

# Problem Analysis



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# ESCALA

## Problem Analysis

**Hardware**

November 2008

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FRANCE

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## Safety and environmental 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.

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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.

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#### Laser compliance

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

#### CAUTION:

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

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

(C026)

#### CAUTION:

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

#### CAUTION:

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

**CAUTION:**

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

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

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

The equipment is suitable for installation in the following:

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

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

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

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

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

**Product recycling and disposal**

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet sites at <http://www.ibm.com/ibm/recycle/us/index.shtml> and <http://www.ibm.com/ibm/environment/products/index.shtml>.

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Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

**Remarque :** Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège.

L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

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In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

### **Battery return program**

This product may contain one or more sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion batteries. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/index.shtml> or contact your local waste disposal facility.

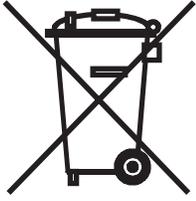
In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

For Taiwan:



Please recycle batteries 廢電池請回收

For the European Union:



**Note:** This mark applies only to countries within the European Union (EU).

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

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This notice is provided in accordance with Royal Decree 106/2008 of Spain: The retail price of batteries, accumulators and power cells includes the cost of the environmental management of their waste.

For California: Perchlorate Material - special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product, part, or both may include a lithium manganese dioxide battery which contains a perchlorate substance.

## **Water cooling systems**

If this product contains a water cooling system, the following paragraph applies: The system contains 0.1% Benzotriazole Aqueous Solution supplied by Sigma Aldrich Corporation. A Safety Data Sheet is supplied with the product, which should be referenced for first aid, handling, personal protection, disposal, and other relevant information. This chemical solution is classified as nonhazardous according to European Union Directive 67/548/EEC; however, it is recommended that eye protection be used when handling the chemical. Observe all federal, provincial, state, local, and other applicable environmental regulations for disposal. Contact a licensed professional waste disposal service to dispose of this material. If an additional copy of the Safety Data Sheet is required, please send the request to [prodinfo@us.ibm.com](mailto:prodinfo@us.ibm.com).



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## Chapter 1. Beginning problem analysis

You can use problem analysis to gather information that helps you determine the nature of a problem encountered on your system.

The problem analysis information is used to:

- Determine if you can resolve the problem yourself.
- Gather sufficient information to communicate with a service provider and quickly determine the service action that needs to be taken.

The method of finding and collecting error information depends on the state of the hardware at the time of the failure. This procedure directs you to one of the following places to find error information:

- Hardware Management Console (HMC) error logs
- The operating system's error log
- The control panel
- Advanced System Management Interface (ASMI) error logs

If you are using this information because of a problem with your HMC, see *Managing the HMC*.

To begin analyzing the problem, complete the following steps:

1.

Are all processor enclosures and I/O enclosures powered on or are you able to power them on?

**Note:** An enclosure is powered on when its green power indicator is on and not blinking.

- **Yes:** Go to step 3 on page 2.
- **No:** Continue with the next step.

---

2.

Ensure that the power supplied to the system is adequate. If your processor enclosures and I/O enclosures are protected by an emergency power off (EPO) circuit, check that the EPO switch is not activated. Verify that all power cables are correctly connected to the electrical outlet. When power is available, the Function/Data display on the control panel is lit. If you have an uninterruptible power supply, verify that the cables are correctly connected to the system, and that it is functioning. Power on all processor and I/O enclosures.

**Note:** An enclosure is powered on when its green power indicator is on and not blinking.

In a single-enclosure server with a redundant service processor, a progress code displays on the control (operator) panel several seconds after ac power is first applied. This progress code remains on the control panel for 1-2 minutes, then the progress code is updated every 20-30 seconds as the system powers on.

Did all enclosures power on?

In a multiple-enclosure server with a redundant service processor, a progress code does not display on the control (operator) panel until 1-2 minutes after ac power is first applied. After the first progress code displays, the progress code is updated every 20-30 seconds as the server powers on.

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

3.

Is the failing hardware managed by an HMC?

- **Yes:** Go to step 10 on page 3.
  - **No:** Refer to the appropriate procedure:
    - If you are having a problem with an AIX or Linux server, go to Chapter 2, “AIX and Linux problem analysis,” on page 7.
    - If you are having a problem with an IBM i server, go to Chapter 3, “IBM i problem analysis,” on page 11.
- 

4.

If an operating system was running at the time of the failure, information about the failure is found in the operating system’s serviceable event view unless the failure prevented the operating system from doing so. If that operating system is no longer running, attempt to reboot it before answering the following question.

Was an operating system running at the time of the failure and is the operating system running now?

- **Yes:** Go to step 9 on page 3.
  - **No:** Continue with the next step.
- 

5.

Details about errors that occur when an operating system is not running or is now not accessible can be found in the control panel or in the Advanced System Management Interface (ASMI).

Do you choose to look for error details using ASMI?

- **Yes:** Go to step 14 on page 5.
  - **No:** Continue with the next step.
- 

6.

At the control panel:

1. Press the increment or decrement button until the number 11 is displayed in the upper-left corner of the display.
2. Press **Enter** to display the contents of function 11.
3. Look in the upper-right corner for a reference code.

Is there a reference code displayed on the control panel in function 11?

- **Yes:** Continue with the next step.
  - **No:** Contact your hardware service provider.
-

7.

The reference code description might provide information or an action that you can take to correct the failure.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the IBM Power Systems Hardware Information Center. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to Troubleshooting, service and support, then select the System reference codes topic.

Was there a reference code description that enabled you to resolve the problem?

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

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

8.

Service is required to resolve the error. Collect as much error data as possible and record it. You and your service provider will develop a corrective action to resolve the problem based on the following guidelines:

- If a field-replaceable unit (FRU) location code is provided in the serviceable event view or control panel, that location should be used to determine which FRU to replace.
- If an isolation procedure is listed for the reference code in the reference code lookup information, include it as a corrective action even if it is not listed in the serviceable event view or control panel.
- If any FRUs are marked for block replacement, replace all FRUs in the block replacement group at the same time.

To find error details:

1. Press **Enter** to display the contents of function 14. If data is available in function 14, the reference code has a FRU list.
2. Record the information in functions 11 through 20 on the control panel.
3. Contact your service provider and report the reference code and other information.

**This ends the procedure.**

---

9.

If you are having a problem with an AIX® or Linux® server, go to Chapter 2, “AIX and Linux problem analysis,” on page 7.

If you are having a problem with an IBM i server, go to Chapter 3, “IBM i problem analysis,” on page 11.

**This ends the procedure.**

---

10.

Is the HMC functional and connected to the hardware?

- **Yes:** Continue with the next step.
  - **No:** Start the HMC and attach it to the server. Then return here and continue with the next step.
-

11.

On HMC that is used to manage the server, complete the following step:

1. In the Navigation Area, click **Service Management** → **Manage Events**. The Manage Serviceable Events - Select Serviceable Events window is shown.
2. In the Event Criteria area, for Serviceable Event Status, select **Open**. For all other criteria, select **ALL**, then click **OK**.

Scroll through the log and verify that there is a problem with the status of Open to correspond with the failure.

Do you find a serviceable event, or an open problem near the time of the failure?

- **Yes:** Continue with the next step.
  - **No:** Contact your hardware service provider.
- 

**Note:** If you are unable to locate the reported problem, and there is more than one open problem near the time of the reported failure, use the earliest problem in the log.

12.

The reference code description might provide information or an action that you can take to correct the failure.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the IBM Power Systems Hardware Information Center. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to Troubleshooting, service and support, then select the System reference codes topic.

Was there a reference code description that enabled you to resolve the problem?

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

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

13.

Service is required to resolve the error. Collect as much error data as possible and record it. You and your service provider will develop a corrective action to resolve the problem based on the following guidelines:

- If a FRU location code is provided in the serviceable event view or control panel, that location should be used to determine which FRU to replace.
- If an isolation procedure is listed for the reference code in the reference code lookup information, include it as a corrective action even if it is not listed in the serviceable event view or control panel.
- If any FRUs are marked for block replacement, replace all FRUs in the block replacement group at the same time.

From the Repair Serviceable Event window, complete the following steps:

1. Record the problem management record (PMR) number for the problem if one is listed.
2. Select the serviceable event from the list.
3. Select Selected and View Details.
4. Record the reference code and FRU list found in the Serviceable Event Details.
5. If a PMH number was found for the problem on the Serviceable Event Overview panel, the problem has already been reported. If there was no PMH number for the problem, contact your service provider.

**This ends the procedure.**

---

14.

On the console connected to the ASMI, complete the following steps . **Note:** If you are unable to locate the reported problem, and there is more than one open problem near the time of the reported failure, use the earliest problem in the log.

1. Log in with a user ID that has general, administrator, or authorized service provider authority level.
2. In the navigation area, expand System Service Aids and click Error/Event Logs. If log entries exist, a list of error and event log entries is displayed in a summary view.
3. Scroll through the log under Serviceable Customer Attention Events and verify that there is a problem to correspond with the failure.

For more detailed information on the ASMI, see Managing the Advanced System Management Interface

Do you find a serviceable event, or an open problem near the time of the failure?

- **Yes:** Continue with the next step.
  - **No:** Contact your hardware service provider.
-

15.

The reference code description might provide information or an action that you can take to correct the failure.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the IBM Power Systems Hardware Information Center. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to Troubleshooting, service and support, then select the System reference codes topic.

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

Was there a reference code description that enabled you to resolve the problem?

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

16.

Service is required to resolve the error. Collect as much error data as possible and record it. You and your service provider will develop a corrective action to resolve the problem based on the following guidelines:

- If a FRU location code is provided in the serviceable event view or control panel, that location should be used to determine which FRU to replace.
- If an isolation procedure is listed for the reference code in the reference code lookup information, include it as a corrective action even if it is not listed in the serviceable event view or control panel.
- If any FRUs are marked for block replacement, replace all FRUs in the block replacement group at the same time.

From the Error Event Log view, complete the following steps:

1. Record the reference code.
2. Select the corresponding check box on the log and click **Show details**.
3. Record the error details.
4. Contact your service provider.

**This ends the procedure.**

---

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## Chapter 2. AIX and Linux problem analysis

You can use this procedure to find information about a problem with your server hardware that is running the AIX or Linux® operating system.

1.

Is the operating system operational?

- **Yes:** Continue with the next step.
  - **No:** Go to Chapter 1, “Beginning problem analysis,” on page 1 to diagnose the problem.
- 

2.

Are any messages (for example, a device is not available or reporting errors) related to this problem displayed on the system console or sent to you in e-mail that provides a reference code?

**Note:** A reference code can be an 8 character system reference code (SRC) or an service request number (SRN) of 5, 6, or 7 characters, with or without a hyphen.

- **Yes:** Continue with the next step.
  - **No:** Go to step 4.
- 

3.

The reference code description might provide information or an action that you can take to correct the failure.

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the *IBM Power Systems Hardware Information Center*. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to *Troubleshooting, service and support*, then select the *System reference codes* topic.

Was there a reference code description that enabled you to resolve the problem?

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

4.

Are you running Linux?

- **Yes:** Continue with the next step.
  - **No:** Go to step 6 on page 8.
-

5.

To locate the error information in a system or logical partition running the Linux operating system, complete these steps:

1. Log in as root user.
2. At the command line, type `grep diagela /var/log/platform` and press **Enter**.
3. Look for the most recent entry that contains a reference code.

Continue with step 8.

---

6.

To locate the error information in a system or logical partition running AIX, complete these steps:

1. Log in to the AIX operating system as root user, or use CE login. If you need help, contact the system administrator.
2. Type `diag` to load the diagnostic controller, and display the online diagnostic menus.
3. From the Function selection menu, select **Task selection**.
4. From the Task selection list menu, select **Display previous diagnostic results**.
5. From the Previous diagnostic results menu, select **Display diagnostic log summary**.

Continue with the next step.

---

7.

A display diagnostic log is shown with a time ordered table of events from the error log.

Look in the T column for the most recent entry that has an S entry. Press **Enter** to select the row in the table and then select **Commit**.

The details of this entry from the table are shown; look for the SRN entry near the end of the entry and record the information shown.

Continue with the next step.

```

DISPLAY DIAGNOSTIC LOG                                     802004
[MORE...14]
Error Log Sequence Number:      2279
Error Log Identifier:           BFE4C025
SRC (as an SRN) :              11001510

Description                     Power/Cooling subsystem Unrecovered Error, bypassed
                                with degraded performance. Refer to the system service
                                documentation for more information.

Probable FRUs:
  Priority:  L  FRU: PWRSPLY
  Location:  U7879001.DQD01H1
  Priority:  L  FRU: 80P6510 S/N: YL10C5133034 CCIN: 28EA
  Location:  U7879001.1134CDC-P1-CB
.....
[BOTTOM]

Use Enter to continue.

F3=Cancel      F10=Exit      Enter

```

---

8.

Do you find a serviceable event or an open problem near the time of the failure?

- **Yes:** Continue with the next step.
  - **No:** Contact your hardware service provider.
-

9.

The reference code description might provide information or an action that you can take to correct the failure.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the IBM Power Systems Hardware Information Center. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to Troubleshooting, service and support, then select the System reference codes topic.

Was there a reference code description that enabled you to resolve the problem?

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

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

10.

Service is required to resolve the error. Collect as much error data as possible and record it. You and your service provider will develop a corrective action to resolve the problem based on the following guidelines:

- If a field-replaceable unit (FRU) location code is provided in the serviceable event view or control panel, that location should be used to determine which FRU to replace.
- If an isolation procedure is listed for the reference code in the reference code lookup information, include it as a corrective action even if it is not listed in the serviceable event view or control panel.
- If any FRUs are marked for block replacement, replace all FRUs in the block replacement group at the same time.

From the Error Event Log view, complete the following steps:

1. Record the reference code.
2. Record the error details.
3. Contact your service provider.

**This ends the procedure.**



---

## Chapter 3. IBM i problem analysis

You can use this procedure to find information about a problem with your server hardware that is running the IBM i operating system.

If you experience a problem with your system or logical partition, attempt to gather more information about the problem to either solve it, or to help your next level of support or your hardware service provider to solve it more quickly and accurately.

This procedure refers to the IBM i control language (CL) commands that provide a flexible means of entering commands on the IBM i logical partition or system. You can use CL commands to control most of the IBM i functions by entering them from either the character-based interface or System i™ Navigator. While the CL commands might be unfamiliar at first, they follow a consistent syntax, and IBM i includes many features to help you use them successfully. The CL topic in the IBM Systems Information Center includes a complete CL reference and a CL finder to look up specific CL commands.

### Keep the following in mind while troubleshooting problems:

- Has an external power outage or momentary power loss occurred?
- Has the hardware configuration changed?
- Has system software been added?
- Have any new programs or program updates (including PTFs) been installed recently?

To make sure that your IBM software has been correctly installed, use the Check Product Option (CHKPRDOPT) command.

- Have any system values changed?
- Has any system tuning been done?

After reviewing these considerations, follow these steps:

1.

Is the IBM i operating system up and running?

- **Yes:** Continue with the next step.
  - **No:** Go to Chapter 1, “Beginning problem analysis,” on page 1 to diagnose the problem.
- 

2.

If you have a Hardware Management Console (HMC), ensure you performed the steps in Chapter 1, “Beginning problem analysis,” on page 1, and then return here if you are directed to do so.

**Note:** For details on accessing a 5250 console session on the HMC, see Managing the HMC 5250 console.

---

3.

Are you troubleshooting a problem related to the System i integration with BladeCenter® and System x™ within an internet small computer system interface (iSCSI) environment?

- **Yes:** Refer to the *iSeries® integrated xSeries® solutions troubleshooting* Web site at <http://www-03.ibm.com/servers/eserver/series/integratedxseries/troubleshooting.html>.
-

- **No:** Continue with the next step.
- 

4.

What type of console are you using?

- **Operations Console:** If you are experiencing problems with the Operations Console, see Troubleshooting Operations Console connections.
  - **Twinaxial:** Continue with the next step.
- 

5.

1. Verify that you are signed on with at least service level authority.
2. On the command line of the IBM i session, type `strsst` and press then **Enter**.
3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and then press **Enter**.
4. Select Start a service tool from the System Service Tools (SST) display and then press **Enter**.
5. Select Hardware Service Manager from the Start a Service Tool display and the press **Enter**.
6. Select Work with service action log from the Hardware Service Manager display and then press **Enter**.
7. On the Select Timeframe display, change the From: Date and Time, in the IBM i logical partition's time, to a date and time prior to when you began having the problem.
8. Search for an entry that matches one or more conditions of the problem:
  - Reference code
  - Resource
  - Date/Time
  - Failing item list
9. Select option 2 (Display failing item information) to display the service action log entry.
10. Select option 2 (Display details) to display location information. The information displayed in the date and time fields is the date and time for the first occurrence of the specific reference code for the resource displayed during the time range selected. Record the information.

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

6.

The reference code description might provide information or an action that you can take to correct the failure.

If you are using an electronic version of this topic, click the link to the right and enter the reference code in the field provided. If you are using this document in a hardcopy form, open an electronic version from the *IBM Power Systems Hardware Information DVD* or open an Internet browser and go the IBM Power Systems Hardware Information Center. Once you have an electronic version of the *IBM Power Systems Hardware Information* available, select the server model, then navigate to Troubleshooting, service and support, then select the System reference codes topic.

Was there a reference code description that enabled you to resolve the problem?

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

Go to the Reference code finder and type the reference code in the field provided. Read the reference code description and return here. Do not take any other action at this time.

7.

Does the console show a Main Storage Dump Manager display?

- **Yes:** Go to Copying a dump .
  - **No:** Continue with the next step.
- 

8.

Is the console that was in use when the problem occurred (or any console) operational?

**Note:** The console is operational if a sign-on display or a command line is present. If another console is operational, use it to resolve the problem.

- **Yes:** Continue with the next step.
  - **No:** Choose from the following options:
    - If your console does not show a sign-on display or a menu with a command line, go to Recovering when the console does not show a sign-on display or a menu with a command line.
    - For all other workstations, go to Recovering from a workstation failure.
- 

9.

Is a message related to this problem shown on the console?

- **Yes:** Continue with the next step.
  - **No:** Go to step 14 on page 14.
-

10.

Is this a system operator message?

**Note:** It is a system operator message if the display indicates that the message is in the QSYSOPR message queue. Critical messages can be found in the QSYSMSG message queue. For more information, refer to Create message queue QSYSMSG for severe messages.

- **Yes:** Continue with the next step.
  - **No:** Go to step 12.
- 

11.

Is the system operator message highlighted, or does it have an asterisk (\*) next to it?

- **Yes:** Go to step 21 on page 16.
  - **No:** Go to step 16 on page 15.
- 

12.

Move the cursor to the message line and press F1 (Help). Does the Additional Message Information display appear?

- **Yes:** Continue with the next step.
  - **No:** Go to step 14.
- 

13.

Record the additional message information on the appropriate problem reporting form. For details, see Chapter 4, "Problem reporting form," on page 17.

Follow the recovery instructions on the Additional Message Information display.

Did this solve the problem?

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

14.

To display system operator messages, type `dspmsg qsysopr` on any command line and then press **Enter**.

**Note:** The message monitor in System i Navigator can also inform you when a problem has developed. For details, see Scenario: Message monitor.

Did you find a message that is highlighted or has an asterisk (\*) next to it?

- **Yes:** Go to step 21 on page 16.
  - **No:** Continue with the next step.
-

15.

Did you find a message with a date or time that is at or near the time the problem occurred?

**Note:** Move the cursor to the message line and press F1 (Help) to determine the time a message occurred. If the problem is shown to affect only one console, you might be able to use information from the JOB menu to diagnose and solve the problem. To find this menu, type **GO JOB** and press **Enter** on any command line.

- **Yes:** Continue with the next step.
  - **No:** Go to step 18.
- 

16.

Perform the following steps:

1. Move the cursor to the message line and press F1 (Help) to display additional information about the message.
2. Record the additional message information on the appropriate problem reporting form. For details, see Chapter 4, "Problem reporting form," on page 17.
3. Follow any recovery instructions that are shown.

Did this solve the problem?

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

17.

Did the message information indicate to look for additional messages in the system operator message queue (QSYSOPR)?

- **Yes:** Press F12 (Cancel) to return to the list of messages and look for other related messages. Then return to step 14 on page 14.
  - **No:** Continue with the next step.
- 

18.

Do you know which input/output device is causing the problem?

- **Yes:** Continue with step 20 on page 16.
  - **No:** Continue with the next step.
-

## 19.

If you do not know which input/output device is causing the problem, describe the problems that you have observed by performing the following steps:

1. Type GO USERHELP on any command line and then press **Enter**.
  2. Select option 10 (Save information to help resolve a problem).
  3. Type a brief description of the problem and then press **Enter**. If you specify the default **Y** in the **Enter notes about problem** field, you can enter more text to describe your problem.
  4. Report the problem to your hardware service provider.
- 

## 20.

Perform the following steps:

1. Type ANZPRB on the command line and then press **Enter**. For details, see Using the Analyze Problem (ANZPRB) command.
  2. Contact your next level of support. **This ends the procedure.**
- 

**Note:** To describe your problem in greater detail, see Using the Analyze Problem (ANZPRB) command. This command also can run a test to further isolate the problem.

## 21.

Perform the following steps:

1. Move the cursor to the message line and press F1 (Help) to display additional information about the message.
  2. Press F14, or use the Work with Problem (WRKPRB) command. For details, see Using the Work with Problems (WRKPRB) command.
  3. If this does not solve the problem, see the Symptom and recovery actions.
- 

## 22.

Choose from the following options:

- If there are reference codes appearing on the control panel or the HMC, record them. Then go to the Reference codes to see if there are additional details available for the code you received.
  - If there are no reference codes appearing on the control panel or the HMC, there should be a serviceable event indicated by a message in the problem log. Use the WRKPRB command. For details, see Using the Work with Problems (WRKPRB) command.
-

## Chapter 4. Problem reporting form

Use the problem reporting form to record information about your server that will assist you in problem analysis.

Collect as much information as possible in the tables below, using either the control panel or the Hardware Management Console (HMC) to gather the information.

*Table 1. Customer, system, and problem information*

<b>Customer information and problem description</b>	
Your name	
Telephone number	
IBM customer number, if available	
Date and time that the problem occurred	
Describe the problem	
<b>System Information</b>	
Machine type	
Model	
Serial number	
IPL type	
IPL mode	
<b>Message information</b>	
Message ID	
Message text	
Service request number (SRN)	
In what mode were IBM hardware diagnostics run?	<input type="checkbox"/> Online or <input type="checkbox"/> stand-alone ? <input type="checkbox"/> Service mode or <input type="checkbox"/> concurrent mode?

Go to the HMC or the control panel and indicate whether the following lights are on.

*Table 2. Control panel lights*

<b>Control panel light</b>	<b>Place a check if light is on</b>
Power On	
System Attention	

Go to the HMC or control panel to find and record the values for functions 11 through 20. Use the following grid to record the characters shown on the HMC or Function/Data display.

*Table 3. Function values*

<b>Function</b>	<b>Value</b>
11	_____ ____

Table 3. Function values (continued)

Function	Value
12	----- -- --
13	----- -- --
14	----- -- --
15	----- -- --
16	----- -- --
17	----- -- --
18	----- -- --
19	----- -- --
20 (for control panel users)	----- -- --
20 (for HMC users)	Machine type:  Model:  Processor feature code:  IPL type:

---

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