Troubleshooting, service, and support using the SDMC

ESCALA Power7

BULL

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The ESCALA Power7 publications concern the following models:

 - Bull Escala E5-700 (Power 750 / 8233-E8B)
 - Bull Escala M6-700 (Power 770 / 9117-MMB)
 - Bull Escala M6-705 (Power 770 / 9117-MMC)
 - Bull Escala M7-700 (Power 780 / 9179-MHB)
 - Bull Escala M7-705 (Power 780 / 9179-MHC)
 - Bull Escala E1-700 (Power 710 / 8231-E2B)
 - Bull Escala E1-705 (Power 710 / 8231-E1C)
 - Bull Escala E2-700 / E2-700T (Power 720 / 8202-E4B)
 - Bull Escala E2-705 / E2-705T (Power 720 / 8202-E4C)
 - Bull Escala E3-700 (Power 730 / 8231-E2B)
 - Bull Escala E3-705 (Power 730 / 8231-E2C)
 - Bull Escala E4-700 / E4-700T (Power 740 / 8205-E6B)
 - Bull Escala E4-705 (Power 740 / 8205-E6C)

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

Hardware

Trademarks and Acknowledgements

We acknowledge the right of proprietors of trademarks mentioned in this book.

Contents

Safety notices

Safety notices may be printed throughout this guide:

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

World Trade safety information

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

German safety information

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

Laser safety information

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

Laser compliance

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

DANGER

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

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

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

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

    (D005)

DANGER

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

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

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

CAUTION

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

(R001)

CAUTION:

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

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

(R002)

(L001)

(L002)

(L003)
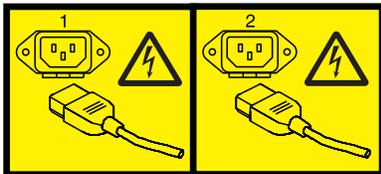
or

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

CAUTION:
This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:
- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

(C026)

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

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

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

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

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

The equipment is suitable for installation in the following:
*   Network telecommunications facilities
*   Locations where the NEC (National Electrical Code) applies

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

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

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

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

Troubleshooting, service, and support using Systems Director Management Console

You can use IBM Systems Director Management Console (SDMC) to perform problem isolation and to repair consoles that are attached to IBM servers.

Related information

➡ SDMC limitations

Systems Director Management Console diagnostics

Learn to use the IBM Systems Director Management Console (SDMC) diagnostics when determining the state or capability of a component found in the SDMC to perform its functions.

If a problem is determined to be in your SDMC, you need to read, understand, and perform the procedures found in this section.

The SDMC problem analysis procedure guides you to the appropriate repair action. Occasionally, you will be directed to the maintenance documentation for the SDMC PC. When this situation occurs, the maintenance documentation for the PC is used to complete the repair action.

SDMC system reference code

System reference codes (SRCs) are the foundation of the SDMC diagnostics.

All SRCs, also know as error codes, that pertain to the function of the SDMC can be found in System reference codes (Cxxx-Hxxx).

SDMC connection error codes are 6 digits in length and begin with a 0. All other SDMC error codes are 8 digits in length and begin with the alphabetic characters HSC. The SDMC error codes are organized in the following categories:

- 0xxxxx connection error codes
- HSCExxxx console event error codes
- HSCFxxxx Licensed Internal Code error codes
- HSCIxxxx inventory scout services error codes
- HSCLxxxx error codes
- HSCPxxxx platform management error codes
- HSCSxxxx Service Focal Point error codes

Equivalent maintenance information for the SDMC PC

Use the information to cross-reference your SDMC equivalent machine type and model number for the PC. You can use the entries in this table to link directly to the PC maintenance documentation.

Table 1. Equivalent maintenance information for the SDMC's PC hardware

SDMC machine type and model number (available on the serial number plate of your SDMC)	Equivalent PC server machine type and model number	Order numbers for supporting hardware maintenance manuals (HMM)
7042-CR6	7944 Model PCH	69y4056

For the latest information regarding maintenance of your SDMC PC, system board specifications, and parts, see the PC hardware maintenance manuals. To obtain the latest versions of these publications through the IBM website, follow this procedure:

1. Go to the IBM website (http://www.ibm.com).
2. Select **Support & downloads**.
3. Go to **Select product or service type for support**, and expand the **Choose support type** box.
4. Select **System** *x* from the menu listing, and click the **Go** icon.
5. On the right side of the menu, locate the **Quick path** box, and type in the equivalent PC server machine type that corresponds to your SDMC machine type, and then click **Go**.
6. Click the **Troubleshooting** tab located on the support menu.
7. In the Available topics box select **Service/Support guide**. Click the **Go** icon.
8. Click the link that appears under**Service/Support guide**.
9. Click the file link number listed under **File link**. The file for the hardware maintenance manual opens.

Diagnostics, test, and recovery

This task describes some of the diagnostic tools available for use on your SDMC hardware related problems.

Choose from one of the following procedures to help in diagnosing a hardware related problem.
- Power-on self-test (POST)
  - POST beep codes
  - Error code format
- Sector disk drive scanning procedure

  To scan your SDMC hard disk drive, perform the following steps:
  1. Power off the SDMC.
  2. Power on the SDMC.
  3. As the SDMC is rebooting, watch the SDMC display. After the second BroadCom Ethernet driver screen is displayed, simultaneously press the "CTRL" key and the letter "A" key.
  4. From the list of options, select **Disk Utilities**.
  5. Select **Verify Disk Media** The SDMC performs a scan of your disk drive.
- PC-Doctor

Note: For additional information about items in the previous list, see the appropriate personal computer hardware maintenance manual. To access the personal computer hardware maintenance documentation, see the "Equivalent maintenance information for the SDMC PC" on page 1.

PC-Doctor

PC-Doctor is a set of diagnostic and system information tools included with the SDMC. In rack-mounted SDMC models, PC-Doctor is preinstalled on the system.

Running PC-Doctor on an SDMC

Notes:
- The SDMC has PC-Doctor preinstalled in read only memory (ROM). The diagnostics are run from ROM, there is no boot media required.
- If you are directed by your service provider, you can obtain and install updated versions of PC-Doctor.
  - The updates for PC model 7*xxx*-CR6 can be obtained from diskette, CD-ROM, or going to site http://www.ibm.com.

To run PC-Doctor on an SDMC:

1. Turn off the power to the SDMC.

2. Turn on the power to the SDMC and press F2 when the message `F2 for Diagnostics` is displayed, press F2.
3. If prompted, type the appropriate password, then press Enter.
4. Select either **Extended** or **Basic** from the top of the screen.
5. From the diagnostic screen, select the test you want to run from the list and then follow all instructions.

Note: For additional information about SDMC diagnostics, go to the diagnostics section in the appropriate personal computer hardware maintenance manual. To access the personal computer hardware maintenance documentation, see "Equivalent maintenance information for the SDMC PC" on page 1.

Removal and replacement procedures

Select and then perform the part removal and replacement procedures for the personal computer on which your IBM Systems Director Management Console (SDMC) is based.

Depending on the system configuration, when you are directed to exchange parts, run tests, or change configuration data, the interface to the servers will be unavailable. If possible, before starting any of these tasks, ensure that all system management tasks are completed and all critical data is backed up.

Attention:
- Removing power from an SDMC might cause loss of data on the disk drives. If power must be removed, select Shutdown from the SDMC user interface. This action shuts down the operating system and turns off the power to the SDMC. See "Powering on and off the Systems Director Management Console and system" on page 14 before proceeding with any of the removal procedures.
- The system board, adapters, memory modules, and processor modules can be damaged by electrostatic discharge. If you are directed to exchange FRUs in an SDMC, see the "Handling Electro-Static Discharge (ESD) Sensitive Devices " in the appropriate PC maintenance information manuals.

When you are referred to the hardware maintenance manual for the personal computer, use the hardware maintenance manual for the appropriate personal computer machine type. To find documentation about the base SDMC personal computer and its components, see "Equivalent maintenance information for the SDMC PC" on page 1

Recovering the SDMC

If the SDMC has had a problem and you must recover the SDMC, reinstall the SDMC interface and appliance code, re-RAID the hard disk, and then restore any critical backup data. To reinstall the SDMC appliance code, see "Reinstalling the Systems Director Management Console appliance code" on page 15.

Attention: This procedure restores the SDMC image onto the disk drive in the SDMC personal computer.

Backing up SDMC data

Ensure that critical data that is stored on the SDMC is also regularly maintained on backup media. The backup file can be stored locally, on USB memory/storage, or on a remote FTP server.

You can also back up the partition profile data of a virtual server managed by SDMC. To back up partition profiles, see "Backing up partition profiles" on page 17.

Recovering an SDMC after replacing a disk drive

If you must replace a disk drive, you must recover the SDMC image and restore your stored profile data. Go to "Reinstalling the Systems Director Management Console appliance code" on page 15 for more information.

Performing the firmware (BIOS/VPD) update procedure

After you replace the system board, perform the firmware update procedure for your SDMC PC.

Attention: See the information label located inside the system unit cover for any model-specific information.

To perform the firmware (BIOS/VPD) update procedure, perform the following steps:

1. To find documentation about the base SDMC personal computer and its components, see "Equivalent maintenance information for the SDMC PC" on page 1.
2. Review the section in your SDMC personal computer information for "Updating the firmware."
3. Perform the procedures to update the new system board with the latest BIOS firmware.
4. Perform the procedures to update the vital product data (VPD) information with the machine type, model, and serial number for the SDMC.
5. Return the SDMC to normal operations.

Related information

"Updating the Systems Director Management Console" on page 40
To install updates on IBM Systems Director Management Console (SDMC), click **Update IBM Systems Director Management Console** link at the top of the welcome page to download and install updates from IBM Fix Central. If SDMC is not connected to the Internet, you can copy the update files manually to your management server, and then import and install the updates by using the SDMC web interface.

7042-CR6 system parts

Learn about part descriptions and part numbers that are used when ordering replacement parts for your IBM Systems Director Management Console (SDMC).

PC parts

Learn about part number information for parts used in assembling your SDMC.

Note: FRU parts and part numbers are subject to update due to our parts system substitution-update policy. With our parts system substitution-update policy we make every effort to supply you with the latest components available for your model SDMC.

The following table contains a cross-reference equivalent of the SDMC machine type and model number to the personal computer machine type and model number. For personal computer parts information not listed in the following tables, see the hardware maintenance manual for your personal computer.

Table 2. Equivalent maintenance information for the SDMC's personal computer hardware

SDMC machine type and model number (available on the serial number plate of your SDMC)	Equivalent PC server machine type and model number	Order numbers for supporting Hardware Maintenance Manuals (HMM)
7042-CR6	7944 Model PCH	69y4056

For the latest information regarding maintenance of your SDMC PC, system board specifications, and parts, see the PC hardware maintenance manuals. To obtain the latest versions of these publications through the IBM site, follow this procedure:

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4. Select **System** *x* from the menu listing, and then select the **Go** icon.
5. On the right side of the menu, locate the "Quick path" box and type in the PC model that corresponds to your SDMC, then select **Go**.
6. Select the **Troubleshooting** tab, located on the support menu.
7. In the Available topics box select **Service/Support guide**. Then click the **Go** icon.
8. Click on the link that appears below "Service/Support guide".
9. Click on the file link number listed below "File link". The file for the hardware maintenance manual opens.

7042-CR6 parts

Machine type 7042-CR6 uses a personal computer machine type of 7944-PCH for its base configuration. To access the personal computer hardware maintenance manuals, see "PC parts" on page 4.

Note: Each PC hardware maintenance manual might reference more than one machine type in its title. If necessary, to cross-reference to the original PC hardware maintenance manual, make sure that you find the hardware maintenance manual for the PC machine type and model for the SDMC that you are servicing.

The following illustration and table identifies the major components that make up model 7042-CR6.
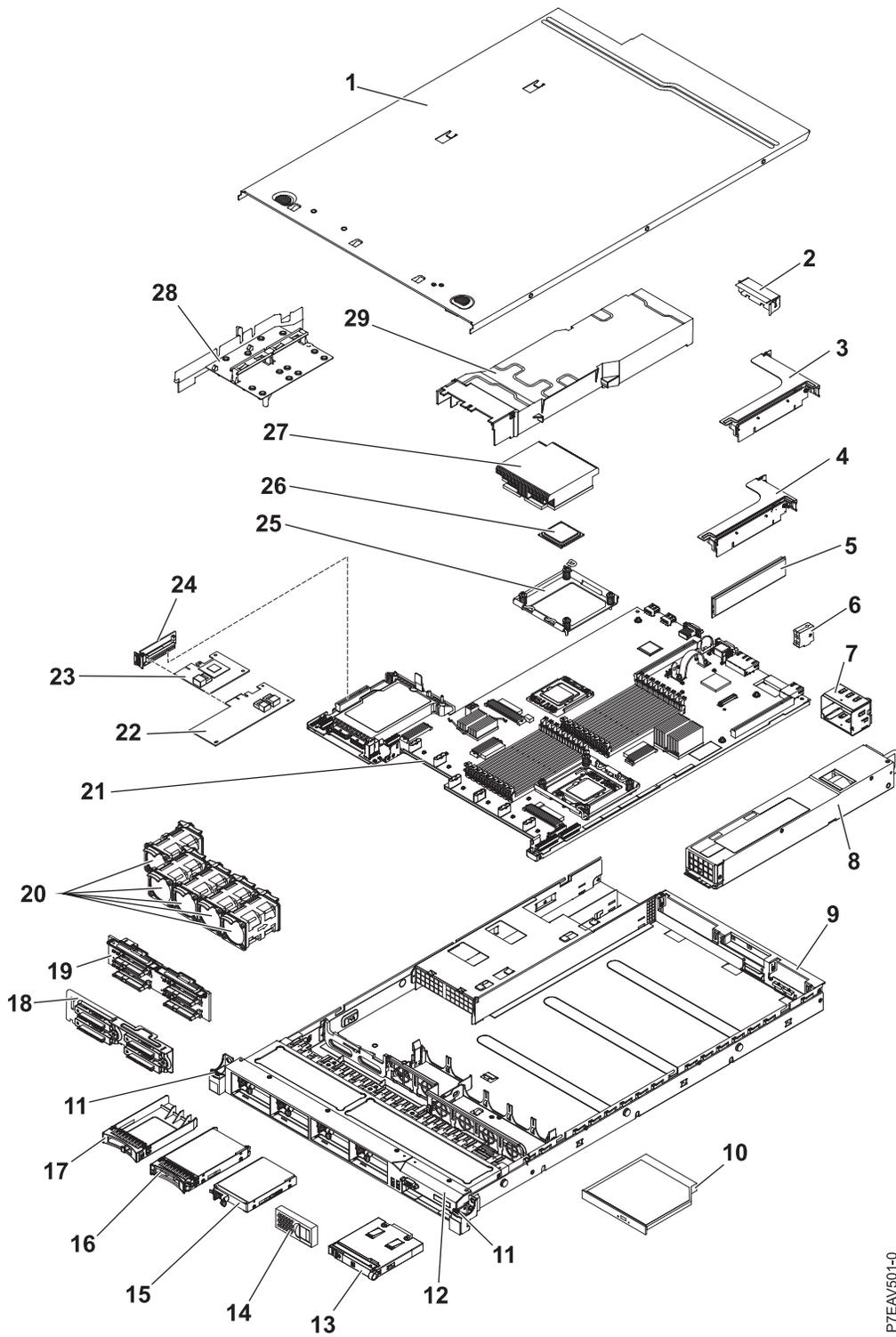
Figure 1. Model 7042-CR6 parts

Notes:

1. Field replaceable units (FRUs) must be serviced only by an authorized service provider.
2. Customer replaceable units (CRUs) can be replaced by the customer. Definitions of tier 1 and tier 2 CRUs for this model SDMC follow:

Tier 1 CRU

A procedure that a customer can perform without input from a service provider. The procedure used to service this type of component is usually required to be done by the customer.

Tier 2 CRU

A procedure that a customer can perform, but might require support from a service provider. The procedure used to service this component is not usually required to be done by the customer.

3. If the part you are replacing is not identified as being either tier 1 or tier 2, call your service provider to service the FRU.

Table 3. 7042-CR6 parts listing

Index	Description	Tier 1 CRU	Tier 2 CRU	Part number
1	Top cover	59Y3927		
2	Filler, PCI	59Y3969		
3	PCI-X riser card assembly		43V7068	
4	PCI Express® riser card, x16, assembly		43V7066	
5	Memory, 2 GB dual-rank DDR3 UDIMM	44T1573		
5	Memory, 4 GB dual-rank DDR3 UDIMM 1.35V	49Y1422		
5	Memory, 2 GB single-rank DDR3-1333 RDIMM	49Y1444		
5	Memory, 2 GB dual-rank DDR3-1333 RDIMM	49Y1443		
5	Memory, 4 GB dual-rank DDR3-1333 RDIMM 1.35V (models C2x and H2x)	49Y1412		
5	Memory, 4 GB dual-rank DDR3-1333 RDIMM (models A2x, B2x, D2x, G2x, F2x, J2x, M2x, and N2x)	49Y1445		
5	Memory, 8 GB dual-rank RDIMM	49Y1446		
5	Memory, 8 GB dual-rank PC3L-10600R-999 RDIMM 1.35V	49Y1415		
5	Memory, 8 GB dual-rank PC3L-8500R-777 RDIMM 1.35V	49Y1416		
5	Memory, 16 GB quad-rank PC3-8500R-777 RDIMM	46C7489		
6	Virtual media key	46C7528		
7	Power supply bay filler (models A2x, B2x, C2x, D2x, G2x, H2x, J2x, M2x, and N2x)	49Y4821		
8	Power supply, 675 Watt, ac	39Y7201		
8	Power supply, 675 Watt, dc			39Y7215
9	Chassis assembly (without front bezel)			59Y3931
10	DVD-ROM drive	44W3254		
10	DVD-RW drive	44W3256		
11	Rack latch kit		49Y4815	
12	Bezel, 8 hard disk bays		59Y3916	
12	Bezel, 4 hard disk and 1 optical drive bays		59Y3917	
13	Operator information panel assembly		44E4372	
14	Filler, hard disk drive bay	59Y3925		
15	Hard disk drive, 2.5-inch simple-swap, 31.4 GB	43W7684		
16	Filler, EMC	44T2248		
17	Hard disk drive, 2.5-inch hot-swap, 73 GB, 10 K	43W7537		

Table 3. 7042-CR6 parts listing (continued)

Index	Description	Tier 1 CRU	Tier 2 CRU	Part number
17	Hard disk drive, 2.5-inch hot-swap, 73 GB, 15 K	43W7546		
17	Hard disk drive, 2.5-inch hot-swap, 146 GB, 10 K	43W7538		
17	Hard disk drive, 2.5-inch hot-swap, 146 GB, 15 K	42D0678		
17	Hard disk drive, 2.5-inch hot-swap, 146 GB, Slim-HS, 15 K	44W2295		
17	Hard disk drive, 2.5-inch hot-swap, 300 GB, 10 K	42D0638		
17	Hard disk drive, 2.5-inch hot-swap, 300 GB, Slim-HS, 10 K	44W2265		
17	Hard disk drive, 2.5-inch hot-swap, 500 GB, 10 K	42D0708		
17	Hard disk drive, 2.5-inch hot-swap, 600 GB, 10 K	49Y2004		
18	Backplate assembly, simple-swap		59Y3919	
19	Backplane, SAS		59Y3915	
20	Fan	43V6929		
21	System board			59Y3793
22	ServeRAID-M1015 adapter (models B2x, C2x, D2x, H2x, and N2x)	46M0861		
23	ServeRAID-BR10il v2 adapter (model A2x)	49Y4737		
24	SAS/SATA riser card	43V7067		
25	Retention module, heat sink			49Y4822
26	Microprocessor, 1.86 GHz 40W			69Y0783
26	Microprocessor, 2.13 GHz 40W (model C2x)			59Y3691
26	Microprocessor, 2.13 GHz 80W (model A2x)			46D1270
26	Microprocessor, 2.26 GHz 80W (model B2x)			69Y0782
26	Microprocessor, 2.26 GHz 60W (model H2x)			49Y7054
26	Microprocessor, 2.40 GHz 80W (model D2x)			49Y7053
26	Microprocessor, 2.53 GHz 80W (model F2x)			49Y7052
26	Microprocessor, 2.66 GHz 80W (model G2x)			49Y7051
26	Microprocessor, 2.66 GHz 95W (model J2x)			49Y7040
26	Microprocessor, 2.93 GHz 95W (model M2x)			49Y7038
26	Microprocessor, 3.33 GHz 130W (model N2x)			69Y0849
27	Heat sink assembly (models A2x, B2x, C2x, D2x, F2x, G2x, H2x, J2x, and M2x)			49Y4820
27	Heat sink assembly, 130W (model N2x)			69Y1207
28	Air baffle kit (Microprocessor air baffle, clamp, and DIMM air duct) (all models)	59Y3914		
29	DIMM air duct	43V7050		

The 7042-CR6 parts that are listed in the following table are not illustrated.

Table 4. 7042-CR6 parts listing (continued)

Description	Tier 1 CRU	Tier 2 CRU	Part number
Cable, hard disk drive configuration		59Y3918	
Cable, operator panel		46C4139	

Table 4. 7042-CR6 parts listing (continued) (continued)

Description	Tier 1 CRU	Tier 2 CRU	Part number
Cable, SAS power		59Y3920	
Cable, SAS signal, 300 mm		49Y4850	
Cable, SAS signal, 450 mm		59Y3921	
Cable, SAS signal, 710 mm		69Y1328	
Cable, SATA DVD		59Y3922	
Cable, USB/video		59Y3923	
Cable, line cord (models A2x, B2x, C2x, D2x, F2x, G2x, H2x, J2x, M2x, and N2x)	39M5377		
Cage, hard disk drive		59Y3968	
Cage, optical drive		59Y3924	
Safety cover			49Y4823
Filler, DVD drive bay	49Y4868		
2-port 1 Gb Ethernet card	69Y4509		
2-port 1 Gb Ethernet card, mechanical kit	69Y4586		
Labels, chassis	59Y3998		
Labels, system service	59Y3926		
Miscellaneous parts kit		69Y4506	
Riser-card bracket: full-height, half-length		43V6936	
Riser-card bracket: low-profile (models J2x and M2x)		43V6939	
Bracket assembly, rear I/O			43V6938
SAS adapter retainer		49Y4852	
ServeRAID-MR10i adapter	43W4297		
ServeRAID-M5015 adapter (models J2x and M2x)	46M0851		
ServeRAID-M5014 adapter (models F2x and G2x)	46M0918		
ServeRAID M5000 advanced feature key	46M0931		
ServeRAID-BR10i adapter	44E8690		
ServeRAID-MR10i battery carrier kit		44E8763	
ServeRAID battery carrier kit		44E8844	
IBM 3Gb SAS HBA v2	44E8701		
NetXtreme II 1000 Express quad port Ethernet adapter	49Y4222		
QLogic 10Gb SFP+ SR optical transceiver	42C1816		
QLogic 10Gb CNA for IBM System x®	42C1802		
Brocade 10Gb SFP+ SR optical transceiver	42C1819		
Brocade 10Gb CNA for IBM System x	42C1822		
Video adapter, NVIDIA FX 1700	43V5765		
Video adapter, NVIDIA FX 570	43V5782		
Video adapter, NVIDIA FX 580	43V5890		
Slide rail kit		59Y3792	
CMA kit	49Y4817		

Table 4. 7042-CR6 parts listing (continued) (continued)

Description	Tier 1 CRU	Tier 2 CRU	Part number
Slide rail kit, Gen-II		69Y4391	
CMA kit, Gen-II	69Y4392		
Screw kit	59Y4922		
Thermal grease kit		41Y9292	
Hypervisor, embedded USB flash device	42D0545		
Alcohol wipes		59P4739	

Keyboard customer replaceable units

The keyboards identified in the following table can be attached to any SDMC.

Notes:
1. All keyboards are considered a Tier 1 customer replaceable unit (CRU).
2. You must have the specific character set designed for each language installed on your SDMC.

Keyboard country and region code	FRU/CRU part number
U.S. English	10N6956
Arabic	10N6984
Belgian/French	89P8302
Belgian/U.K.	10N6969
Bulgarian	10N6972
Brazilian Portuguese	10N6963
Chinese/U.S.	10N6966
Czech	10N6981
Danish	10N6971
Dutch	10N6975
English/EMEA	10N6988
French	10N6957
French Canadian 445	10N6967
French Canadian 58	10N6968
German	10N6959
Greek	10N6977
Hebrew	10N6978
Hungarian	10N6964
Icelandic	89P8317
Italian 141	89P8318
Italian 142	10N6958
Japanese 194	10N6962
Korean	10N6965
LA Spanish	10N6983
Norwegian	10N6974

Keyboard country and region code	FRU/CRU part number
Polish	10N6979
Portuguese	10N6976
Romanian	89P8326
Russian	10N6986
Russian/Cyrillic	89P8328
Serbian/Cyrillic	89P8329
Slovak	10N6980
Spanish	10N6961
Swedish/Finnish	10N6870
Swiss/French/German	10N6973
Thailand	89P8334
Turkish 440	10N6982
Turkish 179	89P8336
U.K. English	10N6960
U.S.	89P8338
Yugoslav/Latin	89P8339

Power cords

The manufacturer provides a power cord with a grounded attachment plug to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

Power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

- For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.
- For units intended to be operated at 230 volts (within the U.S.): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.
- For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.
- The power cords listed in the following table are specifically designed for a country or region and are usually available only in that country or region.

Note: All power cords are considered a Tier 1 CRU.
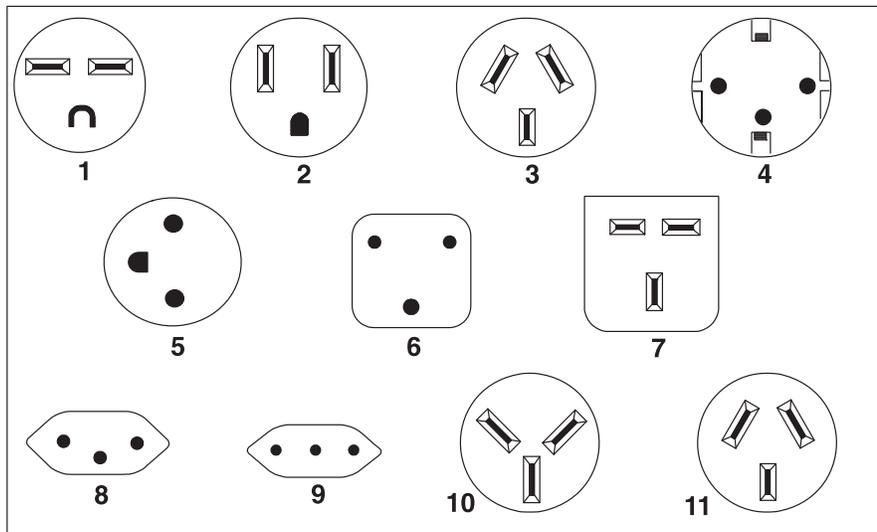
Index	Power cord part number	Used in these countries and regions
1	1838574	Thailand, Bahamas, Barbados, Bolivia, Brazil, Canada, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Netherlands Antilles, Panama, Peru, Philippines, Taiwan, Trinidad (West Indies), Tobago, United States of America, Venezuela
2	6952301	Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Liberia, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Suriname, Taiwan, Trinidad (West Indies), United States of America, Venezuela
3	13F9940	Argentina, Australia, China (PRC), New Zealand, Papua New Guinea, Paraguay, Uruguay, Western Samoa
4	13F9979	Afghanistan, Algeria, Andorra, Angola, Austria, Belgium, Benin, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Rep., Chad, China (Macau S.A.R.), Czech Republic, Egypt, Finland, France, French Guiana, Germany, Greece, Guinea, Hungary, Iceland, Indonesia, Iran, Ivory Coast, Jordan, Lebanon, Luxembourg, Malagasy, Mali, Martinique, Mauritania, Mauritius, Monaco, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Romania, Senegal, Slovakia, Spain, Sudan, Sweden, Syria, Togo, Tunisia, Turkey, former USSR, Vietnam, former Yugoslavia, Zaire, Zimbabwe
5	13F9997	Denmark
6	14F0015	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka
7	14F0033	Antigua, Bahrain, Brunei, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dubai, Fiji, Ghana, India, Iraq, Ireland, Kenya, Kuwait, Malawi, Malaysia, Malta, Nepal, Nigeria, Polynesia, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Kingdom, Yemen, Zambia
8	14F0051	Liechtenstein, Switzerland
9	14F0069	Chile, Ethiopia, Italy, Libya, Somalia
10	14F0087	Israel

Troubleshooting the Systems Director Management Console

Use this information to diagnose and fix any problems that might occur with the IBM Systems Director Management Console (SDMC).

Restoring profile data

Learn how to read the virtual server profile data from the previously backed-up file on the IBM Systems Director Management Console (SDMC), and load this data to the server.

Selecting this menu item restores virtual server profile data to the SDMC from a backup file stored on the SDMC hard disk.

Note: This procedure is not concurrent. When the data is restored, the server powers on to Partition Standby.

To restore stored profile data on the SDMC hard disk, you must be a member of one of the following roles:
- Super administrator
- Service representative

To restore profile data, perform the following steps:
1. In the **Welcome** page, under the **Resource** tab, select the server.
2. Select **Actions** > **System Configuration**> **Managed Virtual Server Data**> **Restore**.
3. From the list of backup files, select the profile information that you want to restore.
4. Select a restore option.
5. Click **OK**.

Correcting a connection problem between the Systems Director Management Console and a server

Learn how to correct a connection problem between the IBM Systems Director Management Console (SDMC) and a server.

Use this procedure in the following situations:
- You have a new SDMC
- You have a new system
- You are using a different SDMC to manage your system.

If your system was previously connected to the same SDMC and is now in *Not Available* state, see "Correcting a *Not Available* state for a server" on page 28.
1. Choose from the following options:
    - If the system uses DHCP addressing, go to step 2.
    - If the system uses static addressing, go to step 6 on page 14.

    Note: To find out if your system uses DHCP or static addressing, perform one of the following steps:
    - Use the ASMI by selecting **Network Services** → **Network Configuration** and viewing whether the IP address field shows *Static* or *Dynamic*.
    - If you have a control panel, use function 30.
2. If your system uses DHCP addressing, add a system automatically by issuing the following command: `smcli mksysconn -o auto`.

    Is the system displayed?

- **Yes**: **This ends the procedure.**
- **No**: Continue with step 3.

3. Check for network problems, cables, switches, link lights on the service processor, and so on.

   Was there a problem?
   - **Yes**: Correct the problem and return to step 2 on page 13.
   - **No**: Continue with step 4.

4. Reset the service processor to force it to request a new IP address. see "Resetting the service processor" on page 30.

5. Did resetting the service processor resolve the problem?
   - **Yes**: **This ends the procedure.**
   - **No**: Contact your next level of support.

6. If your system uses static IP addressing, add a system manually by performing the following steps:
   a. In the **Welcome** page, select **Common tasks** > **System Discovery**.
   b. Enter the IP address of the resource that you need to discover.
   c. Select the resource type.
   d. Click **Discover Now**.

   Can you locate the system using **Find a resource**?
   - **Yes**: **This ends the procedure.**
   - **No**: Contact your next level of support.

Powering on and off the Systems Director Management Console and system

Use one or more of the following procedures to power on or power off your IBM Systems Director Management Console (SDMC) or system.

Powering on the SDMC

During the process of powering on, the SDMC checks to see which servers are available and communicating with the console. To ensure that each server is available before you power on the SDMC, servers must be in standby mode or actively operating. Standby mode is indicated by the OK shown in the operator panel after the server has the power connected and the initial tests are complete.

Note: If the server is in an emergency power off (EPOW) condition, the server must be brought to standby mode before the SDMC can be used to power on the system.

To power on the SDMC, perform the following steps:
1. Press the Power button once to turn on the power.
2. When the system has finished the power-on self-test (POST), log in to the SDMC.

Powering off the SDMC

Attention: If possible, shut down all applications and virtual servers before powering off the system. Using either the power-on button on the control panel or entering commands at the SDMC to stop the system can cause unpredictable results in the data files. Also, the next time you start the system, it might take longer if all applications are not ended before stopping the system.

To power off the SDMC, complete the following steps:
1. In the **Welcome** page, open **Settings**.
2. Under **Restart and Shut Down tasks**, click **Restart IBM Systems Director**. The Restart window opens.

3. Select **Do not perform restart after shutdown**. Click **OK**.

The SDMC shuts down any applications that are running, and then turns off the SDMC.

Power-on self-test

After power is turned on and before the operating system is loaded, the system does a power-on self-test (POST). This test performs checks to ensure that the hardware is functioning correctly before the operating system is loaded. During the POST, codes indicating the progress of the POST might be displayed. After the POST is complete, the SDMC operating appliance code loads and a login prompt is displayed.

Power on a system using an SDMC

To power on a server, complete the following steps:
1. In the contents area, select the server.
2. Select **Actions** > **Operations**> **Power On**.

Power off a system using an SDMC

Attention: If possible, shut down the running virtual servers on the server before powering off the server. Powering off the server without shutting down the virtual servers first causes the virtual servers to shut down abnormally and can cause data loss.
1. In the contents area, select the server.
2. Select **Actions** > **Operations**> **Power Off**. Follow any additional on-screen instructions.
3. Continue with "Remove the power cords."

Install the power cords

Before powering on a system, ensure that the power cords have been plugged in to all of the power supplies on all of the processor enclosures.

Install the cords in the following order:
1. Secondary 2
2. Secondary 3
3. Primary
4. Secondary 1

Remove the power cords

The system might be equipped with a second power supply. Before continuing with this procedure, ensure that all power sources to the system have been completely disconnected.
1. Unplug any power cables that are attached to the unit from electrical outlets.
2. Remove all power cords from all of the processor enclosures starting with the primary processor enclosure (topmost) and then each secondary enclosure working from top to bottom.

Reinstalling the Systems Director Management Console appliance code

Explains how to reinstall the interface and IBM Systems Director Management Console (SDMC). appliance code before restoring critical backup data.

If the SDMC is not responding, you can use the recovery image (Open Virtualization Archive and DVD) to reinstall the SDMC onto the SDMC PC. After you reinstall the SDMC appliance code, configure the SDMC RAID, and then you can restore the backup data that you created to recover your critical console information.

To reinstall the SDMC appliance code, you must be a member of one of the following roles:
- Super administrator
- Operator
- Service representative

To reinstall the SDMC appliance code, perform the following steps:

To install the SDMC interface or appliance code from recovery media, perform the following steps:

1. Insert the first DVD and restart the system. If SDMC is already installed, a prompt displays if you want to erase all existing data on disk.
2. Select **Yes**, and then select the disk on which to install the appliance code.
3. After the first DVD is copied, a prompt displays, **Press Enter to shutdown the system. After the system is powered off, apply power and remove media from the drive to complete the installation.** Follow the instructions. After the system powers down, make sure that you remove the first DVD as soon as you power on the system.
4. Insert the second DVD and press `Enter` when prompted to do so. After the second DVD is copied, the system restarts and prompts the user to configure the keyboard.
5. A wizard displays and prompts for location information.
6. License panels and the Configuration wizard are displayed. Complete the configuration steps.
7. After the configuration is complete, the SDMC appliance restarts. You can now access SDMC either locally, by using the window manager, or remotely, by using a browser.

Configuring Systems Director Management Console RAID

Use this information to configure RAID 0 for an IBM Systems Director Management Console (SDMC).

1. Ensure that both hard disks are of the same type (either SATA or SAS) and are properly installed in the SDMC appliance.
2. Power on the SDMC appliance.
3. During the SDMC appliance restart, press F1 to go to **Setup**.
4. Select **System Settings**.
5. Select **Adapters** and **UEFI Drivers**. If there is only one menu option listed between **Adapters** and **UEFI Drivers**, select the option that is available.
6. On the **LSI Logic MPT Setup utility** window, scroll down and select **LSI Logic Fusion Adapter**.
7. Select **SAS1064E**.
8. Select **RAID Properties**. If the RAID array was previously created, and you intend to restripe, complete the following additional steps. Otherwise, proceed to step 12.
9. Select **Manage Array** and press `Enter`.
10. Select **Delete Array** and press `Enter` > At the prompt, which warns that all the data will be lost, press `Y`.
11. On the **LSI MPT setup utility** window, select **RAID Properties**.
12. Select **Create IS Volume**. This step lists the two hard disks that are installed on the SDMC appliance. If the two hard disks are not listed, check that the hard disks are properly installed on the SDMC appliance.
13. For each hard disk listed, use the arrow keys to select the RAID DISK column and press the space bar to toggle the value. The RAID Disk Column must be set to **Yes**.

14. Press C to create the RAID array.
15. In the **Create and save new array** menu, use the arrow keys to select **Save Changes then exit this menu**, and then press Enter.
16. Press Esc to exit **LSI MPT setup utility**.
17. Press Esc to exit the previous menu.
18. Select **Exit the Configuration Utility and Restart**.
19. When a prompt displays the message, **The action required is stop controller**, enter Yes.
20. Press Esc three times to exit **Setup**.
21. Press Y to exit **Setup** completely.

Backing up partition profiles

Learn how to back up the profile data of a virtual server.

To back up the profile data of a virtual server, you must be a member of one of the following roles:
- Super administrator
- Service representative

To back up the profile data of a virtual server, perform the following steps:
1. In the **Welcome** page, under the **Resource** tab, select the server.
2. Select **Actions** > **System Configuration** → **Manage Virtual Server Data** → **Backup**.
3. Type the name you want to use for this backup file.
4. Click **OK**.

Systems Director Management Console problem analysis

Use this information to diagnose and repair problems that are related to the IBM Systems Director Management Console (SDMC).

DANGER

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

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

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

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

   (D005)

If you were directed here from the Beginning problem analysis procedure because your SDMC is not functioning correctly, continue with the "Entry point for SDMC problem determination" on page 19.

To perform other maintenance tasks on your SDMC, see the following procedures:
- For general maintenance information about the base personal computer that is used to build the SDMC, see "Systems Director Management Console diagnostics" on page 1.
- For instructions to replace an SDMC, see Replacing an SDMC.
- For SDMC parts information, see SDMC parts. Because the personal computer that is used for your SDMC can be serviced by the customer, you are the service provider for your SDMC. To find links to the appropriate personal computer hardware maintenance information, see "Equivalent maintenance information for the SDMC PC" on page 1.
- For removing and replacing SDMC parts, see "Removal and replacement procedures" on page 3.
- For restoring disk drive information about the SDMC, see Reinstalling the SDMC machine code .

Entry point for SDMC problem determination

Find the symptom you are having in the Symptom column of the following table. Then perform the action described in the Action column.

Symptom	Action
Operator reported that the SDMC did not start, but no other problems were reported.	Go to "Beginning SDMC problem determination."
Operator reported "Communication not active" on the SDMC.	Go to "Testing the SDMC Ethernet adapter" on page 22.
Power problems	Go to "Testing for a power problem" on page 21.
SDMC boot problems	Go to "Beginning SDMC problem determination."
Display problem	Go to "Testing the SDMC display" on page 25.
DVD-ROM drive problem	Go to "Testing the SDMC DVD-ROM drive" on page 23.
Ethernet LAN problem	Go to "Testing the SDMC Ethernet adapter" on page 22.
A problem with any of the following devices: • display • DVD-ROM Drive • disk drive • Ethernet LAN	Go to "Performing system unit testing by using PC-Doctor" on page 21.
Eight character error code beginning with *SDMC* was received when using the SDMC graphical user interface.	Go to the "SDMC system reference code" on page 1.
PC-Doctor diagnostic tests detected an error.	For PC hardware maintenance manuals to help isolate the problem to a failing part, see"Equivalent maintenance information for the SDMC PC" on page 1.
Problems understanding the usage of the SDMC.	Go to Managing the Systems Director Management Console.
All other problems (for example: SDMC GUI is unresponsive, parity errors, power, POST codes, blank display, mouse, or keyboard).	Go to "Beginning SDMC problem determination."
Symptoms not in this list.	Go to "Beginning SDMC problem determination."

Beginning SDMC problem determination

Use this procedure to determine if there is a problem with the SDMC hardware. This procedure might direct you to procedures in various sections of this information or to personal computer maintenance information.

Step 1. SDMC problem determination:
1. If the SDMC is running, shut down the console after you exit the graphical user interface. The PC power turns off automatically. If the PC cannot turn off the power, then turn off the power switch.
2. Turn on the SDMC power.
3. Watch the console and allow enough time for the system to complete the POST and load the SDMC appliance code.
4. Watch and listen for the following failing symptoms during power-on:

- POST error condition.
- A series of beeps that indicate an error condition.
- The SDMC login screen and user interface fails to start.
- The system displays a reference code or any other error information.

5. Do you have any of the failing symptoms during power on?
   - **No**: Continue with step 6.
   - **Yes**: Go to the "Equivalent maintenance information for the SDMC PC" on page 1.
6. Perform system unit testing by using PC-Doctor. For details, see "Performing system unit testing by using PC-Doctor" on page 21.
7. Does the PC-Doctor diagnostics diskette start and allow tests to be run on the PC system unit?
   - **No**: Go to "Testing for a power problem" on page 21.
   - **Yes**: Go to "Step 2. SDMC problem determination."

Step 2. SDMC problem determination:

1. Perform system unit testing by using PC-Doctor. For details, see "Performing system unit testing by using PC-Doctor" on page 21. Select **System Unit** → **Run All Selected**.
2. Did the system unit tests detect errors?
   - **No**: Go to "Step 3. SDMC problem determination."
   - **Yes**: Continue with step 3.
3. Use the PC-Doctor diagnostics and the maintenance procedures for the type of PC that you are working on to isolate the failure and exchange customer replaceable units (CRUs). see the publications listed in the "Equivalent maintenance information for the SDMC PC" on page 1.
4. When the problem is repaired, or if the problem cannot be isolated, continue with "Step 4. SDMC problem determination."

Step 3. SDMC problem determination:

Attention: This step requires SDMC support assistance. Contact SDMC support before continuing.

1. If you are directed to reload the SDMC from the recovery DVD and then reload the backup profile and configuration data, see Recovering the SDMC.
2. After reloading the appliance code from the recovery DVD, does the SDMC start correctly?
   - **No**: Contact your next level of support.
   - **Yes**: **This ends the procedure.**

Step 4. SDMC problem determination:

Note: If you reach this step and you have not been able to isolate a failure, contact your next level of support for assistance.

1. Reinstall all CRUs that did not fix the problem.
2. You must have performed a repair action to continue. If you have not already done so, verify the repair. For instructions, see "Performing system unit testing by using PC-Doctor" on page 21.
3. Did the system unit tests run without errors?
   - **No**: To troubleshoot the error, return to "Performing system unit testing by using PC-Doctor" on page 21. Then return here and continue with step 4.
   - **Yes**: Continue with step 4.
4. Does the SDMC communicate with all connected servers?
   - **No**: Go to "Testing the SDMC Ethernet adapter" on page 22.
   - **Yes**: Did you exchange the system board or the system board battery?
     - **No**: **This ends the procedure.**

– **Yes**: Recover the SDMC. For details, see Recovering the SDMC. **This ends the procedure.**

Testing the SDMC

Use these procedures when you are directed to them from the SDMC problem analysis procedure to test the SDMC. If a failure is detected, you are instructed to fix the failing part and then verify the repair.

Testing for a power problem:

To troubleshoot a power problem on the PC, see the service documentation for the PC on which your SDMC is based. For PC hardware maintenance manuals to help isolate the problem to a failing part, see the publications listed in "Equivalent maintenance information for the SDMC PC" on page 1.

Performing diagnostic procedures:

You must have been directed here to test a specific part of the SDMC. For problems in the following areas, see "Performing system unit testing by using PC-Doctor":
- Display
- Keyboard
- Mouse
- DVD-ROM
- DASD (disk drive)
- Memory
- Power
- Run All Selected
- SCSI
- System Port
- 16/4 Port Serial
- Ethernet

To access the SDMC diagnostic information, follow the procedures in "Systems Director Management Console diagnostics" on page 1.

Performing system unit testing by using PC-Doctor:

This section provides information to help you use the PC-Doctor diagnostics. For information about running PC-Doctor, go to "Systems Director Management Console diagnostics" on page 1.

Note: Performing procedures other than those specified in the following steps might cause errors.
1. Start the PC-Doctor diagnostics.
2. From the diagnostic selection display, select either **Diagnostics** or **Interactive Tests** for a list of devices to test:
   - Devices that require manual intervention (keyboard, video, mouse, diskette, optical drive) might be selected from the interactive tests task bar.
   - Devices that do not require manual intervention (processor, system board, I/O ports, hard disks, memory) and predefined test sequences (Run Normal/Quick Test) can be selected from the diagnostic task bar.
3. Select the task containing the device or test and follow the instructions. If you were instructed to **Run All Selected**, continue with that selection.

4. If the diagnostics report a failure on the PC hardware, see the service documentation for the PC on which your SDMC is based. For PC hardware maintenance manuals to help isolate the problem to a failing part, see the publications listed in "Equivalent maintenance information for the SDMC PC" on page 1.
5. If the diagnostics do not report a failure, the SDMC PC hardware is functioning correctly. If you still have a problem, go to "Beginning SDMC problem determination" on page 19.

Testing the SDMC Ethernet adapter:

Use this procedure to test the Ethernet adapter in the SDMC.
1. Is the Ethernet port currently functioning though normal operation of the SDMC?
    - **No**: Go to step 2.
    - **Yes**: **This ends the procedure.**
2. Are the Ethernet configuration values set correctly? (IP address, subnet mask, and so on.)
    - **No**: Set the Ethernet configuration values to their correct settings. Then go back to step 1.
    - **Yes**: Go to step 3.
3. Can the IP address of the SDMC be 'pinged' by another system that is able to 'see' the SDMC on the network?
    - **No**: Go to step 4.
    - **Yes**: Go to step 9.
4. Is the Ethernet cable attached correctly to the SDMC and the network?
    - **No**: Attach the SDMC to the network by using an Ethernet cable with the correct pinout. Then go to step 1.
    - **Yes**: Go to step 5.
5. Is the Ethernet cable the correct pinout? (There are two types of Ethernet cables in use, which are distinguished by different pinouts. The network determines which version of cable to use.)
    - **No**: Replace the Ethernet cable with the correct version. Then go to step 1.
    - **Yes**: Go to step 6.
6. Perform the following steps:
    a. Install the PC-Doctor disk into the media drive of the SDMC.
    b. Shut down and restart the SDMC and wait until the system displays the main menu of PC-Doctor.
    c. To run the Ethernet diagnostics, select **Diagnostics** → **Other Devices** → **Intel Ethernet**.
       Did the diagnostic pass?
        - **No**: Go to step 7.
        - **Yes**: Go to step 9.
7. See the hardware maintenance manual of the Ethernet hardware to determine if there are any internal settings or jumpers that might disable the Ethernet port.
   Are there any internal settings or jumpers?
    - **No**: Go to step 8.
    - **Yes**: Go to step 9.
8. Replace the Ethernet hardware in the SDMC. (This hardware might be a PCI card or system board replacement, depending on the SDMC hardware.) Go to step 1.
9. Set the internal settings/jumpers to enable the Ethernet port on the SDMC. Go to step 1.
   The failure does not seem to be in the SDMC.

Testing the SDMC disk drive:

Learn how to test and run diagnostics on a failing SDMC disk drive

To test for SDMC disk drive problems, complete the following steps:

1. Did the disk drive test fail?
   - **No**: Go to step 5.
   - **Yes**: Continue with the next step.
2. Perform the following steps:
   a. Exchange the CRUs called by the diagnostics one at a time. For CRU removal and replacement instructions, see the PC hardware maintenance manual for the system on which you are working. See "Equivalent maintenance information for the SDMC PC" on page 1 to access the hardware maintenance manual for your SDMC personal computer model.
   b. After each CRU is exchanged, test the repair by using the information in "Performing system unit testing by using PC-Doctor" on page 21. Select **Hard Disk Drive** problem area.

      Did the disk drive test fail?
      - **No**: Continue with the next step.
      - **Yes**: Contact your next level of support.
3. Ensure the following and then continue with the next step:
   - Re-RAID the hard disk.
   - If you exchanged the disk drive and there are jumpers or tab settings on the new disk drive, ensure that the settings are the same as the old disk drive.
   - If there is a SCSI cable-terminating resistor device, ensure that it is secured to the cable and (if necessary) reattached to its original location on the PC.

     Go to "Hard Disk Jumper Settings" in the PC hardware maintenance manual. See "Equivalent maintenance information for the SDMC PC" on page 1 to access the hardware maintenance manual for your SDMC personal computer model.
4. If you exchanged the disk drive, restore the SDMC image to the new disk drive.
5. Use the information in "Performing system unit testing by using PC-Doctor" on page 21 to test the PC. Select **Run All Selected** problem area.
   - If the tests fail, isolate the problem by using the "Beginning SDMC problem determination" on page 19 procedure.
   - If the tests run without errors, turn off the PC power and then turn on the power. Ensure that the system boots and the SDMC screen is displayed. **This ends the procedure.**

Testing the SDMC DVD-ROM drive:

Learn how to test and run diagnostics on a failing DVD-ROM

To test for SDMC DVD-ROM drive problems, complete the following steps:

1. Determine the media in the DVD-ROM drive:
   - Compact Disk Recordable (CD-R) similar to a CD
   - DVD-ROM media

   Is the media a CD-R?
   - **No**: Go to step 4 on page 24.
   - **Yes**: Continue with the next step.
2. Perform the following steps:
   a. Clean the compact disk as follows:
      - Hold the disk by its edges. Do not touch the surface.
      - Remove dust and fingerprints from the surface by wiping from the center to the outside using a dry, soft cloth.
   b. Reinstall the CD, with the label-side facing up.
   c. Continue with the next step.

3. Try again the failing task by using the original media.

   Does the failure occur again?

   - **No**: **This ends the procedure.**
   - **Yes**: Continue with the next step.

4. Perform the following steps:

   a. With the original media in the drive, note the following options:

      - If you are attempting a restore procedure, turn off the PC power.
      - For any other operation, shut down the SDMC, and then turn off the PC power.

        Note: For shutdown procedures, see SDMC and system power on and power off procedures.

   b. Turn on the PC power and test the DVD-ROM drive by using the information in "Performing system unit testing by using PC-Doctor" on page 21.

   c. Select **DVD-ROM Drive** problem area.

   d. When the test is complete, return here and continue with the next step.

5. Did the DVD-ROM test fail while testing with the original media?

   - **No**: **This ends the procedure**.
   - **Yes**: Continue with the next step.

6. Exchange the original media with a new one.

7. Turn off the PC power.

8. Turn on the PC power, and test the DVD-ROM drive with the new media. Use the information in "Performing system unit testing by using PC-Doctor" on page 21 to test the PC. Select **DVD-ROM Drive** problem area.

9. Did the DVD-ROM test fail while testing with the new media?

   - **No**: The original media was defective. **This ends the procedure.**
   - **Yes**: Continue with the next step.

10. Verify the following settings:

    - All DVD-ROM drive data and power cables are secure.
    - The DVD-ROM drive is jumpered as "master" and is cabled to the secondary IDE bus.

11. If the diagnostics continue to fail, exchange the DVD-ROM drive. When complete, run the DVD-ROM test again.

    Note: If there are any jumpers or tab settings on the new drive, ensure that the settings match the old drive.

12. Did the DVD-ROM Drive test continue to fail?

    - **No**: The original DVD-ROM drive was defective. **This ends the procedure.**
    - **Yes**: Continue with the next step.

13. Continue exchanging CRU from the CRU list and running the DVD-ROM drive tests.

    - If the CRUs fix the problem, this ends the procedure.
    - If you cannot isolate the problem, call your next level of support for assistance.

14. The PC resources (for example: interrupt, I/O address) might be configured incorrectly. Verify that the PC resources are correctly configured.

    a. Select **System Unit** for the configuration area, and verify configuration for the system unit and all adapters.

    b. When you complete the verification, try again the failing procedure and continue with the next step.

15. Does the failing procedure continue to fail?

    - **No**: The resource settings were incorrect. **This ends the procedure.**

- **Yes**: If you cannot isolate the problem, contact your next level of support for assistance. **This ends the procedure.**

Testing the SDMC display:

Learn to test and diagnose SDMC display problems.

To test for SDMC display problems, complete the following steps:

1. Is the display type a 95xx (17P, 17X, 21P)?
   - **No**: Continue with the next step.
   - **Yes**: 95xx-xxx repairs might require replacing internal display CRUs.

     Repair and test the display by using the procedures in *Monitor Hardware Maintenance Manual Vol 2*, S41G-3317.
2. Is the display type a 65xx (P70, P200)?
   - **No**: Continue with the next step.
   - **Yes**: 65xx-xxx repairs might require replacing the entire display. There are no internal display CRUs. Repair and test the display by using the procedures in *Monitor Hardware Maintenance Manual Vol 3, P and G series*, S52H-3679.

     When the test and repair are complete, continue with step 5.
3. Is the display type a 65xx (P72, P202)?
   - **No**: Continue with the next step.
   - **Yes**: 65xx-xxx repairs might require replacing the entire display. There are no internal display CRUs. Repair and test the display by using the procedures in *Color Monitor Operating Instructions*.

     When the test and repair are complete, continue with step 5.
4. Repair and test the display by using the documentation included with the display. When the test and repair are complete, continue with step 6.
5. Verify the repair by using the information in "Performing system unit testing by using PC-Doctor" on page 21. Select **System Unit** for the problem area and the **Test for Display**.

   When the test and repair are complete, continue to step 6.
6. Return the system to normal operations. **This ends the procedure.**

Replacing a Systems Director Management Console

Learn about the prerequisites needed and the tasks that must be performed when you replace an IBM Systems Director Management Console (SDMC).

If you are replacing an SDMC that is set up as a DHCP server, you must first reinstall the SDMC code base by using one of the following options:
- The recovery media that was provided with your SDMC.
- The recovery media that you last used to upgrade your SDMC.

You must also reinstall your customized SDMC configuration data by using backup media.

To determine your SDMC version, see Determining your SDMC appliance code version and release and then return here.

These instructions assume that you have created a backup of your SDMC configuration data from the SDMC being replaced.

1. Insert the SDMC recovery media, then power on or reboot the SDMC. The SDMC powers on from the media and displays the **Backup/Upgrade/Restore/Install** window.
2. Select **Install** and click **Next**. Wait for the installation to complete.

3. Select **1 - Install additional software from media** from the menu displayed to install the second SDMC recovery media.

4. Remove the recovery media and insert the second media.

5. Press Enter to start the installation of the second recovery media.

6. After the installation is complete, remove the second recovery media, insert the backup media, and select **1 - Restore Critical Console Data** from the menu to restore data from the backup media. When you are finished, the SDMC is restored to the state that it was in at the time that the backup was created.

7. After the SDMC interface has been restored, verify that your SDMC DHCP private network is configured correctly. For more information, see Verifying that your SDMC DHCP private network is configured correctly.

Verifying that your Systems Director Management Console DHCP private network is configured correctly

Learn how to verify that all of your IBM Systems Director Management Console (SDMC) DHCP private networks are configured correctly.

If your SDMC is configured as a DHCP server on a private network and is not communicating correctly with the server, or you have recently modified your network configuration (moved a server, replaced an SDMC, or added a second SDMC), use the following instructions to determine if your DHCP-managed private network is configured correctly.

Note: If your SDMC is set up as a DHCP server on a private network, do not use the static IP commands smcli discover to change SDMC connection settings. These commands are intended for use on a public network only, where the SDMC is not set up as DHCP server and managed servers use static IP addresses.

If a system administrator previously assigned an IP address to the system through a manually executed static IP command, support must remove the manual connection and establish a DHCP connection between the SDMC and the server. This section describes how to identify any manually assigned IP addresses so that an authorized service provider can remove them.

To identify a manually assigned IP address so that your SDMC can communicate correctly with your servers, you must perform the following high-level tasks. The following are detailed step-by-step task descriptions.

- Identify the configured SDMC IP connection addresses and compare them to the list of IP addresses assigned by the DHCP server.
- Identify the SDMC IP connection addresses that have been correctly assigned through the DHCP server, for which no further action is required.
- Identify any manually configured SDMC IP connection addresses that DHCP did not assign and that need to be corrected by support.

To identify manually assigned IP addresses when the SDMC is configured as a DHCP server, do the following

1. Create a list of all of the configured SDMC IP connections. On the SDMC command line, type the following command:

   ```
   lssysconn -r all
   ```

   This command displays the following information for service processors and Bulk Power Cards (BPCs) on the network for which the SDMC has configured an IP connection:

   ```
   resource type, MTM, physical location code, IP address(es), connection state
   ```

2. Make a note of all IP addresses that are displayed. You will need these addresses later.

3. Display a list of the DHCP IP addresses that have been assigned. To do this, type the following SDMC command:

```
cat /var/lib/dhcp/db/dhcpd.leases
```

   The output of this command lists all IP addresses that have been assigned by the SDMC's DHCP server.

4. Make a note of all IP addresses that are listed in the output.

5. Compare the lssysconn and dhcpd.leases lists. If an IP address is displayed in the output for both the cat /var/lib/dhcp/db/dhcpd.leases and lssysconn -r all commands, the IP address was assigned by the SDMC DHCP server and the connection is being managed by the SDMC DHCP server.

6. Remove from the list any address that is displayed in the output of the cat /var/lib/dhcp/db/dhcpd.leases command but not displayed in the output of the lssysconn -r all command, and is not in the list of servers that use static IP addresses.

   Note: If an IP address is displayed in the cat /var/lib/dhcp/db/dhcpd.leases output and not in the lssysconn -r all output, that IP address was assigned by the SDMC DHCP server. However, it is not a current connection on the SDMC. The DHCP server keeps a history of all IP address assignments in the event that the connection is re-established. The DHCP server might also have assigned an IP address if an unknown device on the private network requested a DHCP IP address from the SDMC.

7. If the SDMC is managing servers on both a private and a public network, any connections to the service processor on the public network (not in the private network address range) must also be identified and removed from this list. If there are no IP addresses remaining in the list that contains the lssysconn -r all output, the SDMC DHCP server has assigned all of the system IP addresses, and the network configuration is working correctly.

8. If there are any IP addresses not removed from the list taken from the lssysconn -r all command, this address was not assigned by the SDMC's DHCP server. These IP address assignments must be corrected, so that they can be automatically reassigned by the SDMC DHCP server. To add a system whose IP address is listed in the dhcpd.leases list, but not in the lssysconn list, type the following SDMC command:

```
mksysconn -o auto
```

If you have followed this procedure and not all of your connections appear to be active, call an authorized service provider for additional support.

Determining your Systems Director Management Console appliance code version and release

The level of appliance code on the IBM Systems Director Management Console (SDMC) determines the available features to upgrading to a new release, including concurrent server firmware maintenance and enhancements.

To determine how to view the SDMC appliance code version and release, complete the following steps:

1. On the SDMC command line, type lsconfig -V.

2. View and record the information that is displayed under the SDMC Code Level heading, including: the SDMC version, release, service pack, build level, and base versions.

Shutting down or logging off the Systems Director Management Console

Learn how to shut down or log off the IBM Systems Director Management Console (SDMC) interface.

Shut down or log off the SDMC interface.

Attention: Only use the white button on the SDMC to perform a manual shutdown if the server does not respond to any tasks performed from the console, such as shutting down the SDMC.

If an operating system is running in a virtual server and you decide to shut down, reboot, or log off the SDMC interface, the operating system continues to run without interruption.

Shutting down the SDMC

To shut down the SDMC, complete the following steps:

1. In the **Welcome** page, open **Settings**.
2. Under **Restart and Shut Down tasks**, click **Restart IBM Systems Director**. The Restart window opens.
3. Select **Do not perform restart after shutdown**. Click **OK**.

Logging off the SDMC

On the **Welcome** page, click **Logout**.

Troubleshooting the managed servers

Learn how to correct a *Not Available*, *Incomplete*, *Recovery*, or *Error* state on a system managed by an IBM Systems Director Management Console (SDMC).

Correcting a *Not Available* state for a server

The *Not Available* state can occur when the SDMC is not connected, or the connection with the server failed.

Use this procedure for a system that was previously connected to the same SDMC and is now in *Not Available* state. If you have a new system, a new SDMC, or have moved your system to a different SDMC, see "Correcting a connection problem between the Systems Director Management Console and a server" on page 13.

1. Obtain the IP address for the server's service processor by performing the following steps.
   a. On the SDMC, right-click the desktop and select **terminal** → **xterm**. The restricted shell command line interface opens.
   b. At the terminal, issue the command: `lssysconn -r all`

      Information similar to the following is displayed:

      ```
      resource_type=sys,type_model_serial_num=8233-E8B*10003FP,sp=unavai
      lable,ipaddr=10.0.0.247,alt_ipaddr=unavailable,state=No Connection,conne
      ction_error_code=Connecting 0000-0000-00000000
      ```
   c. At the terminal, issue the ping command to the address of the failing system. In the previous example, you would type: `ping 10.0.0.247`.
2. Choose from the following options:
   - If the ping *is* successful, go to step 3.
   - If the ping *is not* successful, go to step 4 on page 29.
3. If the ping test *is* successful, perform the following steps:
   a. If your system is equipped with a control panel, ensure that there are no steady (nonscrolling) reference codes displayed on the panel.

      Note: A steady reference code might indicate a hardware problem. Contact your next level of support or your hardware service provider.
   b. Restart the SDMC.

c. If restarting the SDMC does not resolve the problem, contact your next level of support or your hardware service provider.

4. If the ping test *is not* successful, perform the following steps:

   a. If your system is equipped with a control panel, ensure that there are no steady (nonscrolling) reference codes displayed on the panel.

      Note: A steady reference code might indicate a hardware problem. Contact your next level of support or your hardware service provider.

   b. If your system has a control panel, check to see if the power light is on.

   c. Choose from the following options:

      • If there is power to the server, go to step 5.

      • If there is no power to the server, see "Powering on and off the Systems Director Management Console and system" on page 14. After the power is restored, wait 5 minutes for the service processor to restart and the SDMC to re-establish contact. If the system is equipped with redundant service processors, allow up to 20 minutes for this step.

5. Verify physical network connectivity by performing the following steps:

   a. Verify that the SDMC and the service processor are correctly connected to your Ethernet network.

   b. Verify that Ethernet link status is good on all network segments which exist between the SDMC and the server.

   c. If you think the network might be the problem, connect a cable from the SDMC to the service processor and try pinging the failing system. Then choose from the following options:

      • If the ping is successful, replace the cables the way they were and correct the network problem. After the network problem is resolved, repeat this entire procedure.

      • If the ping is not successful, replace the cables the way they were and continue with step 5d.

   d. Reset the service processor. See "Resetting the service processor" on page 30.

6. If the problem is not resolved by any of the above steps, contact your next level of support or your hardware service provider.

Correcting an *Incomplete* state for a server

The *Incomplete* detailed state (operating state shows as *In Error*) can occur when the SDMC failed to get all of the necessary information from the server.

To correct an *Incomplete* detailed state, perform the following steps:

1. In the navigation area, select **Navigate Resources**.

2. In the contents area, select the server.

3. Select **Actions** > **Operations**> **Rebuild server**.

4. Choose from the following options:

   • If the detailed state remains as *Incomplete*, rebuild the managed system several more times.

   • If the detailed state goes to *Recovery*, see "Correcting a Recovery state for a server" on page 30.

   • If the detailed state does *not* remain as *Incomplete* or go to *Recovery*, continue with the next step.

5. Reset the connection from the SDMC. If the connection still fails, continue with the next step.

6. Restart the SDMC. Then choose from the following options (This next step might take several minutes to complete):

   • If the detailed state goes to *Recovery*, see "Correcting a Recovery state for a server" on page 30.

   • If the detailed state remains *Incomplete*, perform the following steps:

      a. Verify that there is a redundant SDMC.

      b. Verify that no one is entering commands from the alternate SDMC.

      c. Repeat step 1 through 6.

7. If the problem persists, contact your next level of support or your hardware service provider.

Correcting a Recovery state for a server

The *Recovery* state can occur when the save area in the service processor assembly is not synchronized with the IBM Systems Director Management Console (SDMC) database.

To recover from the Recovery state, perform the following steps:

1. Recover partition data.
2. If the problem is not resolved after recovering profile data, select one of the following choices:
   - If the state remains in *Recovery*, you can try again recovering the partition data. If it fails a second time, follow the problem determination procedure for any reference codes you receive.
   - If the state changed to *Incomplete*, see "Correcting an *Incomplete* state for a server" on page 29.
   - If the state changed to *No Connection*, see "Correcting a *Not Available* state for a server" on page 28.
   - If the problem persists, contact your next level of support or your hardware service provider.

Correcting an *Error* state for a server

The *Error* operating state (detailed state shows as *Unknown*) automatically generates a call to the service support center if the automatic call support function is enabled and SDMC creates a serviceable event to represent the error.

If the automatic call support function is not enabled, contact your next level of support or your hardware service provider.

Correcting a *Failed Authentication* or *Not Available* state for a server

The *Not Available* operating state (detailed state shows as *Unknown*) can occur when the IBM Systems Director Management Console (SDMC) access password for the server is not valid.

Perform the following procedure to correct a *Not Available* operating state on your SDMC.

Do you have an SDMC access password?
- **Yes**: Enter the SDMC access password and choose from the following options:
  - If the server goes to *Started*, *Stopped*, or *Standby*, the authentication was successful. **This step ends the procedure**.
  - If the server goes to *Unknown*, *Incomplete*, or *Recovery* detailed state, see "Troubleshooting the managed servers" on page 28.
- **No**: Contact the next level of support or the hardware service provider.

Resetting the service processor

Use this procedure to reset the service processor.

Note: Use this procedure *only* under the direction of your next level of support or your hardware service provider. During this procedure, you power off the system, remove and reapply ac power.

1. Inform anyone using the server that it will be shut down.
2. Stop all applications that are running on the server.
3. Stop the operating system and server by choosing from the following options:
   - If you have an SDMC, shut down all virtual servers and the server. For instructions, see "Powering on and off the Systems Director Management Console and system" on page 14. Then continue with step 6 on page 31.
   - If you do not have an SDMC, continue with the next step.
4. Log in to the system as a user with the authority to run the appropriate shutdown command.

5. At the command line, enter one of the following commands:
   - If your system is running the AIX® operating system, type `shutdown`
   - If your system is running the IBM i operating system, type `PWRDWNSYS *IMMED`
   - If your system is running the Linux operating system, type `shutdown -h now`

   These commands stop the operating system. The system power turns off, the power-on light begins to slowly blink, and the system goes into a standby state.
6. Unplug the ac power cord and then plug it back in.
7. Start the server. The service processor is reset. **This ends the procedure.**

Service management

Learn about tasks that are available on IBM Systems Director Management Console (SDMC) for managing the service tasks.

Service and Support Manager (SSM) is part of IBM Systems Director and automatically detects serviceable hardware problems and collects supporting data for serviceable hardware problems that occur on the managed systems. The Electronic Service Agent tool is integrated with the Service and Support Manager and transmits serviceable hardware problems and associated support files to IBM support.

Service and Support Manager includes the following features:
- Automatically detects serviceable hardware problems and send them to IBM support for all monitored systems.
- The integrated Electronic Service Agent tool securely transmits serviceable hardware problems, associated support files, and performance management data to IBM support.
- Collects and securely transmits scheduled system inventory and diagnostic support files to an IBM database. This inventory information is available to IBM support representatives when they troubleshoot an issue.
- Communicates with IBM support using a secure connection using encryption and authentication.

SDMC extends the capabilities of the Service and Support Manager to provide service and support functions on Power systems.

Manually submitting service request using Service and Support Manager

Use the steps in this topic to submit a service request to the IBM service provider. This task reports problems that occurred on your IBM Systems Director Management Console (SDMC) or the server to the service provider (for example, the mouse does not work) or lets you test problem reporting.

By default, Service and Support Manager automatically detects and transmits serviceable hardware problems to the IBM® service provider. However, if you are aware of a serviceable condition on a system that is monitored by Service and Support Manager that you feel requires attention, and you have determined that this condition has not been automatically detected and reported, you can manually open a service request and submit that request to the IBM service provider.

To manually report a problem on your SDMC, perform the following steps:
1. In the navigation area, click **Navigate Resources**.
2. In the contents area, click **Service and Support Groups**. On the **Service and Support Groups** page, click **Monitored Systems**.
3. In the contents area, select the server for which you want to create a serviceable event.
4. Click **Actions** > **Service and Support** > **Submit service request**.
5. Enter a brief description of your problem in the **Problem description** input field, enter the problem details in the **Problem details** input field, and then click **Submit**.

To test problem reporting, perform the following steps:

1. In the navigation area, click **Navigate Resources**.
2. In the contents area, click **Service and Support Groups**. On the **Service and Support Groups** page, click **Monitored Systems**.
3. In the contents area, select the server for which you want to create a test serviceable event.
4. Click **Actions** > **Service and Support** > **Send a Test Service Request to IBM**.
5. Select the option **Run now** or **Schedule**. If you select **Schedule**, enter the values for **Time**, **Date** and **Frequency**. The problems are reported to the service provider for the SDMC. You can set options to notify the user on email about the completion status of the service request job under **Notification**. Also, you can set advanced options for system time, unavailable systems, and maximum job instances in history under **Options**.

Managing serviceable problems by using Service and Support Manager

Use the steps in this topic to view and work with serviceable problems on your monitored systems.

The Problem Reporting area on the main Service and Support Manager page provides a pie chart of all problems currently open on your monitored endpoint systems. To view and work with serviceable problems, complete the following steps:

1. From the main Service and Support Manager page, click **Serviceable Problems** within the **Electronic Services Links** area.

   Tip: The Serviceable Problems link displays a filtered list of only those problems associated with systems that are monitored by Service and Support Manager.

2. Click the problem listed in the **Name** column that you want to work with. This step displays the properties of the selected problem.

Reference Code History

Learn about how to view the reference code history and use that information for general diagnostic, troubleshooting, and debugging of managed servers and virtual servers.

Reference codes provide general diagnostic, troubleshooting, and debugging information.

To view a history of reference codes, complete the following steps:
1.
   a. On the **Welcome** page, under the **Resources** tab, select the server.
   b. Click **Actions** > **Service and Support**> **Reference Code History**.
   c. Enter the number of codes to retrieve from the history in the **View History** field and select **Go**.
   d. To view the details of a specific reference code, select and click the reference code. An explanation of the reference code and the response required to resolve the problem is displayed
   e. Complete the steps listed under **Response** to resolve the problem that is indicated by the reference code.

Control Panel Functions

Learn about how to display the available virtual control panel functions for the managed server.

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Control Panel Functions** > **(20) Type, Model, Feature**.
3. **(20) Type, Model, Feature** displays the machine type, model, and feature code of the managed server. Also displayed are the CEC IPL Type and the FSP IPL Type for the managed server.

Preparing for Hot Repair or Upgrade

Use this task to see a summary of required actions that must be performed in order to isolate a particular hardware component as part of a service procedure.

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **Prepare for Hot Repair or Upgrade**.
3. Select the base location code that contains the field-replaceable unit (FRU) to be serviced or the GX adapter to be replaced.
4. Click **Next**.
5. Select either **Delay the service procedure** or **Continue the service procedure non-concurrently** > click **Next**.
6. Click **OK**.

Exchange FRU

Use this task to exchange one field-replaceable unit (FRU) with another.

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **Exchange FRU**.
3. Select an installed enclosure type from the drop-down list.
4. From the list of FRU types for this enclosure, select a FRU type.
5. Click **Next** to display a list of locations for the FRU type.
6. Select the location code for a specific FRU.
7. Click **Add** to add the FRU location to **Pending Actions**.
8. Click **Launch Procedure** to begin replacing the FRUs listed in **Pending Actions**.
9. Click **Finish** when you have completed the FRU installation.

Power On/Off Unit

Use this task to power on or off an IO unit.

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **Power On/Off Unit**.
3. Select the I/O Unit or PCI slot to either activate or deactivate for this managed server. Only units or slots that reside in a power domain can be powered on or off. The corresponding power on/off buttons will be disabled for location codes that are not controlled by an IBM Systems Director Management Console
4. Click **Power On** or **Power Off** to either activate or deactivate the I/O Unit or PCI slot respectively.
5. Click **Advanced** if you must set advanced power functions. The advanced power functions should be used only under the guidance of your service provider.

MES tasks

Use the tasks to perform guided repair procedures for a managed server.

Adding or removing enclosure

Use this task to install a new enclosure or remove an existing enclosure as part of an upgrade.

To install a new enclosure as part of an upgrade, complete the following steps:

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Add Enclosure**.
3. Select an enclosure type, then click **Add** to add the location code of the selected enclosure type to **Pending Actions**.

4. Select one item from the **Pending Actions** table to enable the **Next** or **Launch Procedure** button. The type of enclosure selected determines which button is enabled, because some enclosures require other location information.
5. Click either **Launch Procedure** or **Next** to begin adding the enclosures identified in **Pending Actions** to the selected system. Select enclosure location codes in **Pending Actions**, then click **Remove** to exclude them from the add enclosure procedure.
6. Click **Finish** when you have completed the enclosure installation process.

To remove an enclosure, complete the following steps:
1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Remove Enclosure**.
3. Select an enclosure type, then click **Add** to add the location code of the selected enclosure type to **Pending Actions**.
4. Select one item from the **Pending Actions** table to enable the **Next** or **Launch Procedure** button. The type of enclosure selected determines which button is enabled, because some enclosures require other location information.
5. Click either **Launch Procedure** or **Next** to begin removing the enclosures identified in **Pending Actions** to the selected system.
6. Click **Finish** when you have completed the enclosure installation process.

Adding or removing FRU

Use this task to install a new field-replaceable unit (FRU) or remove an FRU, as part of an upgrade.

To install a new FRU as part of an upgrade, complete the following steps:
1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Add FRU**.
3. Select an installed enclosure type from the drop-down list.
4. From the list of FRU types for this enclosure, select a FRU type.
5. Click **Next** to display a list of locations for the FRU type.
6. Select the location code for a specific FRU.
7. Click **Add** to add the FRU location to **Pending Actions**.
8. Click **Launch Procedure** to begin adding the FRUs listed in **Pending Actions**.
9. Click **Finish** when you have completed the FRU installation.

To remove an FRU, complete the following steps:
1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Remove FRU**.
3. Select an installed enclosure type from the drop-down list.
4. From the list of FRU types for this enclosure, select a FRU type.
5. Click **Next** to display a list of locations for the FRU type.
6. Select the location code for a specific FRU.
7. Click **Add** to add the FRU location to **Pending Actions**.
8. Click **Launch Procedure** to begin removing the FRUs listed in **Pending Actions**.
9. Click **Finish** when you have completed the FRU removal.

Opening or closing MES

Use this task to open or close a miscellaneous equipment specification (MES) number.

To open an MES number, complete the following steps:

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Open MES**.
3. Click **Add MES Order Number**.
4. Enter the new MES order number.
5. Click **OK** to save the MES order number for later use, or click **Cancel** to end the operation.

To close an MES number, complete the following steps:
1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click **Actions** > **Service and Support** > **Hardware** > **MES Tasks** > **Close MES**.
3. Select an MES order number that you must close > click **Next**.
4. Click **OK** to confirm that you must close the MES order number, or click **Cancel** to end the operation.

FSP Failover

Use this task to enable a secondary service processor if the primary service processor of a managed server fails.

Flexible service processor (FSP) Failover is designed to reduce customer outages due to service processor hardware failures. If a redundant service processor is supported for the current system configuration, select **Setup** to set up FSP Failover for the selected managed server. Select **Initiate** to initiate FSP Failover for the selected managed server.

1. On the **Welcome** page, under the **Resources** tab, select the server.
2. Click**Actions** > **Service and Support** > **Hardware** > **FSP Failover**.
3. Select one of the following options:
   - **Setup** to enable or disable FSP Failover on a managed server with more than one FSP.
   - **Initiate** to initiate FSP Failover control from the primary to secondary FSP for the selected managed server.

Managing support files by using Service and Support Manager

Support files can contain detailed system information used to help diagnose a serviceable hardware problem, dump files collected from an endpoint system, event logs, and more. Use the following tasks to manually collect additional support files, and to submit collected files to IBM support for analysis.

When a serviceable hardware problem occurs on a monitored endpoint system, Service and Support Manager detects the problem and collects hardware problem data from the monitored endpoint system and stores this data in the form of a support file that can later be transmitted to IBM support for diagnostic purposes. Service and Support Manager uses different data collectors depending on the operating system of the endpoint system. All support files are stored in a support file cache on the IBM Systems Director management system.

Note: Service and Support Manager requires either smadmin or smmgr user authority in order to view and manage support files.

Manually collect support files

Support files are collections of system data, dump files, and more that can be used by the IBM service provider for diagnostic purposes.

By default, when Service and Support Manager detects a serviceable hardware problem, it automatically collects additional system information and stores this data as a support file. Electronic Service Agent™ integrated with Service and Support Manager automatically transmits the serviceable hardware problem and the associated support file to the IBM service provider for diagnosis. However, there may be a case where additional support files were not collected because they were too large in size, or are not part of the automated process. You can manually collect a support file from a selected endpoint system, and then

later associate the collected support file with an existing service request, and manually submit the file to the IBM service provider. You can also collect large support files for analysis on your own local system.

Use the following steps to manually collect support files:

1. From the main IBM Systems Director welcome page, select **View support files** under the Service and Support Manager link. Alternatively, you can select **Manage support files** from the main Service and Support Manager summary page.
2. From the **Manage Support Files`** page, click **Collect Support Files**
3. On the **System** tab, select **All Targets** in the **Show** field, select the endpoint system from which you want to collect support files, and click **Add >** to move the endpoint system into the **Selected** field.
4. Click on the Support Files tab and select the type of support file from list of available types:

   Note: The server endpoint determines the list of available support file types.
   - **Dynamic System Analysis (DSA)**: Dynamic System Analysis collects support files from IBM System x® endpoint systems.
   - **Snap**: The **snap** command collects system data on AIX systems and Linux on Power Systems™. The **snap** command gathers system configuration information and compresses the information into a pax file that is then sent to the IBM service provider.

     Note: Some operating systems require additional selection criteria when using the **snap** command. Contact the IBM service provider for more details on which options are appropriate to use in your current environment.
   - **Sosreport**: Monitored systems running Red Hat Enterprise Linux with **sosreport** version 1.7 or newer are eligible for **sosreport** data collection. **Sosreport** runs the **/usr/sbin/sosreport** command on the eligible monitored system, and generates a compressed tarball of debugging information for the system it is run on and stores this information as a support file.
   - **Service log**: Collects data from IBM BladeCenter® servers and chassis by collecting service information from the Advanced Management Module and storing it in a support file.
   - **Resource dump** : Initiates a platform resource dump of the server firmware for a Systems Director Management Console (SDMC) server. A platform resource dump is a non-disruptive dump that you can use to capture server firmware diagnostic data. You can perform a resource dump without the need to shut down the server or any of its partitions, and without the need to open a service connection to the system to recover this data.
   - **System dump**: Initiates a dump of the hardware and server firmware content (platform) for an SDMC server. This task abnormally ends the server and all its partitions.
   - **System controller dump**: Initiates a dump of the service processor. The service processor allows IBM Systems Director to communicate with and control the SDMC server.
   - **Node controller dump**: This option is similar to the system controller dump with the exception that the dump data is generated by a node controller instead of the system controller.
   - **Power subsystem dump**: Initiates a dump of the Bulk Power Control service processor. This task is available only for certain models of SDMC managed systems.
5. Provide any custom information required for the type of support file you selected and click **Collect**.

After collecting a support file, click Refresh to update the list with the latest view of your collected file. To securely transmit this file to the IBM service provider for diagnosis, select the support file and click **Submit to IBM**.

Manually submitting support files to IBM support

Support files are collections of system data, dump files, and more that can be used by IBM support for diagnostic purposes. Use the steps in this topic to manually submit support files:

Service and Support Manager uses data collectors like Dynamic System Analysis on IBM System x systems and the snap command on AIX to collect system information that is stored in a support file and

then sent to IBM support and used for diagnostic purposes. To configure how you want Service and Support Manager to collect support files, navigate to **Manage Settings** under the main Service and Support Manager summary page and work with the **Support Files** settings page.

By default, when Service and Support Manager detects a serviceable hardware problem, it automatically collects additional system information and stores this data as a support file. Electronic Service Agent™ integrated with Service and Support Manager will then automatically transmit the serviceable hardware problem and the associated support file to IBM support for diagnosis. However, you can manually collect a support file from a selected endpoint system, associate this support file with an existing service request, and then manually submit the file to IBM support.

Use the following steps to manually submit support files to IBM support:

1. From the main Service and Support Manager summary page, select **Manage support files**.
2. Select the support file you want to transmit, and click **Submit to IBM**.
3. This action opens a new page that optionally allows you to associate the support file with an available service request. You can choose to associate the support file with an existing service request, or submit the support file without an associated serviceable request.
4. Click **OK** to submit.

Managing Systems call-home

Learn how to enable or disable the call-home state for servers.

Enabling the call-home state for a server causes the console to automatically contact a service center when a serviceable event occurs. When a server is disabled, your service representative is not automatically informed of serviceable events.

To manage call-home for the systems:

1. From the main Service and Support Manager summary page, select **Manage Settings**.
2. From the **Service Agent** page, click **Customize**. To enable the call-home state for specific servers, click **Only report problems for these systems** and to disable the call-home state, click **Do not report problems for these systems**.
3. Click **Browse** to select a system or systems you want to enable or disable the call-home state.
4. Set the values for **Retry interval** and **Number of retries** under **Action to perform when reporting a problem fails**.

   Note: In case you need to report additional data on the management console's server software quality events to your service representative, select **Allow transmission of Systems Director management server software quality event data to IBM** under **Software quality data**.
5. Click **OK** to submit.

Managing Customer Information

Use the Service and Support Manager Service contact page to manage the contact information you have provided to IBM® support. IBM support uses the contact information to know whom to contact in the event of a problem report. You can add a new contact, edit an existing contact, delete a contact, or set a default contact. The default contact is used for all systems for which a specific contact has not been specified.

By default, the Service contact list displays the contact person's name, email, and telephone number, along with the system associated with the contact person.

Note: Service and Support Manager requires either `smadmin` or `smmgr` user authority to view and edit contact information.

Add a new contact

You can add a new contact to the Service contact list.

To add a new contact to the Service contact list, complete the following steps:

1. From the main Service and Support Manager page, click **Manage your system contacts**.
2. On the Service contact list, click **Create contact**.
3. On the Contact page, enter the contact information of the person you want contacted when problem information is reported to IBM® support. Fields marked with an * are required fields that you must complete before you can proceed.
4. On the Systems page, associate the new contact person with an individual system or group of systems. To associate a contact with an individual system or group, complete the following steps:
   a. The Groups list displays the available groups. Select the available systems or groups you want to associate with this contact information.

      Note:
      - Associating contact information with a group of systems associates the contact information with the individual systems in the group, not with the group. Consequently, if you add systems to the group, this contact information is not associated with the new systems.
      - A system can only have one set of contact information associated with it at a time.
   b. To associate the systems or groups with the contact information, click **Add**.
   c. To remove systems or groups from being associated with this contact information, select the system under **Selected** and click **Remove**.
5. To save the contact information and system association, click **OK**.

Edit contact information

You can edit existing contact information in the Service contact list.

To edit existing contact information in the Service contact list, complete the following steps:

1. From the main Service and Support Manager page, click **Manage your system contacts**.
2. On the Service contact list, right-click on the name of the contact whose information you want to edit.
3. Select **Properties**.
4. On the General page, click **Edit**.
5. On the Edit Properties page, edit the contact information. To save the changes, click **OK**.

Edit the systems or groups associated with a contact

You can change the systems in a group that you want to be associated with an existing contact person in the Service contact list.

By associating contact information with a group of systems, you associate the contact information with the individual systems in the group, not with the group.

To edit which individual systems or systems in a group are associated with an existing contact person in the Service contact list, complete the following steps:

1. From the main Service and Support Manager page, click **Manage your system contacts**.
2. On the Service contact list, right-click the name of the contact whose information you want to edit.
3. Select **Properties**.
4. On the **Systems** page, click **Edit**.
5. Optional: The Groups list displays the available groups. To see systems monitored by Service and Support Manager, click **Service and Support Groups** > **Monitored Systems**.
6. Select the available systems or groups you want to associate with this contact information.

Notes:

- Associating contact information with a group of systems associates the contact information with the individual systems in the group, not with the group. Consequently, if you add systems to the group, this contact information is not associated with the new systems.
- A system can only have one set of contact information associated with it at a time.

7. To associate the systems or groups with the contact information, click **Add**.

8. To remove systems or groups from being associated with this contact information, select the system under **Selected** and click **Remove**.

9. To save the changes, click **OK**.

Delete contact information

You can delete a contact person from the Service contact list.

To delete a contact person from the Service contact list, complete the following steps:

1. From the main Service and Support Manager page, click **Manage your system contacts**.

2. On the Service contact list, click **Select** for the contact names you want to delete.

   Note: You cannot delete the contact information of the person designated as the default contact person. If you want to delete the contact information of the current default contact person, you must first designate a different default contact person.

3. Click **Actions** > **Delete**.

4. Click **Delete**.

Set a default contact

You can change the contact person that Service and Support Manager uses as the default contact.

Endpoints that have not been manually associated with a contact person are automatically associated with the default contact person. The default contact person cannot be deleted.

To change the default contact person, complete the following steps:

1. From the main Service and Support Manager page, click **Manage your system contacts**.

2. On the Service contact list, select the name of the contact whose information you want to have used as the default contact.

3. Click **Actions** > **Make Default**.

4. Click **Make Default**.

Authorizing User

Request authorization for Electronic Service Agent. Electronic Service Agent associates your system with an IBM ID and allows access to system information through the Electronic Services website. This registration is also used by your operating system to automate service processes for your AIX or IBM i operation system.

To register a user ID, complete the following steps:

1. From the main Service and Support Manager summary page, select **Manage Settings**.

2. On the **IBM IDs** page, provide a user ID that is registered with the Electronic Service Agent. If you do not have an IBM ID, you can register at http://www.ibm.com/registration. You can designate a user ID as a primary IBM ID and another user ID as a secondary IBM ID.

3. Click **OK**.

Service and Support Manager Getting Started wizard

Learn how to open the Service and Support Manager Getting Started wizard using the IBM Systems Director Management Console (SDMC interface.

To open the Service and Support Manager Getting Started wizard, perform the following steps:

1. From the main IBM Systems Director Welcome page, select **Settings**.
2. From the main Settings page, select **Service and Support Manager Getting Started Wizard**. Follow the instructions in the wizard to configure call-home.

Updating the Systems Director Management Console

To install updates on IBM Systems Director Management Console (SDMC), click **Update IBM Systems Director Management Console** link at the top of the welcome page to download and install updates from IBM Fix Central. If SDMC is not connected to the Internet, you can copy the update files manually to your management server, and then import and install the updates by using the SDMC web interface.

For more information, see Updating the SDMC.

Tip: To protect your system in the event of an unforeseen complication, ensure that you back up your data before performing any update tasks.

Managing Power system firmware

Use this task to manage firmware on Power systems.

For more information, see Managing Power system firmware.

Notices

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Electronic emission notices

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

Class A Notices

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

Federal Communications Commission (FCC) statement

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

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

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

Industry Canada Compliance Statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

European Community Compliance Statement

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

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

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

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

VCCI Statement - Japan

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

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

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

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

高調波ガイドライン適合品

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

高調波ガイドライン準用品

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

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

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

Electromagnetic Interference (EMI) Statement - Taiwan

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

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

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

IBM Taiwan Contact Information:

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

Electromagnetic Interference (EMI) Statement - Korea

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적으로 합니다.

Germany Compliance Statement

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

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

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

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

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

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

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

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

Generelle Informationen:

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

Electromagnetic Interference (EMI) Statement - Russia

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

Class B Notices

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

Federal Communications Commission (FCC) statement

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

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

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

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

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

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

Industry Canada Compliance Statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

European Community Compliance Statement

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

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

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

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高調波ガイドライン準用品

IBM Taiwan Contact Information

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

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

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

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Generelle Informationen:

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

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