: If you do not change the console to another device before removing the current console, you must reattach the current console to change your console selection.

Selecting boot options

You can install or boot a device, configure a boot device order, select the multiboot startup option, or select the storage area network (SAN) zoning support option.

Selecting to install or boot a device

Applicable for the next boot, select a device from which to boot the operating system or install the operating system. The boot list that is stored in nonvolatile random access memory (NVRAM) is not changed.

About this task

Select the **Select Install/Boot a Device** menu to view and set the options for the installation devices and boot devices.

1. Select Install/Boot a Device
2. Configure Boot Device Order
3. Multiboot Startup [OFF]
4. SAN Zoning Support

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

A menu similar to the following example is displayed.

Select Device Type

1. Tape
2. CD/DVD
3. Hard Drive
4. Network
5. List All Devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If you select **Hard Drive** option, a menu similar to the following example is displayed.

Select Hard Drive Type

1. SCSI
2. SAN
3. SAS
4. SATA
5. USB
6. NVMe
7. List All Devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If you select any option other than the **SAN** option, all adapters of the chosen option type that are in the system or are assigned to the logical partition are displayed. For example, if you select the **SCSI** option, a menu similar to [Select Media Adapter](#) is displayed. If you select **SAN** option, a menu similar to the following example is displayed.

Select Fabric Type

1. FCP
2. FC NVMe over Fabric
3. List All Devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If you select the **FCP** option, the Select Media menu for Fibre Channel adapters is displayed. If you select the **FC NVMe over Fabric** option, Fibre Channel adapters which support NVMe in the SAN are displayed.

Select Media Adapter

1. Un-P1-T14 /pci@80000002000000d/pci@2/pci1069,b166@1/scsi@0
2. Un-P1-T12 /pci@80000002000000f/pci@2,2/pci1069,b166@1/scsi@0
3. Un-P1-T13 /pci@80000002000000f/pci@2,2/pci1069,b166@1/scsi@1
4. List all devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When you select an adapter, the next menu displays the bootable devices of the requested type that are attached to that adapter. In the following example, all the bootable SCSI hard files that are attached to the first adapter are listed.

Select Device Number	Device Current Position	Device Name
1	1	SCSI 73407 MB Harddisk Un-P1-T14 /pci@80000002000000d/pci@2/pci1069,b166@1/scsi@0

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

You can now select the appropriate device for this installation or boot.

When a device is selected for installing the operating system, or to boot from, the **Select Task** menu might be used to retrieve more information about the device, or to boot from that device in normal mode or service mode. An example is shown in the following display.

Select Task

SCSI 36401 MB Harddisk, part=2 (AIX 5.3.0)
(loc=U788D.001.06A0034-P1-T10-L1-L0)

1. Information
2. Normal Mode Boot
3. Service Mode Boot

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

If you select either **Normal Mode Boot** or **Service Mode Boot** options, the device is booted in the appropriate mode or the firmware returns to the **Select Task** menu, depending on the confirmation response.

Selecting media for Fibre Channels

Select Media Adapter

1. U78A0.001.DNKGWL9-P1-C4-T1 /pci@800000020000202/fibre-channel@1
2. U78A0.001.DNKGWL9-P1-C4-T2 /pci@800000020000202/fibre-channel@1,1
3. List all devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When you select a Fibre Channel adapter, the next menu displays the tasks that are available. In the following example, all the tasks are listed.

Select Task

U78A0.001.DNKGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

1. Specify a boot device using WWPN and LUN
2. Scan for available boot devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

You can either select to **Specify a boot device using WWPN and LUN** or **Scan for available boot devices**.

If you select **Specify a boot device using WWPN and LUN**, you can specify the device. In the following example, the WWPN and LUN are available for selection.

If you select **Scan for available boot devices**, you can scan for any available SAN boot devices.

Specifying a SAN device using WWPN and LUN

```
Specify device
U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1
```

1. WWPN :
2. LUN :

```
-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key:
```

If you select **WWPN**, you can specify the WWPN and enter the 16 hex digits. In the following example, the **Enter WWPN** is shown.

```
Specify device
U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1
```

1. WWPN :
2. LUN :

```
-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
X to Abort or Enter WWPN: 50017380015b0182
```

After you enter the WWPN, you can see the hex digits. In the following example, the WWPN hex digits are shown and the LUN is available for selection.

```
Specify device
U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1
```

1. WWPN : 50017380015b0182
2. LUN :

```
-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: _
```

If you select **LUN**, you can specify the LUN and enter the 16 hex digits. In the following example, the **Enter LUN** is shown.

```
Specify device
U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1
```

1. WWPN : 50017380015b0182
2. LUN :

```
-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
X to Abort or Enter LUN: 30000000000000
```

After you enter the LUN, the device is searched for. If no device is found, then the following information message is displayed.

```
THE SELECTED DEVICES WERE NOT DETECTED IN THE SYSTEM !
Press any key to continue.
```

The menu stays at specifying the WWPN and LUN, as shown in the following example.

```
Specify device
U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

1. WWPN : 50017380015b0182
2. LUN  : 30000000000000
```

```
-----
Navigation keys:
M = return to main menu                X = eXit System Management Services
ESC key = return to previous screen
-----
Type menu item number and press Enter or select Navigation key: _
```

If a device pointed to by the WWPN and LUN is found, then the device is listed, as shown in the following example.

```
Select Device
Device Current Device
Number Position Name
1.      1      SCSI 15 GB FC Harddisk, part=2 (AIX 7.1.0)
      ( loc=U78A0.001.DNWGWL9-P1-C4-T1-W50017380015b0182-L3000000000000 )
```

```
-----
Navigation keys:
M = return to Main Menu                X = eXit System Management Services
ESC key = return to previous screen
-----
Type menu item number and press Enter or select Navigation key: _
```

You can now select the appropriate device for this installation or boot.

When a device is selected for installing the operating system, or to boot from, the **Select Task** menu might be used to retrieve more information about the device, or to boot from that device in normal mode or service mode. The display is shown in the following example.

```
Select Task

SCSI 36401 MB Harddisk, part=2 (AIX 5.3.0)
  (loc=U788D.001.06A0034-P1-T10-L1-L0)

1. Information
2. Normal Mode Boot
3. Service Mode Boot
```

```
-----
Navigation keys:
M = return to main menu                X = eXit System Management Services
ESC key = return to previous screen
-----
Type the number of the menu item and press Enter or Select a Navigation key: _
```

If you select either **Normal Mode Boot** or **Service Mode Boot** options, the device is booted in the appropriate mode or the firmware returns to the **Select Task** menu, depending on the confirmation response.

Selecting available boot devices

```
Scan options
  U78A0.001.DNKGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan:  11

Specify a range for the scan
1.  Start value for the scan range :  1
2.  End value for the scan range   :  11

3.  Scan
    -> Number of devices selected for scan :  11
    -> Approximate time for scan           :  2 Minutes 12 Seconds

Navigation keys:
M = return to main menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key:
```

The number of available devices for scan is shown.

Select option **1** to specify a start value for the scan range. In the following example, the enter start value is shown.

```
Scan options
  U78A0.001.DNKGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan:  11

Specify a range for the scan
1.  Start value for the scan range :  1
2.  End value for the scan range   :  11

3.  Scan
    -> Number of devices selected for scan :  11
    -> Approximate time for scan           :  2 Minutes 12 Seconds

Navigation keys:
M = return to main menu
ESC key = return to previous screen      X = eXit System Management Services
-----
X to Abort or Enter Start value for the scan range: 4
```

Enter the start value. An example of 4 is shown.

Note: Scan range values must be within the available number of devices. If you enter a scan range value that is outside these values, an information error is shown.

```
Invalid value for scan range....
```

In the following example, you can choose to specify the end value.

```

Scan options
  U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan: 11

Specify a range for the scan
1. Start value for the scan range : 4
2. End value for the scan range   : 11

3. Scan
  -> Number of devices selected for scan : 11
  -> Approximate time for scan           : 2 Minutes 12 Seconds

Navigation keys:
M = return to main menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key: 2

```

Select option **2** to specify the end value for the scan range. In the following example, the end value is shown.

```

Scan options
  U78A0.001.DNWGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan: 11

Specify a range for the scan
1. Start value for the scan range : 4
2. End value for the scan range   : 11

3. Scan
  -> Number of devices selected for scan : 11
  -> Approximate time for scan           : 2 Minutes 12 Seconds

Navigation keys:
M = return to main menu
ESC key = return to previous screen      X = eXit System Management Services
-----
X to Abort or Enter End value for the scan range: 7

```

Enter the end value. An example of 7 is shown here.

Note: Scan range values must be within the available number of devices. If you enter a scan range value that is outside these values, an information error is shown.

```

-----
| Invalid value for scan range.... |
-----

```

In the following example, you can specify the start value and end value for the scan.

```

Scan options
  U78A0.001.DNKGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan: 11

Specify a range for the scan
1. Start value for the scan range : 4
2. End value for the scan range   : 7

3. Scan
  -> Number of devices selected for scan : 4
  -> Approximate time for scan           : 0 Minutes 48 Seconds

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key:

```

Select option **3** to start a scan for the specified range.

In the following example, the progress of the scan is shown.

```

Scan options
  U78A0.001.DNKGWL9-P1-C4-T1/pci@800000020000202/fibre-channel@1

Number of devices available for scan: 11

Specify a range for the scan
1. Start value for the scan range : 4
2. End value for the scan range   : 7

3. Scan
  -> Number of devices selected for scan : 4
  -> Approximate time for scan           : 0 Minutes 48 Seconds

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
check /pci@800000020000202/fibre-channel@1/disk@50017380015b0182,a0000000000000

```

If no devices are found in the specified scan range, an information message is shown.

If devices are found in the specified scan range, they are listed in the Select device.

```

| THE SELECTED DEVICES WERE NOT DETECTED IN THE SYSTEM ! |
| Press any key to continue.                             |
|-----|

```

In the following example, you can select the device to boot.

```

Select Device
Device Current Device
Number Position Name
1.      1      SCSI 15 GB FC Harddisk, part=2 (AIX 7.1.0)
        ( loc=U78A0.001.DNWGWL9-P1-C4-T1-W50017380015b0182-L3000000000000 )

```

```

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key:

```

Select option **1** to boot from the first device. More than one device can be shown depending on the available devices.

In the following example, you can select the boot mode.

```

Select Task
SCSI 15 GB FC Harddisk, part=2 (AIX 7.1.0)
( loc=U78A0.001.DNWGWL9-P1-C4-T1-W50017380015b0182-L3000000000000 )

1. Information
2. Normal Mode Boot
3. Service Mode Boot

```

```

-----
Navigation keys:
M = return to Main Menu
ESC key = return to previous screen      X = eXit System Management Services
-----
Type menu item number and press Enter or select Navigation key:

```

Select option **2** for a normal mode boot.

Configuring boot device order

You can view and change the customized boot list.

About this task

To minimize the search time for bootable devices, these menus follow this hierarchy:

device type > bus type > adapter > devices attached to the adapter

By selecting **List All Devices** from the **Select Device Type** menu or the **Select Media Type** menu, you can view all the potentially bootable devices at one time. Disk drives that are not bootable are not listed.

The **List All Devices** function can take a long time, or may be incomplete on a large system with many I/O adapters and devices, such as large disk arrays. However, the following selection might reduce the overall time required to scan for all of the devices because the scan is restricted to the selected adapter.

device type (for example, hard disk) > interface type (for example, SCSI) > specific adapter

Select the **Select Boot Devices** option to view and change the customized boot list, which is the sequence of devices read at startup.

Configure Boot Device Order

1. Select 1st Boot Device
2. Select 2nd Boot Device
3. Select 3rd Boot Device
4. Select 4th Boot Device
5. Select 5th Boot Device
6. Display Current Setting
7. Restore Default Setting

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When you select any of the options 1 - 5, the **Select Device Type** menu is displayed.

Note: The number of selectable boot devices can vary from system to system.

Select Device Type

1. Tape
2. CD/DVD
3. Hard Drive
4. Network
5. None
6. List all devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

By selecting **List All Devices** option from the **Select Device Type** menu or the **Select Media Type** menu, you can view all of the potentially bootable devices at one time. Note that the non-bootable disks are not listed. The **List All Devices** function can take a long time or may be incomplete on a large system with many I/O adapters and devices, such as large disk arrays. However, the following selection might reduce the overall time required to scan for all of the devices because the scan is restricted to the selected adapter: **device type (for example, hard disk) > interface type (for example, SCSI) > specific adapter.**

When you select a device type, a **Select Media Type** menu is displayed that is similar to the following example.

Select Media Type

1. SCSI
2. SAN
3. SAS
4. SATA
5. USB
6. NVMe
7. None
8. List All Devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

For systems with firmware level 910_xxx, or later, if you select the **List All Devices** option, all the subsystem types present in the partition are scanned for the devices of the selected type. When you select a media type, all adapters of that type are displayed on the **Select Media Adapter** menu. The following example displays the menu when SCSI is selected as the media type.

Select Media Adapter

1. U8205.E6D.JI10020-V1-C3-T1 /vdevice/v-scsi@300000003
2. U8205.E6D.JI10020-V1-C4-T1 /vdevice/v-scsi@300000004
3. U8205.E6D.JI10020-V1-C8-T1 /vdevice/v-scsi@300000008
4. None
5. List all devices

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

You might select each adapter individually to see the bootable devices that are attached to it. For systems with firmware level 910_xxx, or later, if the **List All Devices** option is selected from this menu, all the devices of the selected type (for example, Hard Drive) that are attached to any adapter of the selected type (for example, SAS or USB) are listed. If no bootable device is attached to the adapter, an error message is displayed. The following example displays the menu when the first SCSI adapter is selected in this menu.

Select Device Number	Device Current Position	Device Name
1	-	SCSI 39 GB Harddisk, part=2 (AIX 7.2.0) (loc=U8205.E6D.JI10020-V1-C3-T1-L81000000000000)
2.	None	

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When you select a device type, you can view detailed information about the device or set the device location in the boot list from the **Select Task** menu. Note that the non-bootable disks are not listed. The following example shows the menu when you select **Hard disk** as the device.

Select Task

- SCSI 39 GB Harddisk, part=2 (AIX 7.2.0)
(loc=U8205.E6D.JI10020-V1-C3-T1-L81000000000000)
1. Information
 2. Set Boot Sequence: Configure as 1st Boot Device

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

Selecting **Information** displays a menu similar to the following for a hard disk.

```

Device Information
: /vdevice/v-scsi@30000003/disk@8100000000000000
: (Bootable)
DEVICE      : SCSI 39 GB Harddisk, part=2 (AIX 7.2.0)
             (loc=U8205.E6D.JI10020-V1-C3-T1-L8100000000000000)
NAME        : disk
DEVICE-TYPE : block

Parent Information
IBM,FW-ADAPTER-NAME : Virtual SCSI
NAME                 : v-scsi
DEVICE-TYPE          : vscsi

```

```

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _

```

Select the **Display Current Settings** to display the current setting of the customized boot list.

An example of this menu, with one device in the boot list, follows.

```

Current Boot Sequence

1. SCSI 73407 MB Harddisk Un-P1-T14 /pci@80000002000000d/pci@2/pci1069,b166@1/scsi@0
2. None
3. None
4. None
5. None

```

```

-----
Navigation keys:
M = return to main menu
ESC key = return to previous screen          X = eXit System Management Services
-----
Type the number of the menu item and press Enter or Select a Navigation key: _

```

Select the **Restore Default Settings** option to restore the boot list to the default boot list.

The default boot list varies depending on the following devices that are installed in the system:

1. Optical drive (if installed)
2. Tape drive (if installed)
3. Hard disk drive (if installed)
4. Network adapter

Multiboot startup

The multiboot startup flag, if enabled, stops the system at the SMS menus every time the system starts. You can start the system from another device.

SAN zoning support

By using the storage area network (SAN) zoning option, you can perform SAN zoning for all Fibre Channel adapters, which includes the virtual Fibre Channel adapters that are assigned to the partition that is booted.

About this task

When an adapter is selected, it remains open during the zoning activity, which ensures that the switch can determine the worldwide port number and worldwide node name of the adapter.

Select the **SAN Zoning Support** option. A menu similar to the following example is displayed.

Select Media Adapter

1. U78AA.001.WIH0029-P1-C7-T1 /pci@80000002000000d/fibre-channel@0

Navigation keys:

M = return to main menu

ESC key = return to previous screen

X = eXit System Management Services

Type the number of the menu item and press Enter or Select a Navigation key: _

When an adapter is selected, a menu similar to the following example is displayed.

```
-----  
The selected adapter has been opened.  
Zoning of attached disks may now be possible.  
Press any key to close the adapter and return to the previous menu.  
-----
```

Power-on self-test keys

The power-on self-test (POST) keys can start services or can initiate service mode boots that are used for configuring the system and diagnosing problems.

After power is turned on and before the operating system is loaded, the system performs a power-on self-test (POST). This test ensures that the hardware is functioning correctly before the operating system is loaded. During the POST, a POST screen is displayed, and POST indicators appear on the firmware console (if the firmware console is connected).

The POST keys, if pressed after the keyboard POST indicator is displayed and before the last POST indicator speaker is displayed, cause the system to start services or to initiate service mode boots that are used for configuring the system and diagnosing problems.

Note: The program function keys (F1-F12) on a keyboard attached to the service processor are not used and are ignored. After the keyboard POST indicator is displayed, you must use the numeric number keys.

Numeric 1 key

The numeric 1 key, when pressed during POST, starts the system management services interface.

Numeric 5 key

The numeric 5 key, when pressed during POST, initiates a system boot in service mode using the default service mode boot list.

This mode attempts to boot from the first device of each type found in the list. It does not search for other bootable devices of that type if the first device is not bootable. Instead, it continues to the next device type in the list.

Note: This is the preferred method of loading standalone AIX diagnostics from CD-ROM.

The default boot sequence is:

1. CD-ROM (if installed)
2. Tape drive (if installed)
3. Hard file
4. Network

Numeric 6 key

The numeric 6 key works like the numeric 5 key, except that the previously stored boot list is used instead of the default list.

Note: This is the preferred method of loading online AIX diagnostics from the boot hard disk.

Exiting system management services

After you finish using the SMS menus, type x (for exit) to boot your system.

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Accessibility features for IBM Power Systems servers

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

Overview

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

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

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

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

Keyboard navigation

This product uses standard navigation keys.

Interface information

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

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

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

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The following Class A statements apply to the IBM servers that contain the POWER9 processor and its features unless designated as electromagnetic compatibility (EMC) Class B in the feature information.

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

Canada Notice

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

European Community and Morocco Notice

This product is in conformity with the protection requirements of Directive 2014/30/EU of the European Parliament and of the Council on the harmonization 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 may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Germany Notice

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

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

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 von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von IBM gesteckt/eingebaut werden.

EN 55032 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

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

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

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

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

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Relations Europe, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany

Tel: +49 (0) 800 225 5426
email: HalloIBM@de.ibm.com

Generelle Informationen:

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

Japan Electronics and Information Technology Industries Association (JEITA) Notice

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

This statement applies to products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement applies to products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

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

- 回路分類 : 6 (単相、PFC回路付)
- 換算係数 : 0

This statement applies to products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

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

- 回路分類 : 5 (3相、PFC回路付)
- 換算係数 : 0

Japan Voluntary Control Council for Interference (VCCI) Notice

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

VCCI-A

Korea Notice

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

People's Republic of China Notice

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。

Russia Notice

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

Taiwan Notice

警告使用者：

此為甲類資訊技術設備，
於居住環境中使用時，可
能會造成射頻擾動，在此
種情況下，使用者會被要
求採取某些適當的對策。

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

United States Federal Communications Commission (FCC) Notice

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. Proper cables and connectors are available from IBM-authorized dealers. 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.

Responsible Party:
International Business Machines Corporation
New Orchard Road
Armonk, NY 10504
Contact for FCC compliance information only: fccinfo@us.ibm.com

Class B Notices

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

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

Canada Notice

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

European Community and Morocco Notice

This product is in conformity with the protection requirements of Directive 2014/30/EU of the European Parliament and of the Council on the harmonization 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.

German Notice

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

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

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 von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von IBM gesteckt/eingebaut werden.

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

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

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

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Relations Europe, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany

Tel: +49 (0) 800 225 5426
email: HalloIBM@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55032 Klasse B

Japan Electronics and Information Technology Industries Association (JEITA) Notice

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

This statement applies to products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement applies to products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

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

- 回路分類 : 6 (単相、PFC回路付)
- 換算係数 : 0

This statement applies to products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

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

- 回路分類 : 5 (3相、PFC回路付)
- 換算係数 : 0

Japan Voluntary Control Council for Interference (VCCI) Notice

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VCCI-B

Taiwan Notice

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

United States Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by 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.

Responsible Party:

International Business Machines Corporation
New Orchard Road
Armonk, New York 10504
Contact for FCC compliance information only: fccinfo@us.ibm.com

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