HP Insight Diagnostics
User Guide

Part Number 390374-004
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Intended audience

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

Contents

HP Insight Diagnostics overview

Introduction

HP Insight Diagnostics is a proactive server management tool, available in both Online and Offline editions. Insight Diagnostics provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

HP Insight Diagnostics Online Edition is a web-based application that captures hardware and operating system configuration information, records critical information for documentation and disaster recovery, and compares historical configurations on the same server or a baseline server. Available in Microsoft® Windows® and Linux versions, Insight Diagnostics helps to ensure proper system operation. Online diagnosis of hard drives and power supplies can be assessed for potential issues under the following conditions:

- Hard drives attached to an HP Smart Array Controller
- Power supplies that are HP common slot power supplies and are deemed "diagnosable" by Power Supply Diagnosis software using specific HP part numbers and HP servers

HP Insight Diagnostics Offline Edition captures system configuration information and provides detailed diagnostic testing capabilities. The Offline Edition provides a comprehensive suite of offline system and component tests, providing in-depth testing of critical hardware components for devices such as processors, memory, and hard drives. During offline testing, the user-installed OS is not running; therefore, software information from the system is not reported. Insight Diagnostics Offline Edition runs when the computer is started from one of the following CDs:

- HP SmartStart CD on HP ProLiant servers
- HP Documentation CD or HP Documentation and Diagnostics CD on HP business PC or HP workstation computers

IMPORTANT: Third-party devices not supported by HP might not be detected by HP Insight Diagnostics.

Key features and benefits

HP Insight Diagnostics simplifies the process of effectively identifying, diagnosing, and isolating hardware issues.

System availability is maintained through the following key features:

- Testing and diagnosing apparent hardware failures
- Documenting system configurations for upgrade planning, standardization, inventory tracking, disaster recovery, and maintenance
- Sending or printing configuration information to another location for more in-depth analysis
- Managing the IML (if the system supports IML)

In addition to system management tools, service tools can resolve system problems quickly. To streamline the service process and resolve problems quickly, you must have the right information available at the time that a service call is placed. This combination of features simplifies the service process and minimizes downtime.

Theory of operation

HP Insight Diagnostics is a useful step in troubleshooting procedures. If a system problem occurs, do the following:

- Check the computer health and status LEDs.
- Use the Insight Diagnostics Survey feature to verify the hardware configuration and firmware versions.
- Use the Insight Diagnostics Offline Edition Test feature to help validate the hardware.
- Use the IML (if supported) to identify system errors.

System requirements

HP Insight Diagnostics Online Edition for Windows® requires the following:

- HP Advanced System Management Driver
- HP System Management Homepage
- HP Server Management Application and Agents
- 512 MB of memory
- 1024x768 graphics controller support

HP Insight Diagnostics Online Edition for Linux requires the following:

- HP System Management Homepage
- HP Server Management Application and Agents
- HP ProLiant Linux Deployment Utility
- 512 MB of memory
- 1024x768 graphics controller support

HP Insight Diagnostics Offline Edition requires the following:

- System support for a bootable CD-ROM
- 512 MB of memory
- 1024x768 graphics controller support

Getting started

Installing the Online Edition

Use the appropriate procedures for your OS environment.

Removing HP Survey Utility

Before installing the HP Insight Diagnostics Online Edition, HP recommends removing the HP Survey Utility. Use the procedures in this section to remove the software.

Removing the HP Survey Utility for Windows®

If installed, remove the HP Survey Utility for Windows® before installing HP Insight Diagnostics Online Edition:

1. Go to **Add or Remove Programs**.
2. Select **Hewlett-Packard Survey Utility**.
3. Click the **Remove** button.

Removing the HP Survey Utility for Linux

If installed, remove the HP Survey Utility for Linux before installing HP Insight Diagnostics Online Edition:

1. Identify which version of the Survey utility is installed. Enter the following command:

   ```
   rpm -qa|grep survey
   ```

2. Remove the Survey utility. Enter the following command:

   ```
   rpm -e survey
   ```

Installing HP Insight Diagnostics for Windows® Online Edition

Installing from the HP ProLiant Support Pack

Install the HP ProLiant Support Pack (PSP) from the HP SmartStart CD. HP Insight Diagnostics for Windows® installs during the PSP installation.

For more information on the PSP, see the *HP ProLiant Support Pack and Deployment Utilities User Guide*.

Installing from the Smart Component

1. Log on to the Windows® server with administrator access rights.
2. Download the Smart Component executable file.
3. Copy the executable file to a temporary directory on the target server.
4. Run the Smart Component executable file to start the HP Diagnostics interactive installation program.

During the installation, the Insight Diagnostics files are copied to the `\hp\hpdiags` folder on the same drive in which Windows® is installed, usually the C: drive.

Installing HP Insight Diagnostics for Linux Online Edition

Installing from the HP ProLiant Support Pack

Install the HP ProLiant Support Pack (PSP) from the HP SmartStart CD. HP Insight Diagnostics for Linux installs during the PSP installation.

For more information on the PSP, see the *HP ProLiant Support Pack and Deployment Utilities User Guide*.

Installing from an RPM file

HP Insight Diagnostics for Linux is available for use with the Linux RPM utility. The following RPM options are available:

- Install
- Query
- Refresh
- Uninstall

To install the Insight Diagnostics for Linux RPM file:

1. Obtain the Insight Diagnostics RPM file.
2. Log in to the target server as root.
3. Enter the following command:

   `rpm -Uvh` <rpmFilename>

   For example:

   `rpm -Uvh hpdiags-3.0.0-46.i386 rpm`

Locating files

During the installation, the HP Insight Diagnostics files are copied to the following directories:

- The HP Insight Diagnostics executable file is copied to the `/opt/hp/hpdiags` directory.
- The startup script that loads the HP Insight Diagnostics Web Daemon is copied to the `/etc/init.d/hpdiags` directory.

Starting the Online Edition

Starting HP Insight Diagnostics for Windows® Online Edition

Starting from the Windows® Start menu

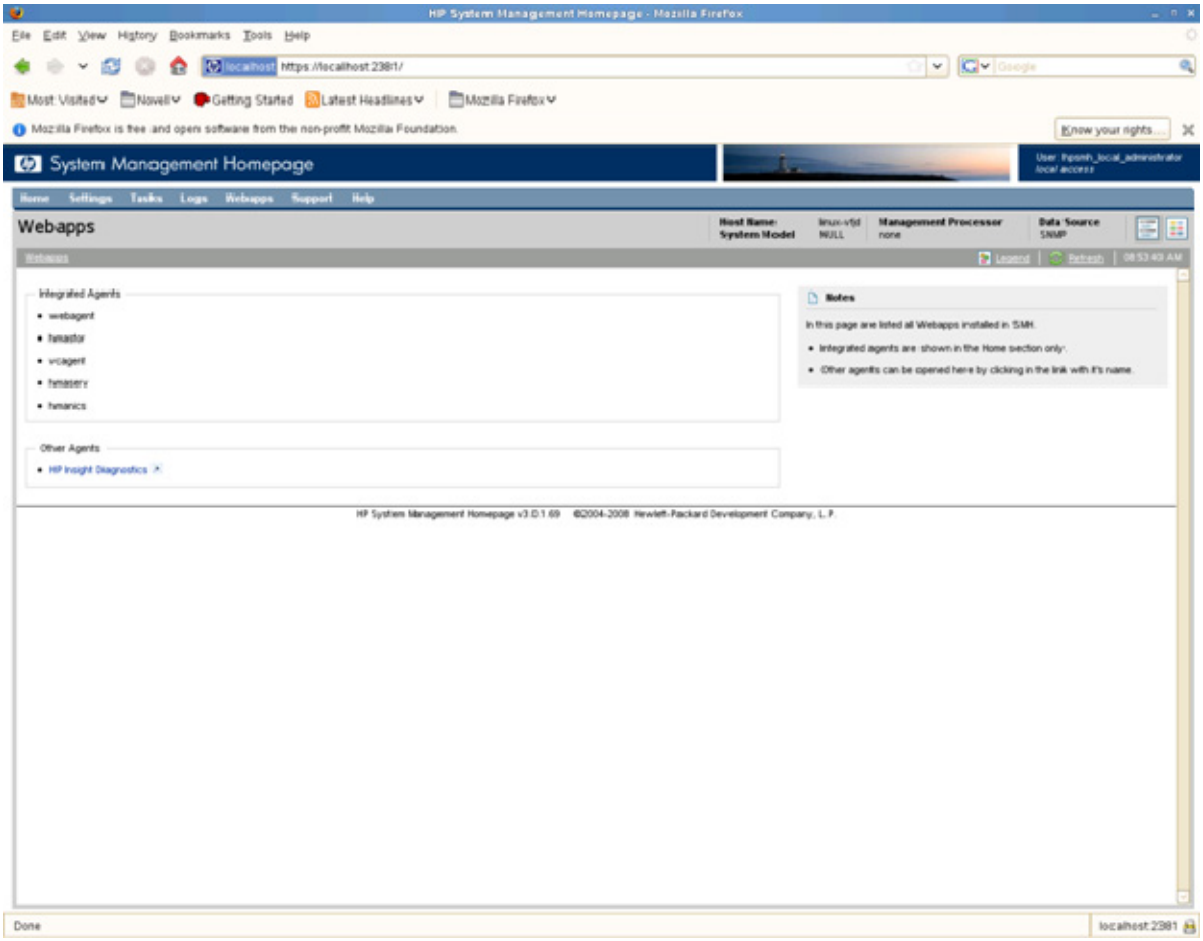
1. Go to **Start>All Programs>HP System Tools>HP Insight Diagnostics Online Edition for Windows**.
2. Select **HP Insight Diagnostics Online Edition for Windows**.

Starting from HP Systems Insight Manager

1. Go to the Device page.
2. Select **HP Insight Diagnostics** from the Device Links box.

Starting from the HP System Management Homepage

1. Click the **HP System Management Homepage** icon on the Windows® desktop.
2. Click the **Webapps** tab.
3. Click the **HP Insight Diagnostics** link in the Other Agents box.

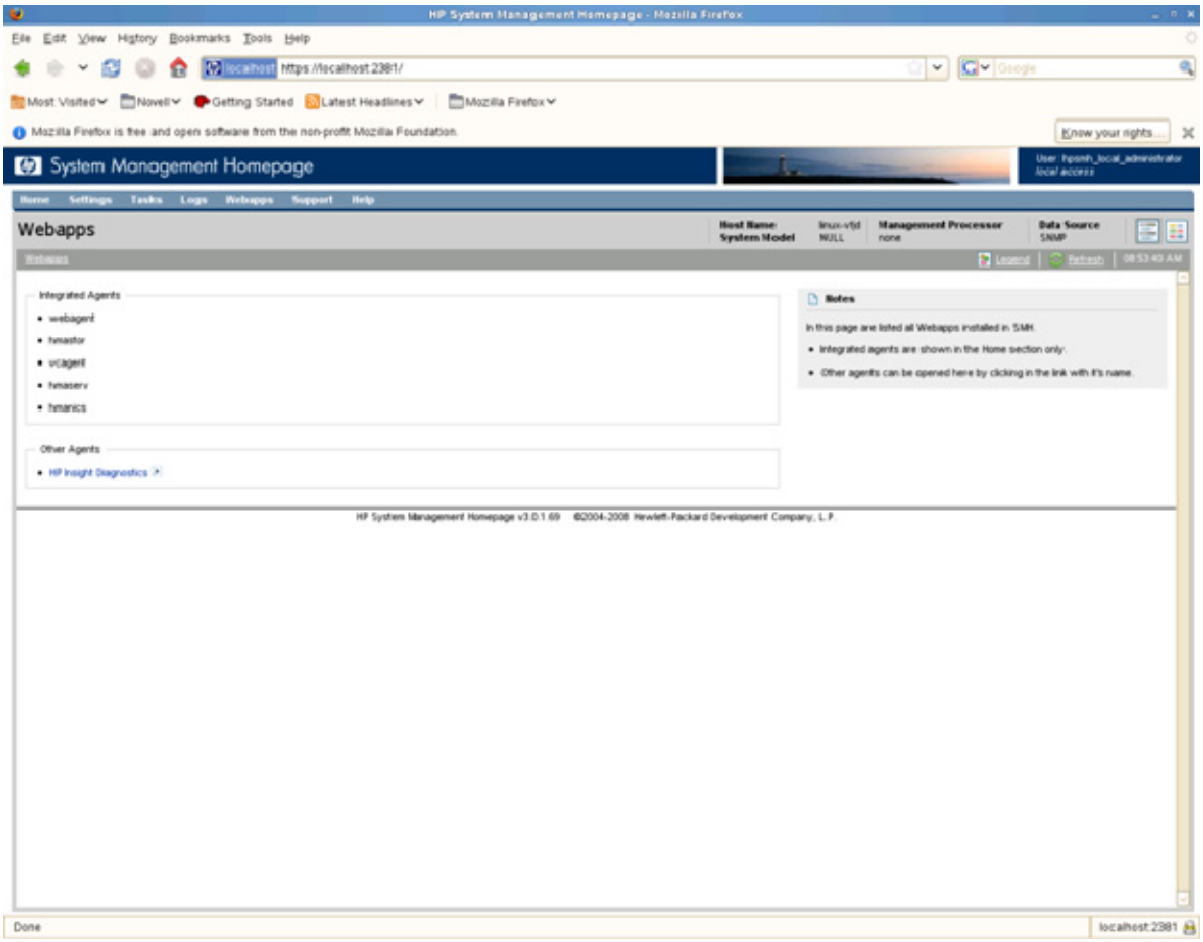


Starting HP Insight Diagnostics for Linux Online Edition from the HP System Management Homepage

1. Open the browser.
2. In the address field, enter the following:

   `https://localhost:2381`
3. Press the **Enter** key. The System Management Homepage appears.
4. Click the **Webapps** tab.

5. Click the **HP Insight Diagnostics** link in the Other Agents box.



Starting the Online Edition from a browser

HP Insight Diagnostics Online Edition enables you to view information from a browser meeting the following requirements:

- Microsoft® Internet Explorer 6.0 or later
- Mozilla 1.5 or later
- Support for TCP/IP
- Support enabled for the following:
  - Accept all cookies
  - Java™
  - JavaScript
  - CSS
  - Tables and frames

To start HP Insight Diagnostics from the browser:

1. Open the browser.
2. In the address field, enter the following:

   `https://localhost:2381/hpdiags/frontend2/frontend.php`

3. Press the **Enter** key.

Modifying browser settings on a Linux server

Both the browser menu bar that displays the address and the menu bar directly below it must be minimized so that the HP Insight Diagnostics screens fit in the browser window correctly.

To minimize the menu bars:

1. Click the down arrow located between the Back and Forward buttons and the address field to minimize the menu bar that displays the address.
2. To minimize the bottom menu bar:
   a. Right-click an open space in the menu bar.
   b. Select **Properties**.
   c. Select the **Auto hide** check box.
   d. Click **Apply**.

Starting the Online Edition from Microsoft Internet Explorer

To log on to the System Management Homepage from Microsoft Internet Explorer:

1. Open the browser.
2. In the address field, enter the following:

   `https://devicename:2381`
3. Press the **Enter** key.

   The Security Alert dialog box appears the first time you navigate to a system without a Certificate Authority Root Certificate.

   The Security Alert dialog box does not display if a Certificate Authority Root Certificate is installed on the browsers to be used for management. If it does display after this is implemented, you might have browsed to the wrong system. For more information about installing the Certificate Authority Root Certificate, refer to the online help in your browser.
4. Click **Yes**. The Login page appears.

   If **Anonymous access** is enabled, the System Management Homepage appears.
5. Enter your user name and password.
6. Click **Login**. The System Management Homepage appears.

Starting the Online Edition from Mozilla

To log in to the System Management Homepage with Mozilla:

1. Open the browser.
2. In the address field, enter the following:

   `https://devicename:2381`

   The first time you navigate to this link, the **Website Certified by an Unknown Authority** dialog box appears.
3. Click the **OK** button. The Login page appears.

   If **Anonymous access** is enabled, the System Management Homepage appears.
4. Enter your user name and password.

5. Click **Login**. The System Management Homepage appears.

Using the Online Edition from a command line

To list the command line options, enter the following commands:

```
    cd opt\hp\hpdiags
hpdiags -?
```

The optional command line parameters are listed in the following table.

Parameter	Description
-l<LanguageCode>	Language Code options: • en (for English, the default language) • de (for German) • es (for Spanish) • fr (for French) • it (for Italian) • ja (for Japanese)
-v <Level>	Verbosity of output where Level is an integer between 1 and 5. Level 1 is the most filtered and Level 5 is the most verbose. The default is Level 3.
-s "mmhhddMMDD"	Schedule automatic execution. mm=minute (0-59), hh=hour (0-23), dd=day (1-31), MM=month (1-12), DD=day of week (0-6). All fields must be two digits (02 instead of 2). Use a single asterisk (*) for any value. If you use an asterisk, you must quote the date/time value (-s "0023***"). If no asterisk is used, the quotes are optional. This command adds an entry to your crontab, for Linux-based systems, or the Windows Scheduled Tasks list, for Windows-based systems. For more Information on crontab, enter `man crontab` at a Linux command prompt.
-u	Unschedule of HP Insight Diagnostics running. This command removes all entries that refer to HP Insight Diagnostics in your crontab. For a Windows system, this command removes the entries in the Windows Scheduled Tasks list.
-c <File1> <File2>	Compare a file to the current output, or if two files are specified, compare the files without generating a new report.
-t	Run a new Survey snapshot and output to the terminal. This option is ignored if -o is not specified.
-p	Survey captures and comparisons can be to a file as plain text. The default is XML format.
-o <File1>	Run a new survey snapshot and output to a file. The default is formed using the current date in this format: surveyCCYY-MM-DD-HH-mm-ss.xml (CC=century, YY=year, MM=month, DD=day, HH=hour, mm=minute, and ss=second). -t and -o cannot be used together.
-f	Overwrite the output file if it already exists. If the -o parameter is not specified this option is ignored.

Parameter	Description
`-a`	Append the output to an existing output file. If no -o option is specified, this option is ignored. To avoid XML parsing errors, use this option with the plain text (-p).
`-rd`	Run a diagnosis of all diagnosable devices. The test results are posted to the Diagnosis Log (diagnosislog.xml).
`-? , -h`	Display help.

Using Insight Diagnostics Commands in Linux

To use the command line switches in Linux:

1. Open a Terminal window if necessary.
2. Change to the `/opt/hp/hpdiags` directory.
3. Enter the command with the preferred switch.

See the following examples:

- To capture Survey configuration information, and then send the XML file to a terminal, enter either of the following commands:
  - `# ./hpdiags -t`
  - `# /opt/hp/hpdiags/hpdiags -t`

  For example, if, every Monday at 5:00 AM, you want Insight Diagnostics to compare the original Survey configuration file to the current Survey configuration, and then save the result to a remote file in plain-text format, type the following command:

  ```
  # ./hpdiags -s "0005**01" -c surveybase.xml -p -o
  /mnt/remoteserver/surveycompare.txt
  ```

- To verify the System Management Homepage status on a Linux server, enter the following command:

  ```
  /etc/init.d/hpsmhd status
  ```

Starting the Offline Edition

Starting from an HP SmartStart CD

On an HP ProLiant server, start HP Insight Diagnostics Offline Edition from the HP SmartStart CD:

1. Insert the HP SmartStart CD into the optical drive.
2. Shut down the operating system, and then power off the server.
3. Power on the server. The system boots from the SmartStart CD.

   If the system does not boot to the CD in the optical drive, you might need to change the boot order in the Computer Setup (F10) utility so that the system boots to the optical drive before booting to the hard drive. For more information, see the *Computer Setup (F10) Utility Guide* on the Documentation CD.

Starting from an HP Documentation CD

On an HP business PC or HP workstation, start HP Insight Diagnostics Offline Edition from either the HP Documentation CD or the HP Documentation and Diagnostics CD:

1. Insert the CD into the optical drive.
2. Shut down the operating system, and power off the computer.
3. Power on the computer. The system boots to the CD.

   If the system does not boot to the CD in the optical drive, you might need to change the boot order in the Computer Setup (F10) utility so that the system boots to the optical drive before booting to the hard drive. For more information, see the *Computer Setup (F10) Utility Guide* on the Documentation CD.
4. Do one of the following:
   - To operate in Safe mode, press the **Y** key.
   - To operate in Regular mode, press any other key.

     Regular mode is the default mode if a key is not pressed within the specified time. If the screen remains blank after booting into Regular mode, reboot the server and press the **Y** key to boot into Safe mode.
5. Select the appropriate language, and then click **Continue**.
6. Click the **Agree** button at the End User License Agreement.

Using HP Insight Diagnostics

HP Insight Diagnostics contains the following primary tabs:

- Survey
- Diagnose
- Test (available in Offline Edition only)
- Status
- Log
- Help

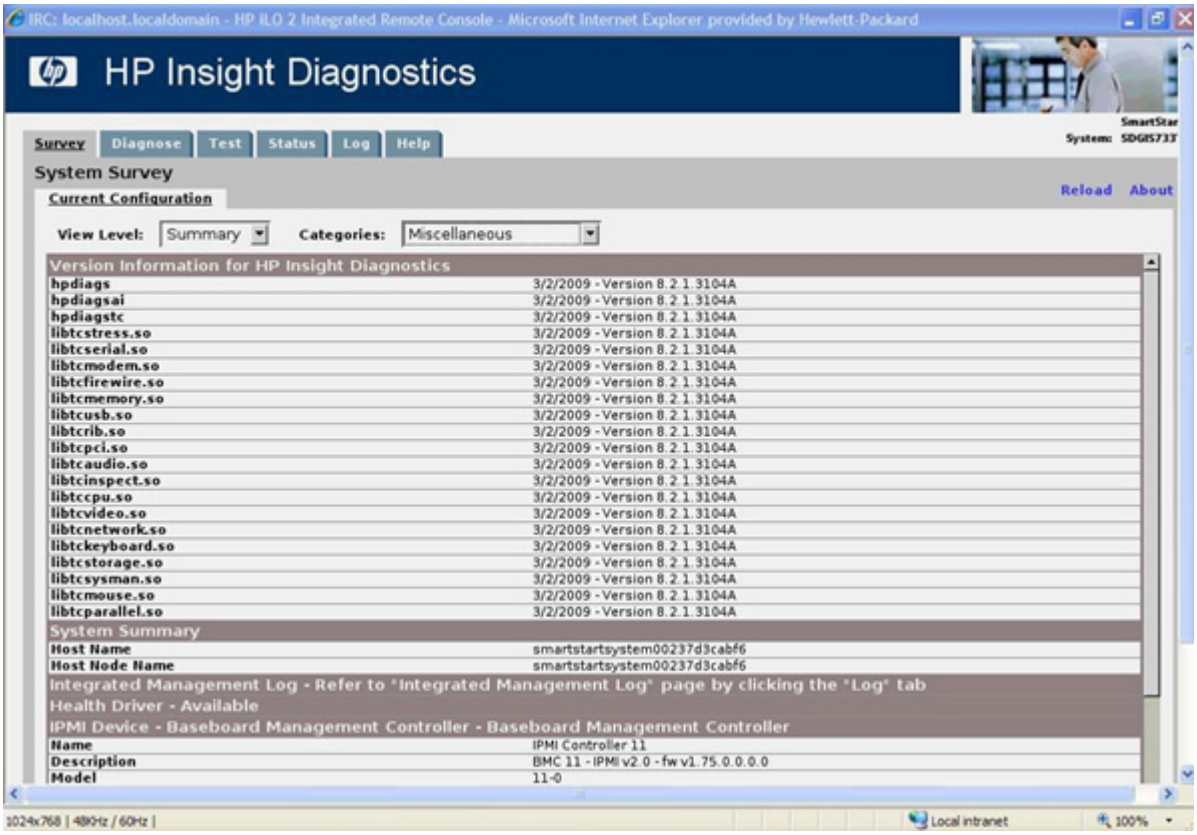
Using the Survey tab

The HP Insight Diagnostics Survey feature displays system configuration information on the Survey tab.

When Insight Diagnostics starts, summary information for the Overview category appears. To view configuration details for a different subject:

1. Select the configuration details to view from the **View Level** list:
   - Select **Summary** to view summary configuration information.
   - Select **Advanced** to view detailed configuration information.
2. Select the subject to view from the **Categories** list:
   - **All** displays all information about the system and subsystems.
   - **Overview** displays general information about the system.
   - **Architecture** displays the type of bus the system uses, the BIOS, and PCI-related information.
   - **Asset Control** displays the product name, serial number, asset tag, and processor information (system identification number).
   - **Communication** displays information about the system parallel (LPT) port, serial (COM) port, USB, and network interface controller.
   - **Graphics** displays information about the graphics subsystem, including the graphics card, graphics mode, ROM, and video memory.
   - **Input Devices** displays information about the type of keyboard, mouse, and other input devices connected to the computer.
   - **Internal Conditions** (if supported on system) displays information about the health of the computer, including the fan, temperature, power supply, and health LED information.
   - **Memory** displays detailed information about system memory.
   - **Remote Management** (if supported on system) displays information about iLO and RILOE II cards.
   - **Miscellaneous** displays information obtained from CMOS, BIOS data area, Interrupt Vector table, TPM, and diagnostics component information.

- **Resources** displays information about the system resources, real-time clock, and operating system settings for certain settings, such as I/O and IRQs.
- **Operating System** displays information on the OS.
- **Storage** displays information about the storage controllers and storage media connected to the system, including hard drives, diskette drives, and optical drives. It also shows logical volume information for all connected hard drives.
- **System** displays information about the system ROM, product type, processor type and speed, and coprocessor.



Scheduling a survey

1. Click the **Schedule Captures** button.
2. Choose either Weekly or Monthly for the capture frequency.
3. Select the day of the week/day of the month for the capture.
4. Select the time for the capture.
5. Click **OK**.

Saving Survey configuration information

1. Click the **Save** button to save the configuration information. The saved information is for the current view and category on the Survey tab.
2. Save the configuration file to a USB storage device:
   a. Click the **USB flash drive** radio button to save the file to the USB device. If a USB storage device is not attached to the system, the USB flash drive radio button does not appear.

b. If you attach a USB storage device after clicking the Save button, click the **Rescan for devices** button to detect the attached USB storage device.

c. Enter the file name in the **File Name** box.

3. Click the **Save** button.

The file is saved in HTML format and can be viewed by any standard Web browser.

To get an XML formatted Survey report, copy the session file from the `\hpdiags` directory. Survey session files are named using the format: SurveyDATE.xml, where DATE is the date and time the sessions were captured. A Save button, under Manage System Configurations, saves a copy of the Survey XML file.

Deleting a Survey session

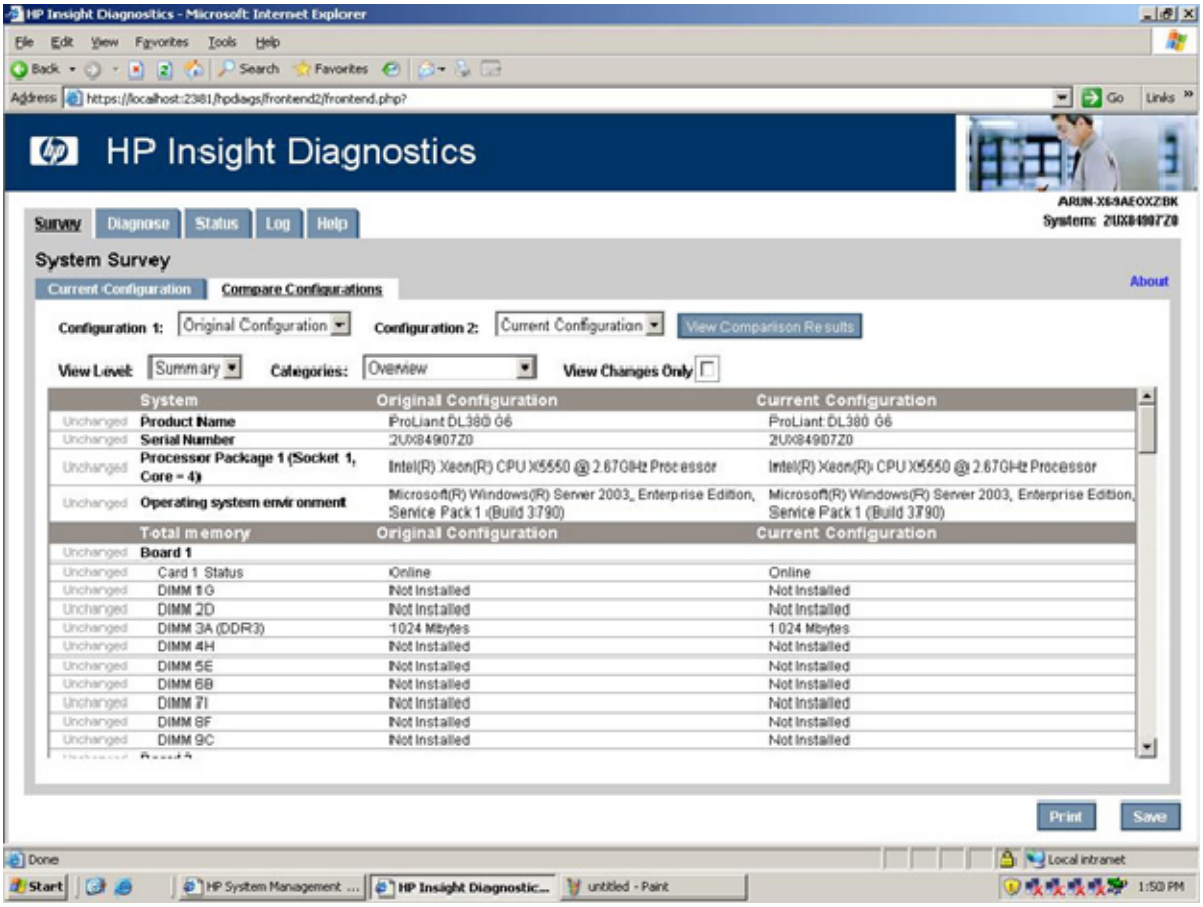
1. Select **Manage Configurations**.
2. Check the sessions to delete.
3. Click the **Delete** button.

Comparing configurations

1. Click the **Compare System Configuration** tab.
2. Select a Survey session from the Configuration 1 list.
3. Select a Survey session from the Configuration 2 list.
4. Click the **View Changes Only** checkbox to display the differences only.
5. Select the configuration details to view from the **View Level** list:
   - Select **Summary** to view summary configuration information.
   - Select **Advanced** to view detailed configuration information.
6. Select the subject to view from the **Categories** list:
   - **All** displays all information about the system and subsystems.
   - **Overview** displays general information about the system.
   - **Architecture** displays the type of bus the system uses, the BIOS, and PCI-related information.
   - **Asset Control** displays the product name, serial number, asset tag, and processor information (system identification number).
   - **Communication** displays information about the system parallel (LPT) port, serial (COM) port, USB, and network interface controller.
   - **Graphics** displays information about the graphics subsystem, including the graphics card, graphics mode, ROM, and video memory.
   - **Input Devices** displays information about the type of keyboard, mouse, and other input devices connected to the computer.
   - **Internal Conditions** (if supported on system) displays information about the health of the computer, including the fan, temperature, power supply, and health LED information.
   - **Memory** displays detailed information about system memory.
   - **Remote Management** (if supported on system) displays information about iLO and RILOE II cards.
   - **Miscellaneous** displays information obtained from CMOS, BIOS data area, Interrupt Vector table, TPM, and diagnostics component information.

- **Resources** displays information about the system resources, real-time clock, and operating system settings for certain settings, such as I/O and IRQs.
- **Operating System** displays information on the OS.
- **Storage** displays information about the storage controllers and storage media connected to the system, including hard drives, diskette drives, and optical drives. It also shows logical volume information for all connected hard drives.
- **System** displays information about the system ROM, product type, processor type and speed, and coprocessor.

7. Click the **View Comparison Results** button.
8. Click the **Current Configuration** tab to return to the current configuration information.
9. Click the **Print** button to print the configuration comparison details.
10. Click the **Save** button to save the configuration comparison details to a file.



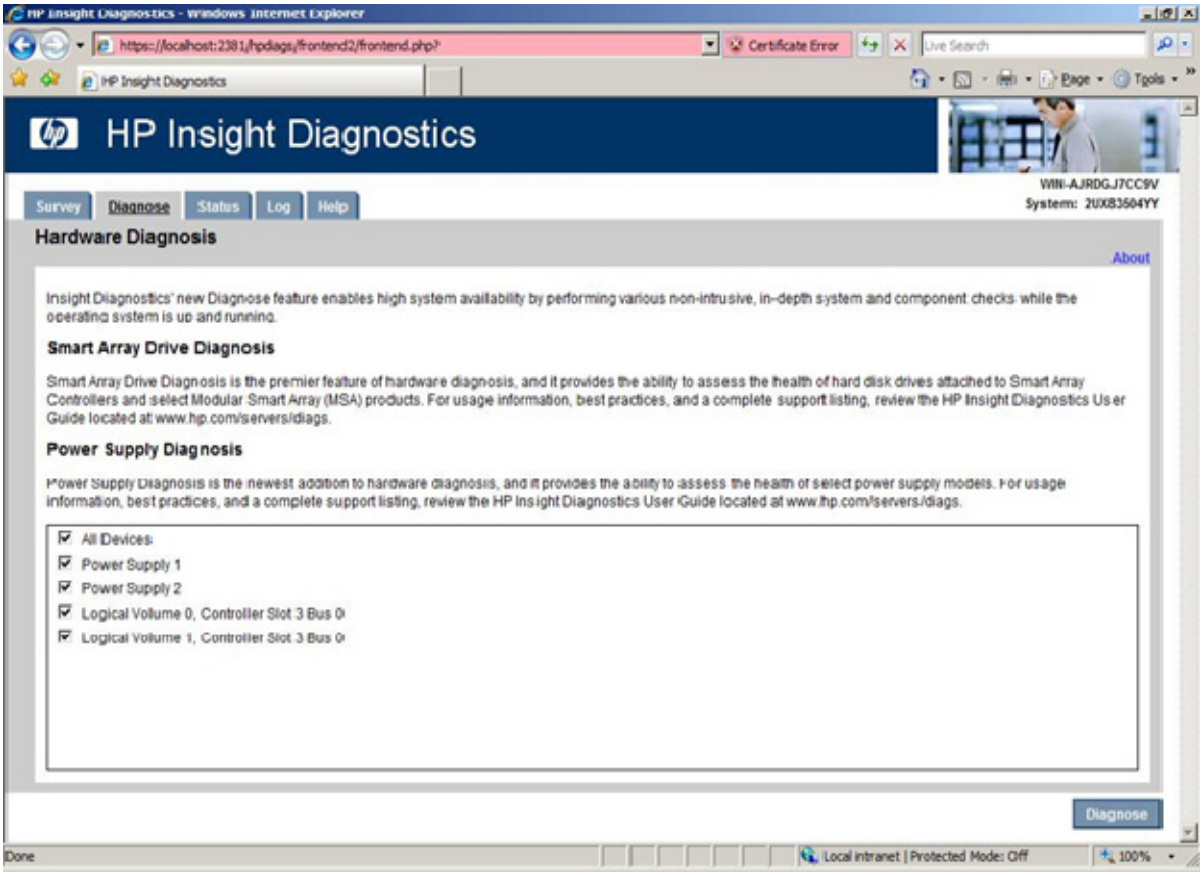
Using the Diagnose tab

While the system is online and the OS is operating, the HP Insight Diagnostics Diagnose feature performs diagnostics testing on the following devices:

- Hard drives attached to an HP Smart Array Controller
- Power supplies that are deemed diagnosable

To start a diagnostic test:

1. Click the **Diagnose** tab.
2. Select the device to diagnose:
   - Select **All Devices** to assess the health of all logical volumes and power supplies.
   - Select one or more specific logical volumes or power supplies to assess the health of the selected devices.
3. Click the **Diagnose** button.



If the computer does not have any logical volumes or power supplies that are diagnosable, the following message appears:

```
System does not have any diagnosable devices installed.
```

Using the Test tab (HP Insight Diagnostics Offline Edition only)

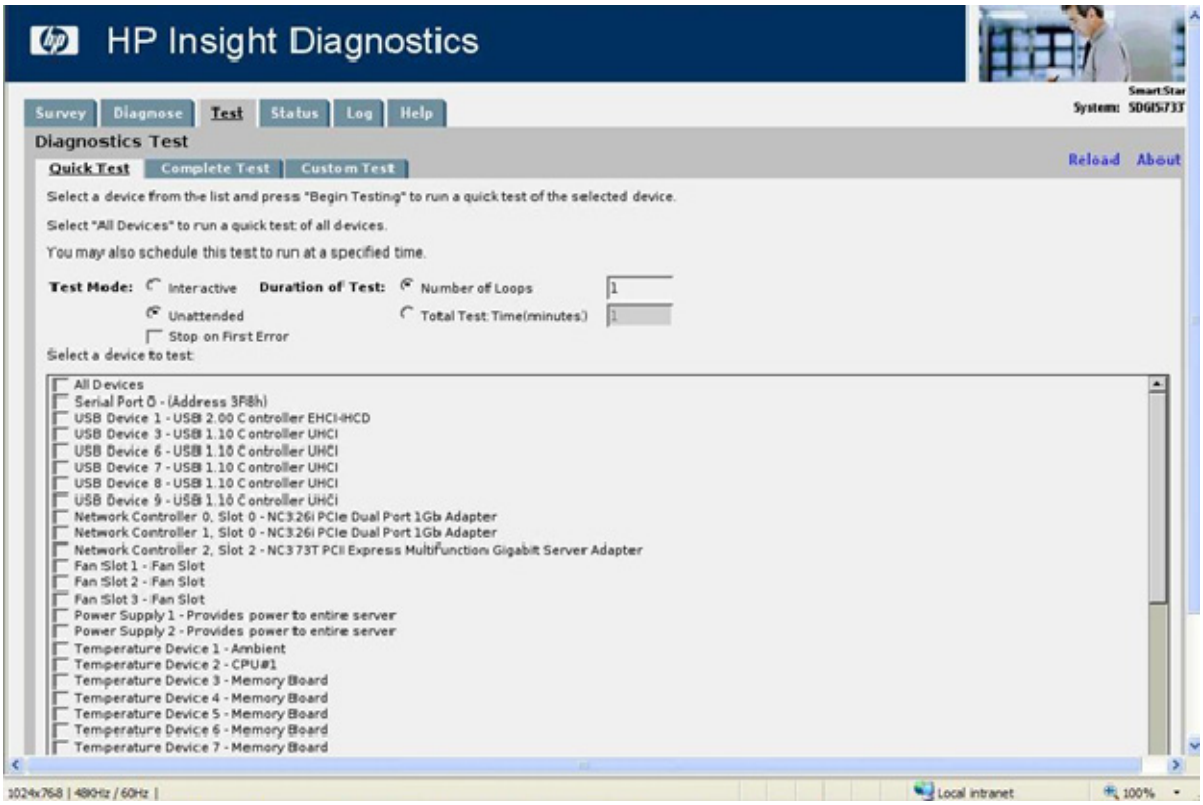
IMPORTANT: This feature is only available in HP Insight Diagnostics Offline Edition.

The offline HP Insight Diagnostics Test feature provides options for diagnostic testing of all major hardware components in the system. Three tests are available on the Test tab:

- **Quick Test** runs a predetermined test script for which a sample of each hardware component is exercised and requires no user intervention.
- **Complete Test** runs a predetermined script for which each hardware component is tested fully.
- **Custom Test** runs only the tests selected. This test is the most flexible option, with selections for specifying devices, tests, and test parameters.

Running a Quick test

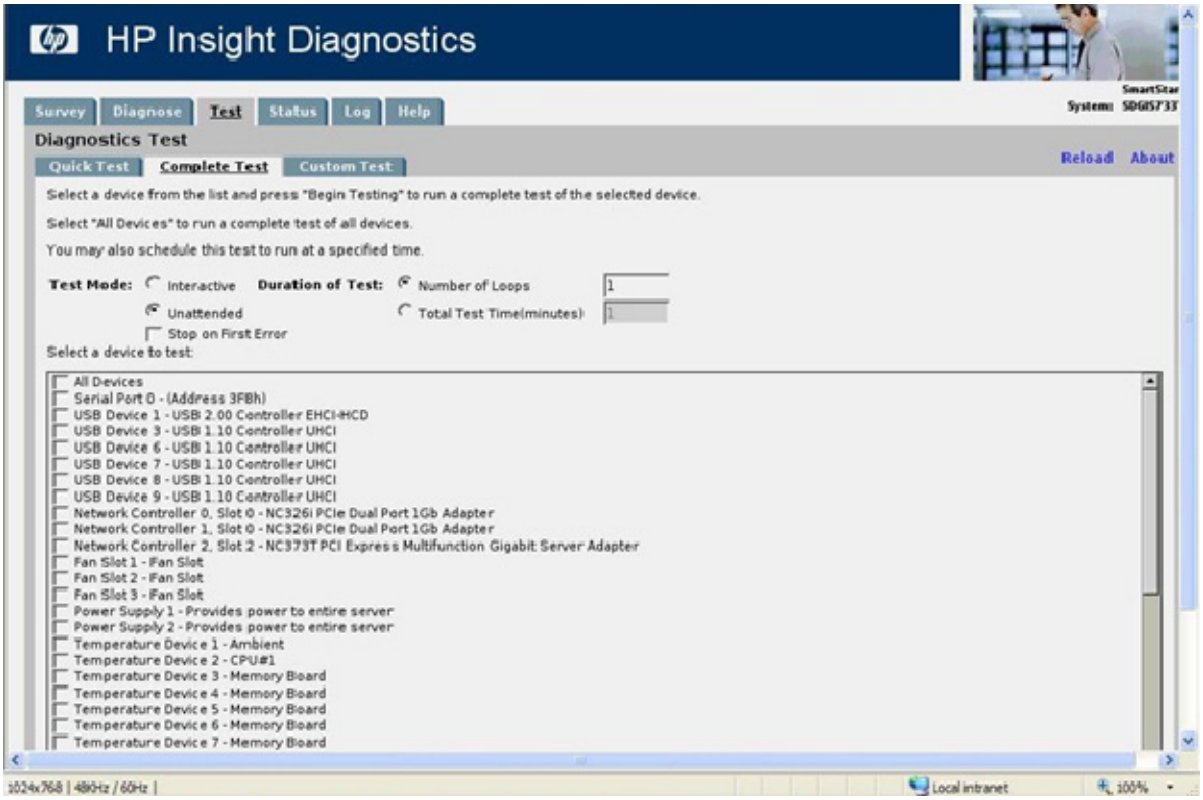
1. Click the **Quick Test** tab.
2. Select the test mode:
   - **Interactive** runs all tests, some of which require user input.
   - **Unattended** runs the tests that do not require user input.
3. Select the test duration:
   - **Loops** runs the test for the specified number of test cycles.
   - **Total Test Time (minutes)** runs the test for the specified length of time.
4. Click the **Stop on First Error** checkbox to stop all tests if an error occurs.
5. Select the device to test:
   - Select the **All Devices** check box to test all devices.
   - Select the check box for one or more devices to test specific devices.
6. Click the **Begin Testing** button.



The Status tab displays test progress. The logs, on the Log tab, display detailed test results.

Running a Complete test

1. Click the **Complete Test** tab.
2. Select the test mode:
   - **Interactive** runs all tests, some of which require user input.
   - **Unattended** runs the tests that do not require user input.
3. Select the test duration:
   - **Loops** runs the test for the specified number of test cycles.
   - **Total Test Time (minutes)** runs the test for the specified length of time.
4. Click the **Stop on First Error** checkbox to stop all tests if an error occurs.
5. Select the device to test:
   - Select the **All Devices** check box to test all devices.
   - Select the check box for one or more devices to test specific devices.
6. Click the **Begin Testing** button.



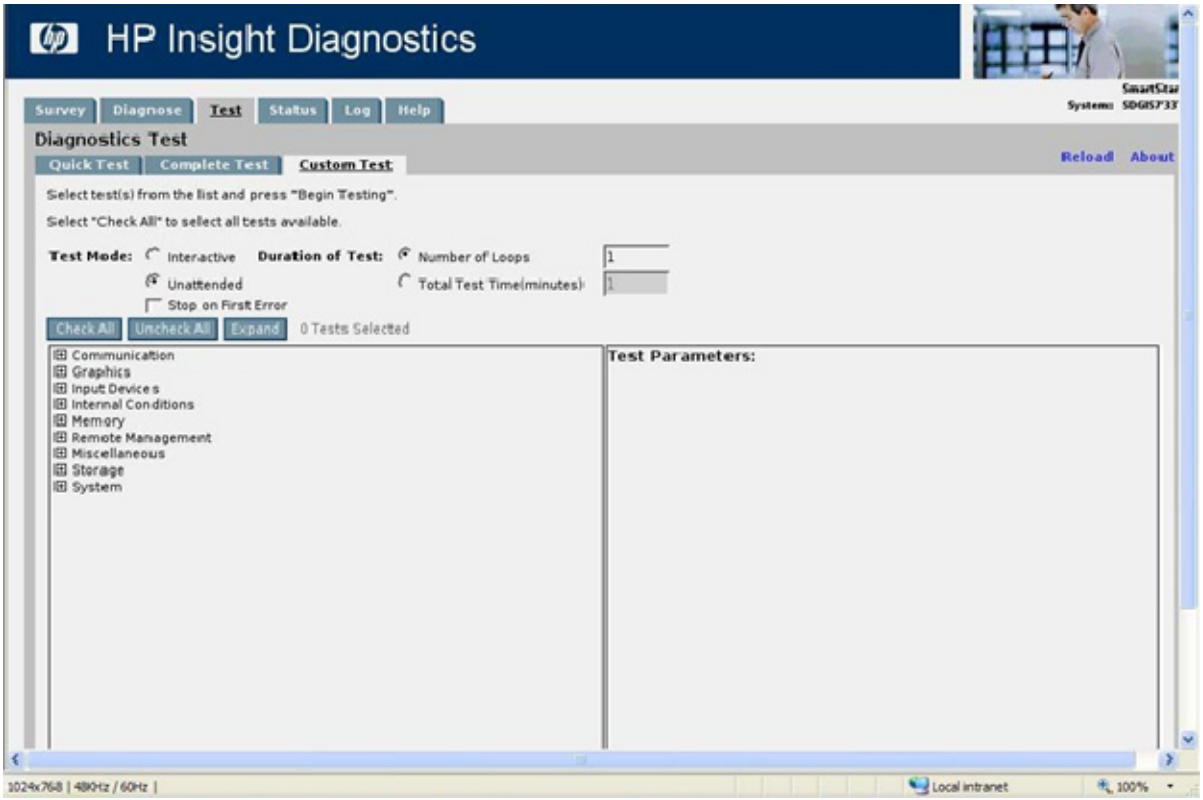
The Status tab displays test progress. The logs, on the Log tab, display detailed test results.

Running a Custom test

1. Click the **Custom Test** tab.
2. Select the test mode:
   - **Interactive** runs all tests, some of which require user input.

- **Unattended** runs the tests that do not require user input.

3. Select the test duration:
   - **Loops** runs the test for the specified number of test cycles.
   - **Total Test Time (minutes)** runs the test for the specified length of time.
4. Click the **Stop on First Error** checkbox to stop all tests if an error occurs.
5. Select the device and tests:
   - Click the **Check All** button to run all device-specific tests.
   - Click the **Uncheck All** button to clear any check boxes that are selected.
   - Click the **Expand** button to view the available device-specific tests, and then select the check box for tests to run.
6. Click the **Begin Testing** button.



The Status tab displays test progress. The logs, on the Log tab, display detailed test results.

Using the Status tab

The Status tab displays testing progress and results.

Viewing Diagnose test status

The progress and status of the Diagnose process appears on the Status tab when Diagnose completes.

The progress bar shows the test progress. During tests of longer duration, the Status screen refresh rate varies.

To cancel the test in progress, click the **Cancel** button.

To repeat the test, click the **Retest** button.

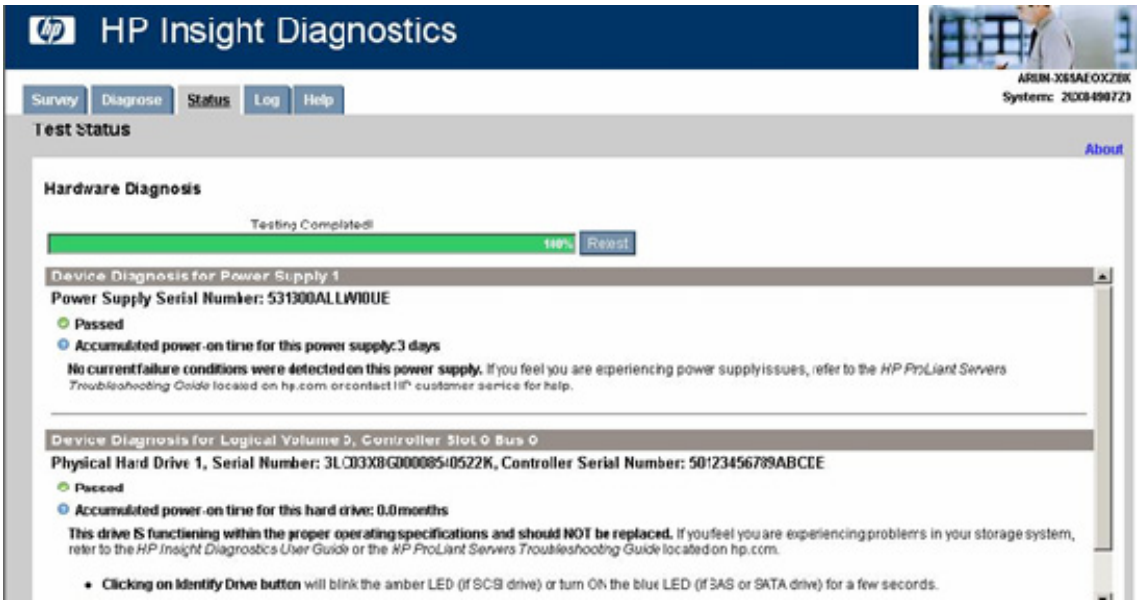
The Device Diagnosis sections display device-specific details and test results and details for each device.

Test results are indicated as follows:

- **Canceled**: The test did not complete or was canceled.
- **Passed**: The test passed and the device is operating within specifications.
- **Failed**: The device failed the test, or the test itself failed. A failure indicates that additional testing should be performed on the device.
- **Further Troubleshooting Required**: A communication problem exists that could be related to the health of the device. Perform additional troubleshooting procedures to determine the problem or use the Custom test option on the Test tab to retest the device. Custom testing can only be performed with HP Insight Diagnostics Offline Edition.
- **Abnormal termination**: The test terminated abnormally.

Click the **Identify Drive** button to identify the specific hard drive in the computer that may contain the volume. The hard drive LED indicates the location of the volume as follows:

- A SCSI hard drive containing the logical volume flashes the hard drive LED.
- A SATA or SAS hard drive containing the logical volume illuminates a blue hard drive LED.



Viewing offline test status

The progress and status of offline quick, complete, or custom testing appears on the Status tab as follows:

- **Device** displays the specific device being tested.
- **Test** displays the specific test running.
- **Status** displays the test results as follows:
  - **Canceled**: The test did not complete or was canceled.
  - **Passed**: The test passed, and the device is operating within specifications.

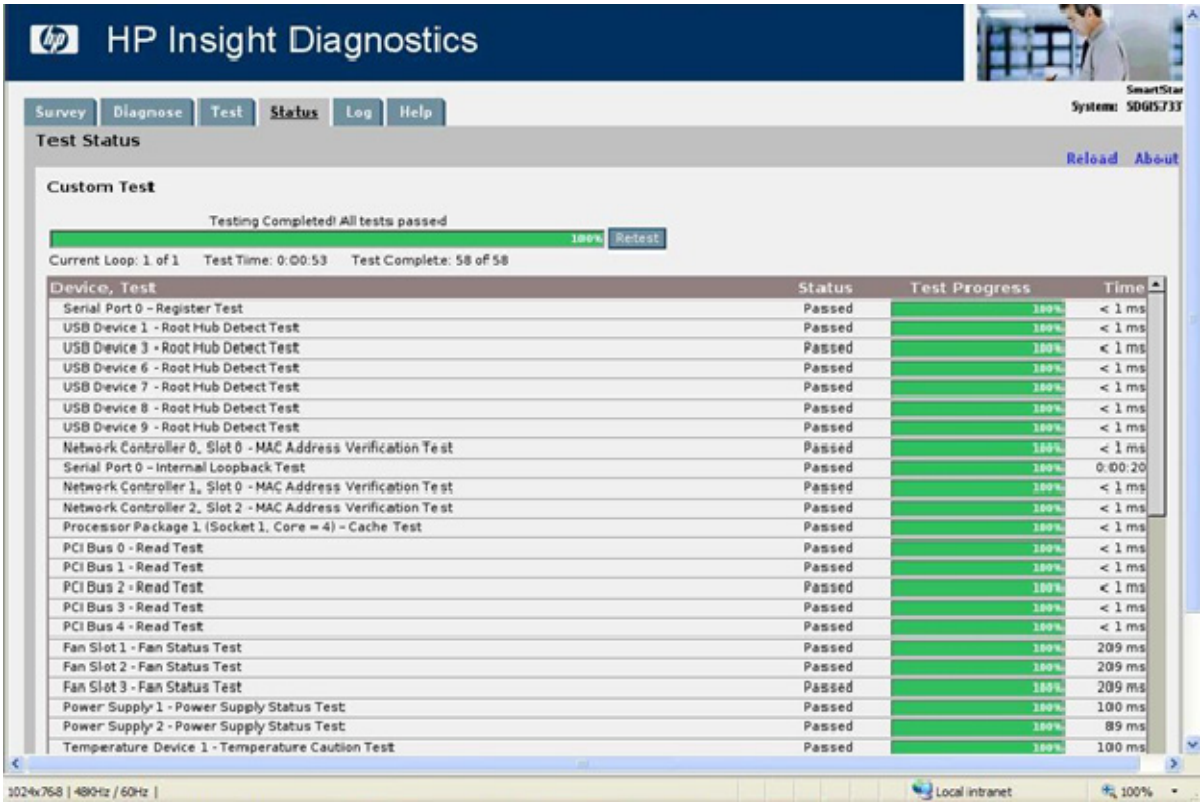
- **Failed**: The device failed the test, or the test itself failed. A failure indicates that additional testing should be performed on the device.
- **Further Troubleshooting Required**: A communication problem exists that could be related to the health of the device. Perform additional troubleshooting procedures to determine the problem or use the Custom test option on the Test tab to retest the device.
- **Abnormal termination**: The test terminated abnormally.

- **Test Progress** displays the progress of the testing.
- **Time** displays the time elapsed for the specific test.

To cancel the test in progress, click the **Cancel** button.

To repeat the testing, click the **Retest** button.

To view all test failure information, view the Error Log on the Log tab.



Using the Log tab

The Log tab includes four logs containing historical testing and diagnosis information:

- **Diagnosis Log** displays the following details on the tested devices after Diagnose completes:
  - The Pass/Fail status
  - The list of devices diagnosed
  - The number of times Diagnose ran
  - The number of times the test failed
  - The number of times the test passed
  - The time it took to run Diagnose on each device during the last execution

- **Test Log** (only available in HP Insight Diagnostics Offline Edition) displays detailed offline test details.
- **Error Log** displays the tests that have failed during the diagnostic testing.
- **Integrated Management Log** displays POST errors and diagnostic errors. The IML records system events, critical errors, power-on messages, memory errors, and any catastrophic hardware or software errors that typically cause a system to fail. The IML enables the manipulation of this data.

Diagnosis Log tab

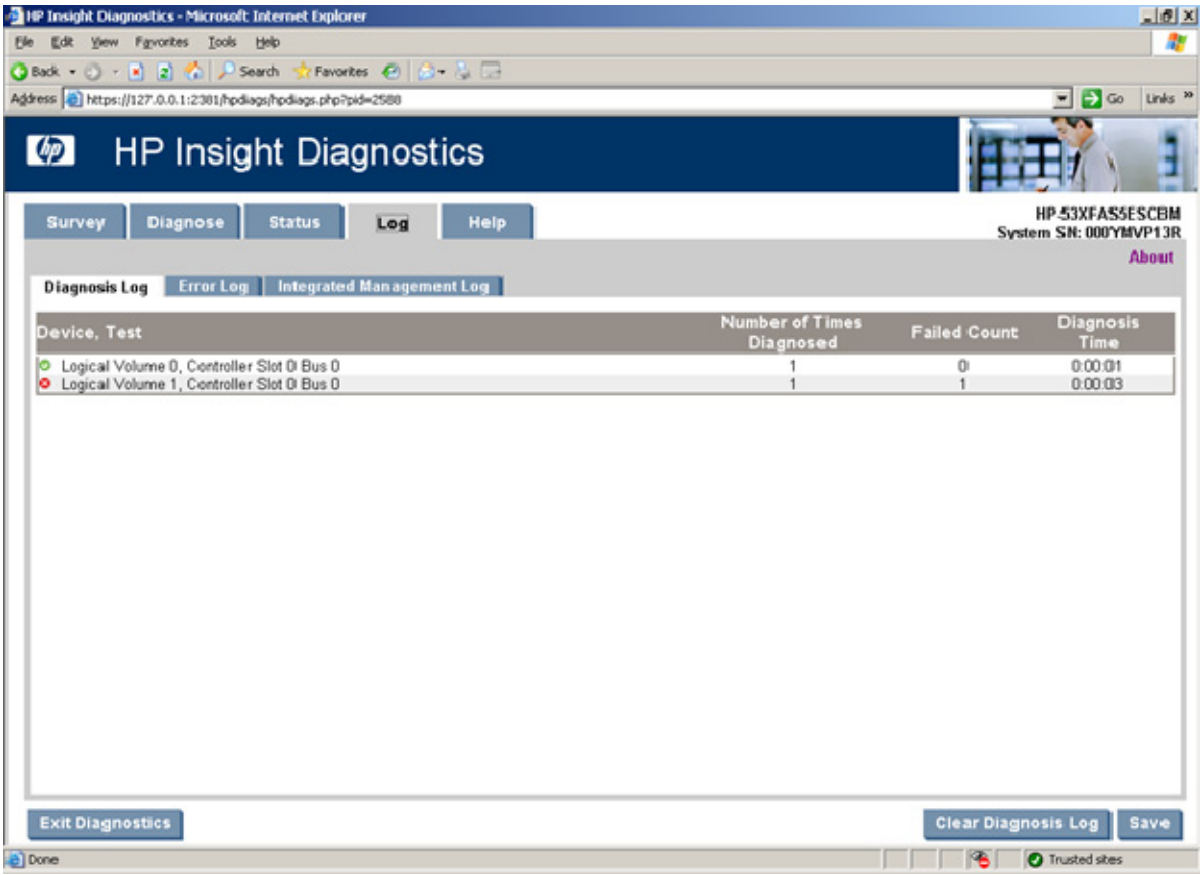
Detailed results of Diagnose appear in the Diagnosis log on the Log tab.

The Diagnosis log displays the following information:

- The status indicator for each power supply or logical volume diagnosed
- The specific power supply or logical volume diagnosed
- The number of times the diagnostic test was run
- The number of times the diagnostic test failed
- The time required to complete the diagnostic test

To clear the contents of the Test log, click the **Clear Diagnosis Log** button.

To save the Diagnose log to an HTML file onto a storage device such as a USB disk or diskette, click the **Save** button.



Test log

IMPORTANT: This feature is only available in HP Insight Diagnostics Offline Edition.

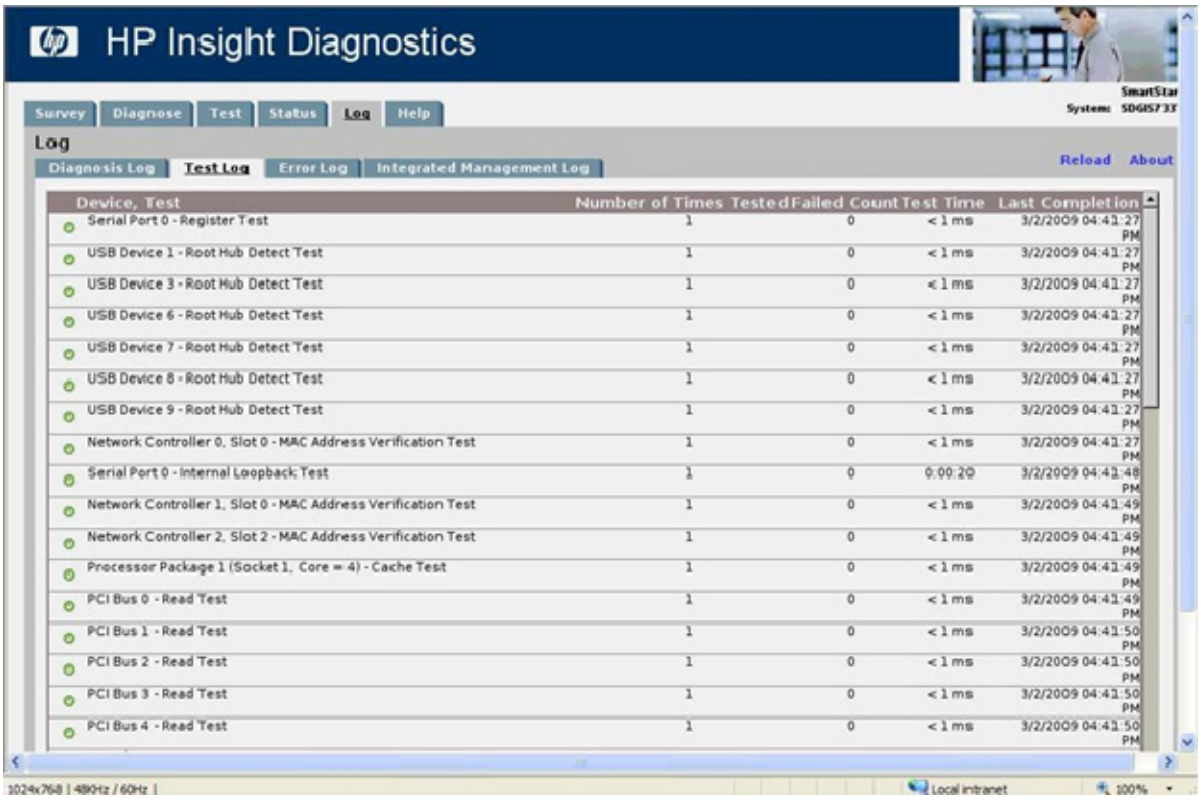
Detailed test results of offline testing appear in the Test log on the Log tab.

The Test log displays the following information:

- The status indicator for each test
- The completed tests
- The number of times the test was run
- The number of times the test failed
- The time it took to complete the test
- The date that this same test was last completed

To clear the contents of the Test log, click the **Clear Test Log** button.

To save the Diagnose log to an HTML file onto a storage device such as a USB disk or diskette, click the **Save** button.



Error Log tab

The Error log tab displays the following diagnostic information for failed devices:

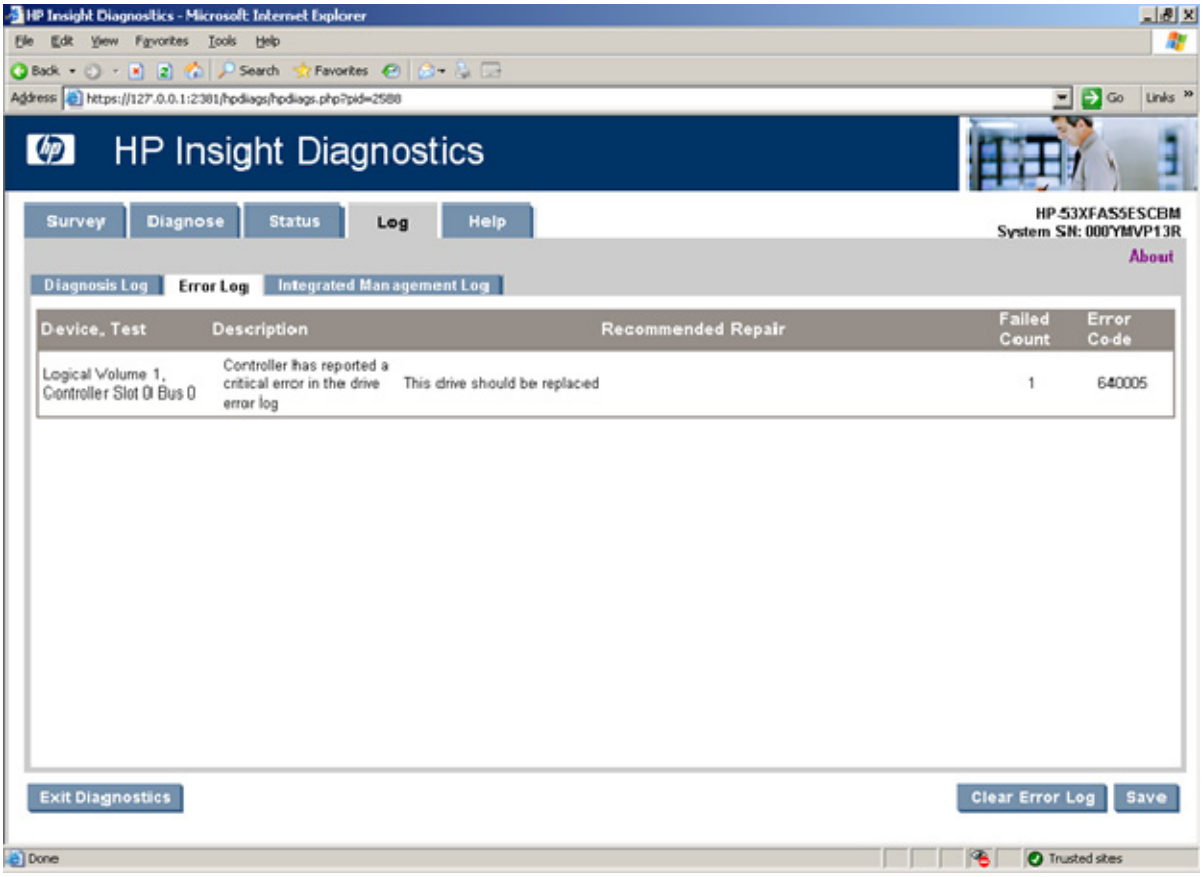
- The device and test that failed
- A description of and details about the error

- The recommended repair action for the failed hardware issue
- The failed count, the number of times the test has failed

To remove the Error log entries, click the **Clear Error Log** button.

To save the Diagnose log to an HTML file onto a storage device such as a USB disk or diskette, click the **Save** button.

To find detailed information about specific error codes, see "Error Codes (on page 29)."



Integrated Management Log tab

The IML contains system errors discovered during POST and by the System Management driver during normal operations. IML entries are dated and have severity levels and error counts that can be used to help isolate a problem. The Integrated Management Log on the Log tab displays the current entries in the IML.

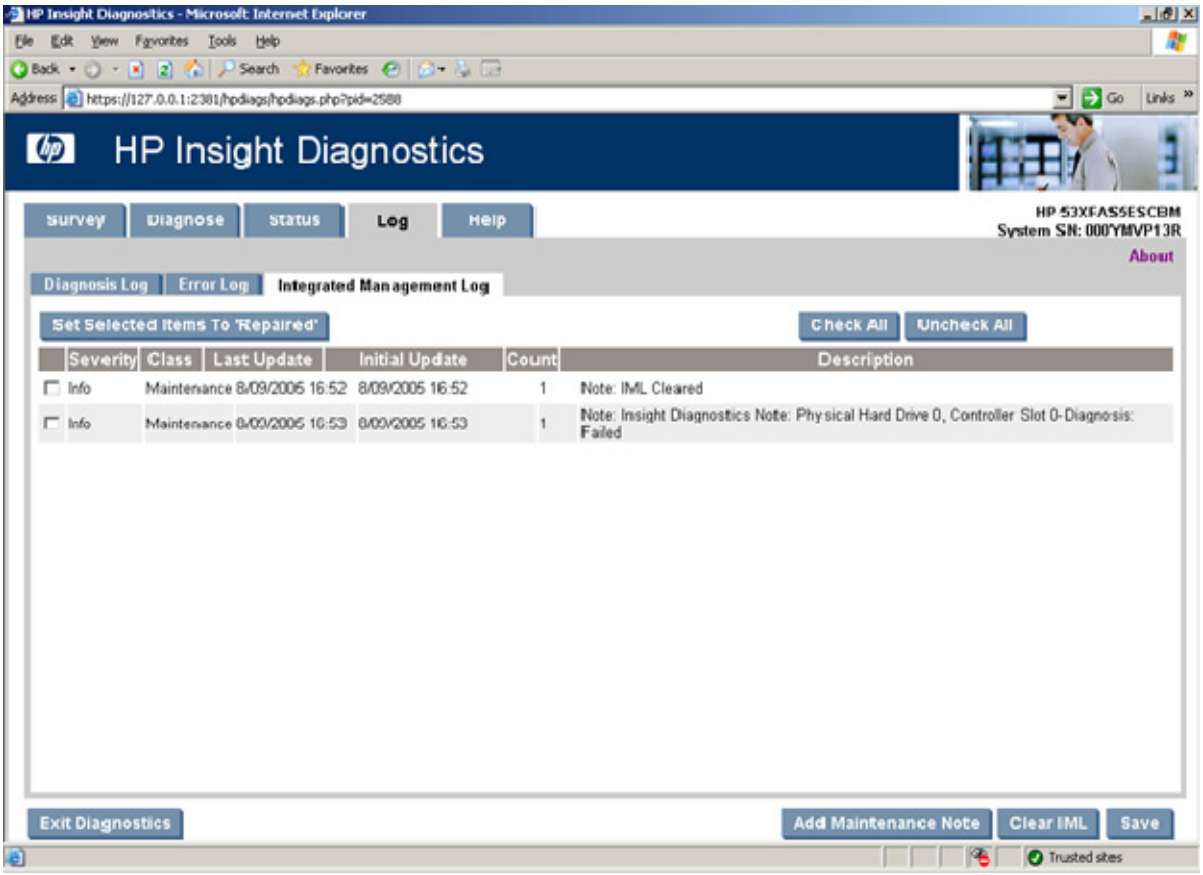
Each IML entry displays the following information about a failed device:

- One of the following severity levels:
  - **Information** indiciates general information about a system event.
  - **Repaired** indicates this entry has been repaired.
  - **Caution** indicates a non-fatal error condition has occurred.
  - **Critical/Failed** indicates a device failure.
- Class

- Last Update
- Initial Update
- Count
- Description

From this tab, the following actions are available:

- To change a device's severity level to "Repaired," click the **Set Selected Items to "Repaired"** button.
- To select all IML entries, click the **Check All** button.
- To unselect any selected IML entries, click the **Uncheck All** button.
- To enter any text or note into the IML, click the **Add Maintenance Note** button.
- To remove all IML entries, click the **Clear IML** button. HP recommends saving the current contents in a file before clearing the log.
- To save the Diagnose log to an HTML file onto a storage device such as a USB disk or diskette, click the **Save** button. This operation does not affect the current contents of the IML, but it does archive IML data for use when working with HP to diagnose issues.



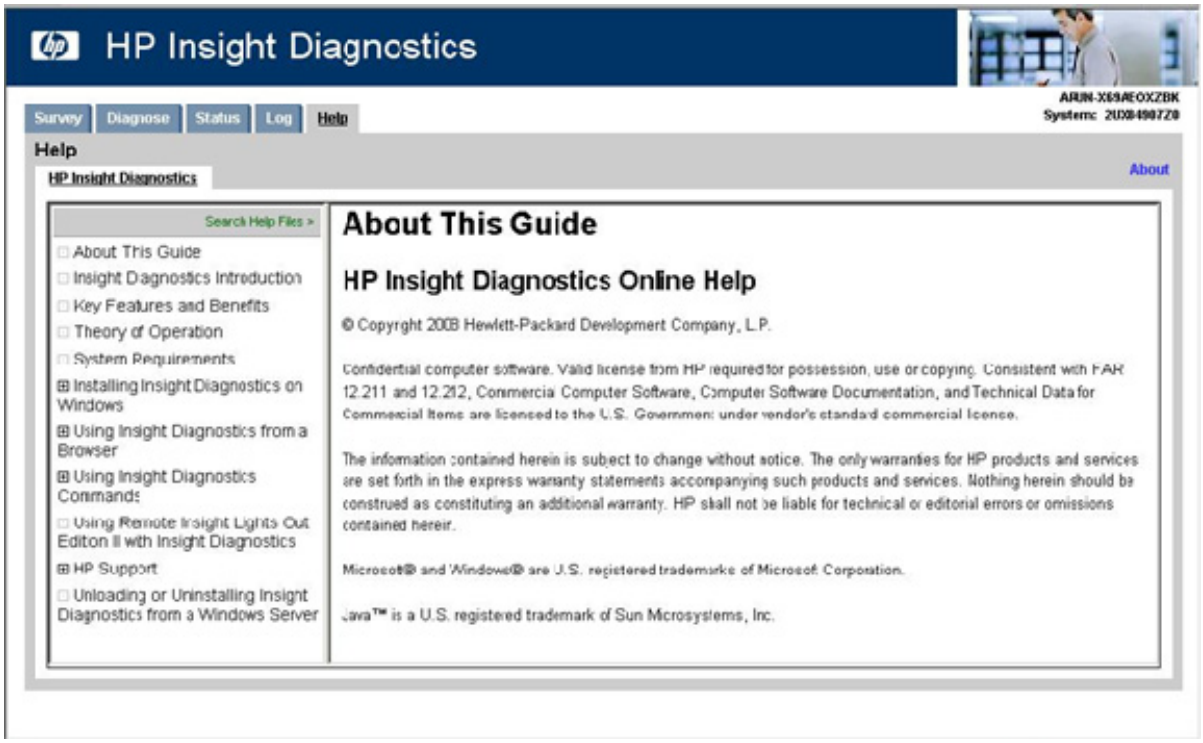
Help tab

The Help tab provides information on using HP Insight Diagnostics, such as the tab interface, overview categories, test mode descriptions, device test descriptions, error codes and descriptions, logging capabilities, and failure information.

About HP Insight Diagnostics

The HP Insight Diagnostics tab provides the details of the Insight Diagnostics software and searchable help information about operating Insight Diagnostics.

To search the help files, click the **Search Help Files** link.



Error Codes

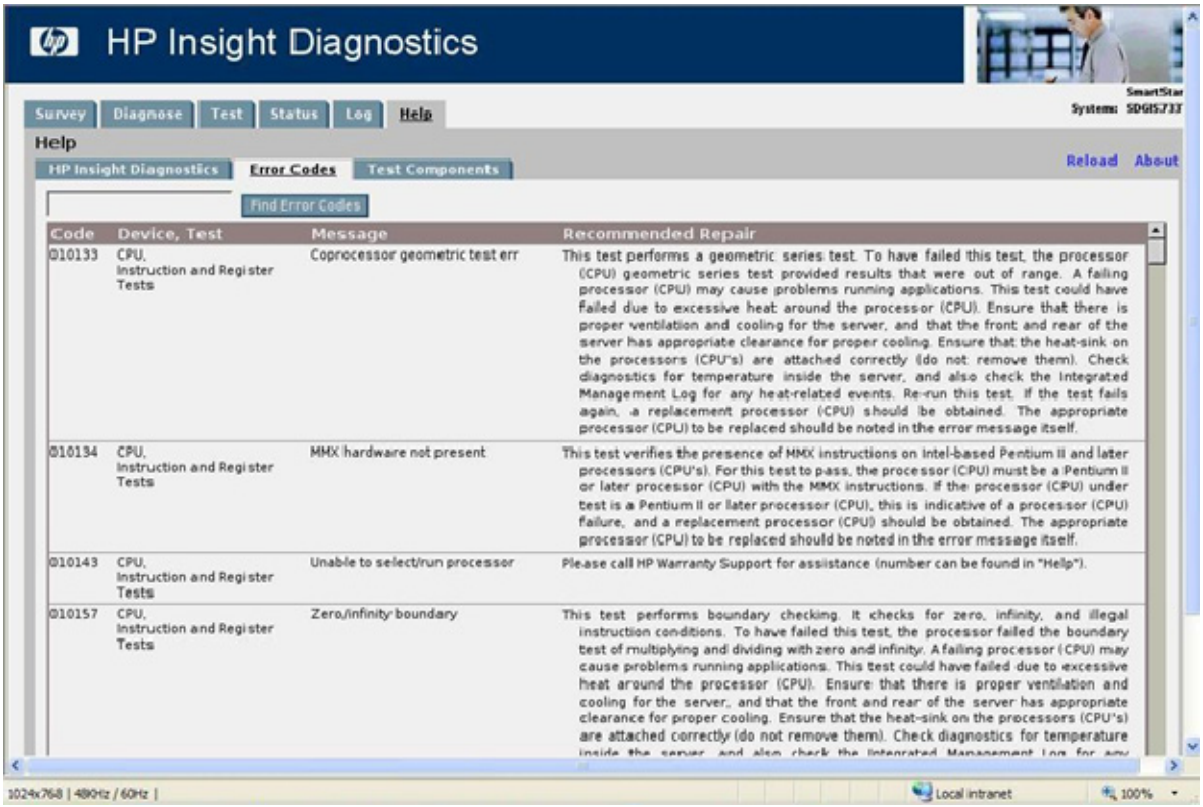
IMPORTANT: This feature is only available in HP Insight Diagnostics Offline Edition.

The Error Codes tab describes each numerical error code and the recommended actions for each error.

To find a specific error code description:

1. Enter the error code into the text box.
2. Click the **Find Error Codes** button.

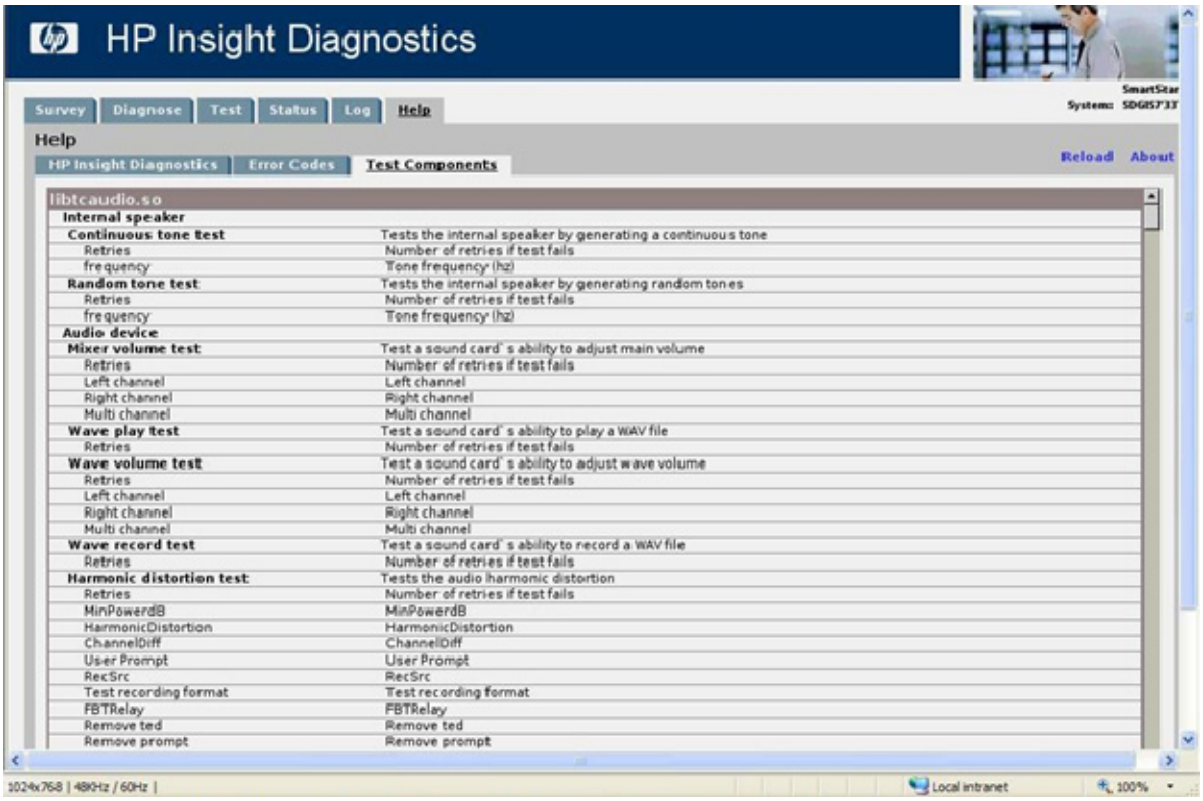
To find general error code information, use the scroll bar to browse the list of the Insight Diagnostics error codes and a description of each.



Test Components

IMPORTANT: This feature is only available in HP Insight Diagnostics Offline Edition.

The Test Components tab provides a detailed description of the test that was run.



Saving and printing information in HP Insight Diagnostics

You can save the information displayed in the HP Insight Diagnostics Survey and Log tabs to a diskette or a USB HP Drive Key. You cannot save to the hard drive if you are using HP Insight Diagnostics Offline Edition. The system automatically creates an HTML file that has the same appearance as the information displayed on the screen.

To save and print:

1. Insert a diskette or USB HP Drive Key:
   - If you insert an HP Drive Key, click **Reload** for the system to recognize the new device.
   - If you inserted an HP Drive Key before booting to the CD, you do not need to click **Refresh**.
2. Click the **Save** button.
3. Select **Save to the floppy** or **Save to USB key**. For supported USB devices, see the system documentation.
4. Enter a file name in the File Name field, and then click the **Save** button. An HTML file is saved to the diskette or USB HP Drive Key.
5. Print the information from the storage device, when using Offline Edition.

Exiting HP Insight Diagnostics

To exit HP Insight Diagnostics Online Edition, close the browser window.

To exit HP Insight Diagnostics Offline Edition:

1. Click the **Exit Diagnostics** button.
2. Remove the CD from the optical drive.

Uninstalling HP Insight Diagnostics Online Edition

Uninstalling HP Insight Diagnostics from a Windows server

1. Go to **Add/Remove Programs**, and then select **HP Insight Diagnostics Online Edition for Windows**.
2. Click the **Uninstall** button. HP Insight Diagnostics program files and Insight Diagnostics registry data are deleted.
3. Manually remove the `\hp\hpdiags` directory and any of the following files that remain on the computer:
   - Survey session files
   - Test log files
   - Error log files

Uninstalling HP Insight Diagnostics from a Linux server

1. Enter the following RPM command:
   ```
   rpm -e hpdiags
   ```
2. Manually remove the `\hp\hpdiags` directory and any of the following files that remain on the computer:
   - Survey session files
   - Test log files
   - Error log files

Troubleshooting

Troubleshooting memory

The memory test component can perform the following tests:

- **Address test**—This test verifies the integrity of the address buses connecting the processors to the memory modules. Verification is done by writing data to all possible addresses that have only 1 bit either set (1) or reset (0), having alternate bits set, having all bits high, and having all bits low. The purpose of this test is to check for address lines that are either shorted to ground, shorted to a high-voltage signal, shorted to other address lines, or floating (disconnected). This test alone might not indicate a hard failure.
- **Walk test**—This test verifies the integrity of the data buses connecting the processors to the memory modules. Verification is done by writing data to all possible addresses that have only 1 bit either set (1) or reset (0), having alternate bits set, having all bits high, and having all bits low. The purpose of this test is to check for data lines that are either shorted to ground, shorted to a high-voltage signal, shorted to other address lines, or floating (disconnected). This test alone might not indicate a hard failure.
- **Noise test**—This test verifies memory integrity by writing the inverse of the current test address to the current test address. The current test address alternates between the start and the end of the current test block, incrementing or decrementing the address until the entire block has been accessed. The purpose of this test is to check for address and data bus transition problems when these lines are forced high and low as rapidly as possible. A failure of this test indicates a failure of the DIMM.
- **March test**—This test is similar to a true walk bit test and is able to detect the following: address faults, stuck-at faults, transition faults, coupling faults, and linked coupling faults. These types of faults occur when memory cells within a bit cell array affect the operation of nearby memory cells. In many cases, static type tests do not detect these failures. A failure of this test indicates a failure of the DIMM.
- **Random address test**—This test verifies memory integrity by running a random pattern across a given test range. The addresses used to store the patterns are selected randomly and normalized to fit within the current test block. The purpose of this test is to detect intermittent memory problems that can be caused by temperature, variable clock speeds, variable voltages, signal timing, manufacturing faults, variable refresh rates, and decay. This test is also useful in detecting memory faults that might not be detected by other static tests. A failure of this test indicates a failure of the DIMM.

Not all the memory in a system can be tested because of the operating system and applications that are installed. As a best practice, use the default setting for each test. The default settings help ensure the maximum amount of memory that is available is tested.

To test memory thoroughly, run as many loops as possible in the time you are allotted. If time is critical, and all memory tests cannot be run, then HP recommends running the Random Address test and the Noise test. These two tests can catch the most errors.

Troubleshooting disk drives and storage systems

To further troubleshoot a disk drive, or if you continue experiencing storage-related issues after running Diagnose, perform the following tasks:

- Search for known storage-related issues on the HP website (http://www.hp.com). To search for customer advisories related to ProLiant servers configured with Smart Array controllers, use the following search string: +ProLiant +Advisory +"Smart Array".
- Update the controller driver and firmware revision and any drive-related software components such as management agents and storage utilities.
- Reseat physical drives and controllers.
- Check drive cables for any signs of damage or bent pins.
- When powering down a system using external storage, power down the server before powering down the external storage. When powering up the system, power on the external storage before powering on the server. This action prevents the possibility of drives being failed erroneously by the controller.

  A server power failure before the test, can also cause erroneous failures.

For troubleshooting procedures, see the *HP ProLiant Servers Troubleshooting Guide* located on the HP website (http://www.hp.com).

To troubleshoot the backplane, controller, and cables, do the following:

- Check drive cables for any signs of damage or bent pins.could Try another drive cable from another server, if possible.
- If you are able to identify a bad bay, replace the hard drive backplane.

  If the backplane and drive cables have already been replaced, the problem may be a bad controller.
- Determine if the controller is good by moving it to another server. Boot the server, and watch for any POST errors. If the controller has already been replaced, the problem is likely to be a bad backplane or cable.

IMPORTANT: To minimize downtime, HP recommends that steps involving the reseating of drives and controllers be performed simultaneously. Perform steps involving multiple drive reseating, controller reseating, and cable inspection with the server powered off.

Where to go for additional help

HP website

Troubleshooting tools and information, as well as the latest drivers and flash ROM images, are available on the HP website (http://www.hp.com).

IT Resource Center

The IT Resource Center contains software and drivers, user guides, part information, technical forums, and information on training and education. For more information, see the HP website (http://itrc.hp.com).

Support and drivers

For support software, driver updates, ROM updates, product bulletins, warranty information, manuals, and e-mail-based support, see the HP website (http://www.hp.com/go/support).

Technical support

Before you contact HP

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For the name of the nearest HP authorized reseller:

- See the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html). To contact HP by phone:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (http://www.hp.com/hps).
- In other locations, see the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

Acronyms and abbreviations

CMOS

complementary metal-oxide semiconductor

CSR

Customer Self Repair

CSS

cascading style sheets

iLO

Integrated Lights-Out

IML

Integrated Management Log

POST

Power-On Self Test

PSP

ProLiant Support Pack

RILOE II

Remote Insight Lights-Out Edition II

RPM

Red Hat Package Manager

SATA

serial ATA

SCSI

small computer system interface

TCP/IP

Transmission Control Protocol/Internet Protocol

TPM

trusted platform module

USB

universal serial bus

Index

S

T

U

V

W