Dell OpenManage™ Server Administrator

Command Line Interface User's Guide

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

December 2001 Rev. A00

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SECTION 1

Introduction

Whether you are using the graphical user interface (GUI) or its command line interface (CLI), Server Administrator performs essential systems management tasks.

The reporting and viewing features allow retrieval of overall health status for systems on your network. At the component level, you can view information about the voltages, temperatures, current, fan RPM, memory functioning, and many other critical component details. You see a detailed account of many relevant cost of ownership (COO) facts about your system in summary view.Version information for BIOS, firmware, operating system, and all installed software is easy to retrieve. You can also update BIOS and firmware packages and run diagnostic tests on system components.

Configuration features allow the Server Administrator to perform essential tasks described in detail in the following sections.

Primary CLI Commands

The commands that carry out the functions of Server Administrator are:

- **omconfig**
- **omdiag**
- **omhelp**
- **omreport**
- **omupdate**

The **omconfig** command writes values that you assign to an object's properties. You can specify values for warning thresholds on components or prescribe what action your system is to take when a certain warning or failure event occurs. You can also use the **omconfig** command to assign specific values to your system's asset information parameters, such as the purchase price of the system, the system's asset tag, or the system's location.

The **omdiag** command runs diagnostic tests against system hardware to isolate problems.

The **omreport** command displays summary information about components that pertain to the entire system.

The **omhelp** command displays short text help for CLI commands. The shorthand equivalent of omhelp is the command for which you want help followed by **-?**.

The **omupdate** command installs the latest update packages for the system's BIOS and firmware. The **omupdate** command updates BIOS and firmware versions.

NOTE: For an overall summary of CLI commands, type `omhelp`.

Server Administrator uses the following primary CLI commands. For each primary command, this guide contains a section.

Table 1-1. CLI Commands and Sections in This Guide

Primary CLI Command	Section Title	Related Sections
omconfig	Section 7: omconfig: Managing Components Using the Instrumentation Service	omconfig system assetinfo: Editing Cost of Ownership Values
omdiag	Section 3: omdiag: Using the Diagnostic Service	
omhelp	Section 2: omhelp: Getting Help With CLI Commands	
omreport	Section 4: omreport: Viewing System Status Using the Instrumentation Service	Section 5: omreport: Using the Storage Reports
omupdate	Section 6: omupdate: Using the Update Service for BIOS and Firmware	

Additional useful topics about the CLI include:

- Section 9: Working With CLI Command Results
- Glossary

CLI Error Checking and Error Messages

The CLI checks your commands for correct syntax when you enter them. If you enter a command and the command is executed successfully, a message displays, stating that your command has been successful.

Success Messages

For a successful **omreport** command, data about the component displays. When data for the component displays, your command is successful.

The following **omconfig** command examples show valid CLI commands and their success messages.

Command:

```
omconfig chassis temps index=0 warnthresh=default
```

Message:

```
Temperature probe warning threshold value(s) set successfully.
```

Command:

```
omconfig chassis biossetup attribute=speaker setting=on
```

Message:

```
BIOS setup configured successfully.
```

Command:

```
omconfig system assetinfo info=depreciation duration=6
```

Message:

```
Asset information set successfully.
```

Failure Messages

CLI failure messages provide reasons why some commands do not succeed. Some common reasons why commands fail include syntax errors and component not present. Many error messages provide syntax information that you can use to execute the command successfully.

If you try to execute a command for a component or feature that is not present in your system configuration, the error message states that the component is not present.

Command:

```
omreport chassis currents
```

Example message:

```
Error! No current probes found on this system.
```

Command:

```
omconfig chassis volts index=3 minwarnthresh=3.3000
```

Example message:

```
Error! Number with up to 3 digits after decimal point expected,
read 3.3000
```

```
The value given by the command specifies more than 3 digits after
the decimal point. A valid minimum warning threshold value for
volts contains up to 3 digits after the decimal point.
```

Type:

```
omconfig chassis volts index=3 minwarnthresh=3.300
```

When you enter the revised command with three decimal points, you receive another error message:

```
Error! This voltage probe min warning threshold must be between
11.400 and 12.480.
```

Revised command:

```
omconfig chassis volts index=3 minwarnthresh=11.500
```

Message:

```
Voltage probe warning threshold(s) set successfully.
```

Scripting and Comparing With the CLI

The Server Administrator CLI allows administrators to write batch programs or scripts to be executed by the operating system. For an enterprise with many systems, an administrator could write a configuration script that specified the warning thresholds for each major component of a system, and also specified a set of actions that the administrator wants each system to take in case of a warning or failure event. In the most critical cases the administrator could write the script such that the system would be shutdown to prevent damage. The administrator could then distribute and execute the script to many managed systems at the same time. Such a scenario would facilitate configuring any number of new systems acquired by a company, or could make implementation of new system administration policies easier across many existing systems that require reconfiguration.

A similar scenario could be used to populate a large number of newly acquired systems with detailed asset information. Many asset information variables would be uniform, such as the manufacturer or lessor of the system, whether support for the system is outsourced, name of the system's insurance company, method of depreciation, and so on. Any variable that is common to all systems could be scripted, sent to all managed systems, and executed. Asset information variables that are unique to a system could be scripted as a group and sent to that managed node for execution. For example, a script could specify values for all unique variables such as owner, primary user phone number, asset tag, and so on. Scripts to populate unique values would set all unique variables at the same time rather than one-by-one on the system's command line.

In many cases, the CLI allows a user with a very well-defined task in mind to retrieve information about the system rapidly. If a user wants to review a comprehensive summary of all system components and save that summary information to a file for comparison with later system states, the CLI is ideal.

Using CLI commands, administrators can write batch programs or scripts to execute at specific times. When these programs execute, they can capture reports on components of interest, such as fan RPMs during periods of high system usage compared with the same measurements at times of lowest system usage. Command results can be routed to a file for later analysis. Reports can help administrators gain information that can be used to adjust usage patterns, to justify purchasing new system resources, or to focus on the health of a problem component.

Command Syntax Overview

Commands vary in complexity. The simplest command has only command level 1. The **omhelp** command is a simple command. When you type `omhelp`, a list of the main CLI commands is displayed.

The next level of complexity includes commands that contain command levels 1 and 2. All of the **about** commands are examples of command level 2 complexity. The **omconfig about**, **omdiag about**, **omreport about**, and **omupdate about commands** all cause a very brief summary to display. The summary shows version information for the systems management software installed on your system; for example, Server Administrator 1.*x*.

Many commands use command level 1, command level 2, and command level 3, but do not require any parameters (name value pairs). The **omreport** commands are of this type. For example:

```
omreport system alertaction
```

causes a list of alert actions that are configured for components on your system to be displayed.

Some commands have all three command levels plus one name=value pair. Consider the example command below that instructs Server Administrator to apply a specific package to update the system BIOS:

```
omupdate chassis biosupdate path=/bin/bios/2400a07.dou
```

command level 1 is **omupdate**; command level 2 is **chassis**; command level 3 is **biosupdate**; name=value pair 1 is **path=/bin/bios/2400a07.dou**

The most complex commands have all three command levels and two name=value pairs. For example:

```
omconfig system assetinfo info=depreciation duration=3
```

In each section, command syntax and other information about commands is formatted with any of the following fields that apply:

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2

SECTION 2

omhelp: Getting Help With CLI Commands

The **omhelp** command, or its equivalent, <*command*> **-?** reveals the CLI detailed help text interface. You can get help at several levels of detail.

Each fully qualified CLI command may have a variable number of distinct parts: the command (command level 1), one or more subcommands (command level 2 and command level 3, if present), and one or more name=value pair(s).

By appending **-?** <space-dash-question mark> to any command, you can get help on the command.

Example Help Commands

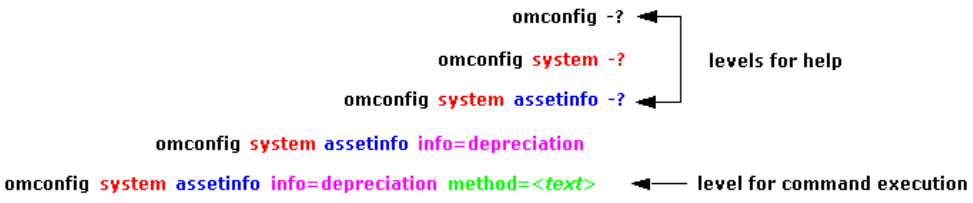
Whey you type `omconfig -?`, you get general help about the **omconfig** command. The help at this level lists the available subcommands for omconfig:

- **about**
- **system**
- **chassis**

When you type `omconfig system -?`, CLI help lists all of the subcommands that are available under **omconfig system**:

- **alertaction**
- **alertlog**
- **assetinfo**
- **cmdlog**
- **esmlog**
- **recovery**
- **shutdown**
- **thrmshutdown**

Figure 2-1. Different Levels of Help for a Command



You can also parse the **omconfig system assetinfo** command as follows:

<command level 1 command level 2 command level 3> [name=value pair 1] [name=value pair 2]

where command levels 1, 2, and 3 are represented by **omconfig system assetinfo**

name=value pair 1 is represented by **info=depreciation**

name=value pair 2 is represented by **method=straightline**

To set your depreciation method to straight line, type:

```
omconfig system assetinfo info=depreciation method=straightline
```

The CLI responds:

```
Asset information set successfully.
```

When you type

`omconfig system assetinfo -?`, the help that is displayed provides information about assigning values for the name and option fields. Partial results for the request **omconfig system assetinfo -?** are as follows:

```
assetinfo              Set asset information.

For one info value, specify one or more optional parameter(s):

info=acquisition     purchasecost=<num> waybill=<num> installdate=
<mmddyy> purchasedate=<mmddyy> ponum=<num>

signauth=<text> expensed=<yes|no> costcenter=<text>

info=depreciation    method=<text> duration=<num> percent=
<percent> unit=<months|years|unknown>
```

You can get help for some commands that take name=value pairs, but not for all.

If you type:

```
omreport chassis fans index=0 -?
```

the result is:

```
fans            Fan(s) probe properties.
Valid parameters are:
index=[number]  Displays properties for a particular fan probe.
```

If you type:

```
omreport chassis biossetup attribute=numlock -?
```

the result is:

```
biossetup       BIOS setup configuration.
```

In this case adding the name=value pair to the help query does not produce information on a particular BIOS setup parameter.

SECTION 3

omdiag: Using the Diagnostic Service

The **omdiag** command allows you to test system and chassis components. Examples of diagnostic capabilities include tests for components such as processors, hard drives, physical memory, communications and printer ports, network interface controllers, CMOS, and more.

Most tests described in this section take less than one minute. Tests that take longer depend on the device being tested. For example, the duration of the memory test depends upon the amount of memory installed on the system.

The following table is a high-level summary of the **omdiag** command. The columns titled **command level 2** and **command level 3** list the major arguments that can be used with **omdiag**. The **Use** column provides a very general statement of the actions that can be performed using **omdiag**. More details about syntax and use of the command appear later in this section.

Table 3-1. omdiag Command Level 1 and Level 2

Command Level 1	Command Level 2	Command Level 3	Use
omdiag			Run diagnostic for all system components.
	about		Display version number and properties for the systems management program installed on your server.
		details=true	Display information for all of the Server Administrator programs that are installed.
	system	any level 3 command for chassis or storage	Run diagnostic for specified chassis or storage component.

Table 3-1. omdiag Command Level 1 and Level 2

Command Level 1	Command Level 2	Command Level 3	Use
	chassis	cmos	Run CMOS diagnostic.
		cpu	Run microprocessor diagnostic.
		memory	Run memory diagnostic.
		modem	Run modem diagnostic
		network	Run NIC diagnostic.
		parallelport	Run parallel port diagnostic.
		pci	Run PCI diagnostic
		serialport	Run serial port diagnostic.
		usb	Run USB diagnostic.
		video	Run video diagnostic.
	storage	adaptecraidctr	Run Adaptec RAID controller diagnostic.
		amiraidctr	Run AMI RAID controller diagnostic.
		cddrive	Run CD drive diagnostic.
		cdrwdrive	Run CD-RW drive diagnostic.
		dvddrive	Run DVD drive diagnostic.
		floppy	Run diskette drive diagnostic.
		harddrive	Run hard drive diagnostic for Red Hat Linux.
		idehd	Run IDE hard drive diagnostic for Microsoft® Windows®.
		lsdrive	Run LS 120 drive diagnostic.
		raidhd	run hard drive diagnostic on RAID-attached disks.
		scsictr	Run SCSI controller diagnostic.
		scsihd	Run hard drive diagnostic on SCSI-attached disks.
		smart	Run SMART diagnostic for Linux.
		tapedrive	Run tape drive diagnostic.

omdiag about

Use the **omdiag about** command to learn the product name and version number of the systems management application installed on your system. The following is example output from the **omdiag about** command:

```
Product name : Server Administrator
Version      : 1.0
Copyright    : Copyright (C) Dell Corp. 1995-2002. All rights reserved.
Company      : Dell Computer Corporation
```

omdiag about details=true

Use the **omdiag about details=true** command to see information about all of the Server Administrator programs that are installed. The following is example output from the **omdiag about details=true** command:

```
Product name : Server Administrator
Version      : 1.0
Copyright    : Copyright (C) Dell Corp. 1995-2002. All rights reserved.
Company      : Dell Computer Corporation
Contains     : Instrumentation Service 4.5.1
             : Update Service 1.1
             : Diagnostic Service 2.0.0
             : Sun JRE - Dell Installed Version 3.1.1
             : Server Agent Web Server 1.0.0
             : Server Administrator Core 1.0.0
             : Instrumentation Service Integration Layer 1.0.0
             : Storage Management Service Intergration Layer 1.0.0
```

omdiag chassis

Use the **omdiag chassis** commands to perform tests on nonstorage components of a system, such as the processor, memory, video, NICs, PCI, and ports.

omdiag chassis -?

Use the **omdiag chassis -?** command to see a list of all chassis components on the system.

omdiag chassis cmos

Use the **omdiag chassis cmos** command to test system configuration information in the CMOS settings. The following are the tests performed by the CMOS test:

- Patterns — writes a series of characters to the CMOS memory and reads them back to see that the CMOS memory functions normally. This test first stores the original CMOS configuration pattern so that it can restore it later; it then writes a test pattern to the CMOS memory and reads it back. If the value read does not match the value written, the test logs an error and the test result is "FAILED."
- Checksum — performs a checksum test on CMOS memory to determine if any bytes are corrupt. This test scans CMOS memory and calculates a cyclic redundancy check (CRC) of the bytes read. The calculated result is compared with the results stored in the CMOS memory. If they match, the test succeeds. Otherwise, the test logs errors and the test result is "FAILED."

omdiag chassis cpu

Use the **omdiag chassis cpu** command to test the CPU, which executes instructions, processes data, and assigns memory addresses. The CPU test performs the following tests:

- Register — tests the CPU registers using default test patterns that simulate the processing of data. This test writes available test patterns to various CPU registers, then reads the contents of each register and compares it with the original pattern. If the data read is different than the data written, this test logs an error and lists the failed registers.
- Math — runs various tests on your system's math coprocessor, register stack, pointers, and commands. If this test detects errors, it lists the failed steps and commands.
- Level 2 Cache — uses the system RAM to perform indirect testing of L2 cache memory by causing the RAM to move large amounts of data in and out of the L2 cache. If this test detects any failures, it indicates them according to test-block type and location.
- MMX — runs tests that check a processor's special multimedia functions. If this test detects errors, it lists the failed commands.

omdiag chassis memory

Use the **omdiag chassis memory** command to test the system's random access memory (RAM).

The memory test checks your system's memory with a data patterns test. These patterns test the memory's storage integrity and its ability to store data accurately. Before running this test, ensure that all other programs are shut down. This test uses several test patterns to test memory locations. If this test detects errors, it reports the name of the dual inline memory module (DIMM) that had the error (for example, DIMM_A). The name reported corresponds to the name printed on the system board or card that contains the DIMM slots. This test also detects when error correction code (ECC) error events are generated. If a memory DIMM has an ECC error, the name of the DIMM that produced the error is reported.

omdiag chassis modem

Use the **omdiag chassis modem** command to send a series of AT command set commands to your modem to see if it is working. The AT Command Set is a series of industry-standard instructions for the modem to perform operations such as automatically dialing numbers, controlling the telephone connection, and telling the computer what it is doing.

NOTE: This test is designed to run on analog communication lines (regular telephone lines) and will not test a cable or Digital Subscriber Link (DSL) modem. Currently, no test is provided for testing cable or DSL modems; you can, however, test cable or DSL Internet connections. To test an Internet connection that uses a cable or DSL modem, you must use the network test.

NOTE: When you run the modem test, ensure that no other programs use the modem during the test. If other programs use the modem, the test does not run and you see a result of `\Cannnot Run` in the **Results** window.

The modem test performs the following tests:

- FAX command — sends a modem-specific command instructing the modem to send a fax. This checks if the modem can properly interpret specific commands issued for sending faxes.
- Dialtone — checks that a system's modem can connect to the telephone line by initiating a dial tone and then hanging up. In order for this test to run, you must ensure that the phone is not in use, disconnected, or "off-the-hook." This test helps to find problems such as a faulty line connection, bad connector, or configuration error.

- Modem — checks the data transfer functionality of the modem itself. If your modem supports self-test and loopback testing, then the modem test runs these tests on your modem. The modem test determines if a problem exists with the hardware, the modem driver, or the modem configuration.

omdiag chassis network

Use the **omdiag chassis network** command to test the network interface controller (NIC).

The following are the tests performed by the network test:

- LoopBack — reveals whether a network card is present without a driver installed. Such cards are not likely to show up on a system's list of network cards available for test. This situation might cause the test to return a result of `Not Applicable`, meaning no network cards were found. The test checks whether the network device can transmit and receive data properly, and it also tests whether the device is configured. It tests both Transmission Control Protocol/Internet Protocol (TCP/IP) and Sequenced Packet Exchange/Internet Packet Exchange (SPX/IPX) protocols; if either protocol works, the test passes.
- Communication — checks if your system's network controller works and if your system properly communicates over a network. This test searches a remote system on the network and sends information in the form of several data packets from the tested system to the remote system. These data packets are then returned by the remote system to the tested system where the test checks the contents of the data packets. If too many of the data packets are not returned or are discarded because of data corruption, this test logs an error and the test result is "FAILED."

omdiag chassis parallelport

Use the **omdiag chassis parallelport** command to test the parallel port, which is a high-speed communications port for attaching certain devices to your system.

The parallel port test writes a series of characters to the port and then reads it back again. If this test detects differences between the written and read character series, it logs an error message and the test result is "FAILED."

omdiag chassis pci

Use the **omdiag chassis pci** command to test the PCI bus and check all PCI devices.

The PCI test includes the boards configuration test, which checks for the presence of PCI capability and then scans all PCI devices for proper communication. This test first checks the BIOS version number for invalidity. If the version number is invalid, or the number of PCI busses is determined to be zero, an error is logged. The test then scans for PCI cards in the system. If an error is encountered reading the configuration data of a card, an error is logged. If more than 10 errors are encountered, the test stops.

NOTE: The Quick test and the Normal test are the same.

omdiag chassis serialport

Use the **omdiag chassis serialport** command to test the serial port.

The serial port test:

- Performs internal and loopback testing on as many as 10 serial ports.
- Places the serial port in an internal loopback mode, which allows for the return of values written to the port.
- Tests all 9-pin (AT) and 25-pin (PC, XT, and PS/2) serial ports.

The following are the tests performed by the serial port test:

- Control signals — performs an internal loopback test on the serial port control signals by writing a set of patterns to the control registers and then reading back the corresponding values through the internal loopbacks. If this test detects differences between the written and read data, it logs an error message listing the port number and the final test result is "FAILED."
- Data send and receive — tests a port's data send and receive capability by progressively increasing baud rates. At each baud rate, 256 bytes of data are written to the port and then read back. If the test detects differences between the written and read data, it logs an error message listing the port number and the final test result is "FAILED."
- Internal registers — performs an internal loopback test on the serial port register to verify that all registers contain valid values. This test then reads the registers to determine if they are set to invalid values. If the registers are set to invalid values, the test logs an error message listing the port number and the final test result is "FAILED."

omdiag chassis usb

Use the **omdiag chassis usb** command to test that the USB controller is communicating with all USB devices.

The USB test runs a status test to locate all USB controllers, hubs, and devices attached to the system and verify that the system is detecting them correctly. The devices are detected by directly accessing each physical device. If any devices are present but disabled or configured incorrectly, the test result is "FAILED."

omdiag chassis video

Use the **omdiag chassis video** command to test the video memory. The memory test fills the video memory and accelerated graphics port (AGP) memory with test patterns, which are designed specifically to discover memory errors. The data is then transferred back to the system memory and checked to make sure that every pixel contains the correct data. If a pixel reports different data than what the pixel is suppose to contain, the video memory test result is "FAILED."

omdiag storage

Use the **omdiag storage** commands to perform tests on storage components of a system, such as the CD drive, diskette drive, hard drive, tape drive, and SCSI or RAID controller.

omdiag storage -?

Use the **omdiag storage -?** command to see a list of all storage components on the system.

omdiag storage adaptecraidctr

Use the **omdiag storage adaptecraidctr** command to validate normal operations of Adaptec SCSI RAID controllers or host bus adapters. This command enumerates all the Adaptec SCSI RAID controllers present in the system and allows a user to test a specific controller.

The test retrieves and verifies the status information of the main components of the controller. It performs basic and advanced operations to verify the working status of the controller. The test is nondestructive in nature; no data is written to the storage devices managed by the controller.

The Adaptec RAID controller test performs the following tests:

- Pause-resume I/O — verifies the Pause I/O and Resume I/O functions of the controller on all of the buses.
- Device scan — verifies the status of SCSI devices attached to the controller. This test takes a snapshot of the status of current attached SCSI devices, rescans for all devices, and then compares the status with the first snapshot, reporting any changes.

- Global cache — retrieves the global cache parameters and verifies the normal operation of this function.
- Task scheduler — verifies the task scheduling functionality of the controller by scheduling a blinking task on each attached SCSI disk and verifying the task's normal operation. This test also schedules a verify task on each attached SCSI disk and verifies normal operation. It then terminates all scheduled tasks and verifies the successful termination of each task.
- SMART device — retrieves the Self-Monitoring And Reporting Technology (SMART) status of all attached SCSI disks and verifies normal operation.
- Dump log — performs a diagnostic log dump operation and verifies normal completion status.

omdiag storage amiraidctr

Use the **omdiag storage amiraidctr** command to validate normal operations of AMI SCSI RAID controllers or host bus adapters. It enumerates all the AMI SCSI RAID controllers present in the system and allows a user to selectively test a specific controller. The test retrieves and verifies the status information of the main components of the controller. It performs operations to verify the working status of the controller. The test is non-destructive in nature; that is, it does not write data to the storage devices managed by the controller.

The AMI controller test runs the following tests:

- Timer — checks for the normal operations of the timer. This test uses the system timer as a reference and verifies the controller's timer stepping rate.
- Battery — first checks for the existence of a battery module, and if one is present, it then performs a voltage and temperature test.
- Controller configuration — verifies the RAID volume configuration for consistency.

omdiag storage cddrive

Use the **omdiag storage cddrive** command to test CD drives.

The CD drive test runs several tests on a CD drive to make sure that the drive works properly. It determines how many CD drives are in your system and tests only those drives that support CD media. To run this test, you must place a CD such as a program disc or your system's recovery CD into the drive to be tested. You cannot use music CDs for testing.

The CD-ROM test performs the following tests:

- Linear seek — moves the CD drive heads continuously, starting from the center of the disk and moving outward to the maximum track, one track at a time, until the entire disk is tested. This test checks the integrity of the CD drive mechanics.
- Random seek — moves the CD drive heads to several hundred random locations on the disc, one track at a time. This test checks the integrity of the CD drive mechanics.
- Funnel seek — moves the CD drive heads continuously in a funnel fashion; that is, the test moves the heads from the first track on the disk media to the last, then to the second track, then to the second to last track, then to the third track, and so on. This test checks the integrity of the CD drive mechanics.
- Surface scan — reads entire tracks, beginning with the center track and moving outward to the maximum track. If any errors occur when reading a track, the test logs an error. This test scans for surface defects on the CD.

omdiag storage cdrwdrive (Microsoft® Windows® only)

Use the **omdiag storage cdrwdrive** command to test that your CD-RW drive writes and reads data correctly. This test determines how many CD-RW drives are on your system and tests only those drives that support CD-RW media. You must have a CD-RW disc in the CD-RW drive to run this test.

The test checks the CD-RW drive to verify that the correct media is present. If a CD-RW disc is present, the test continues. The test writes a portion of data to the CD-RW disc and then reads the data to ensure that it matches the data that was written. If the data read does not match the data written, the CD-ROM Read/Write Test logs as "FAILED."

NOTE: Use a blank CD-RW disc, or a CD-RW disc with data that you no longer need, to run this test.

omdiag storage dvddrive

Use the **omdiag storage dvddrive** command to test DVD drives. The DVD Test runs various read tests on DVD drives to determine if the drive is working. The test determines how many DVD drives are in your system and then tests those drives.

To run this test, you must have a DVD disc in the DVD drive. The DVD Test performs the following tests:

- Linear seek — moves the DVD drive heads continuously, starting from the center of the disc and moving outward to the maximum track, one track at a time, until the entire disc is tested. This test checks the integrity of the DVD drive mechanics.

- Random seek — moves the DVD drive heads to several hundred random locations on the disc, one track at a time. This test checks the integrity of the DVD drive mechanics.
- Funnel seek — moves the DVD drive heads continuously in a funnel fashion; that is, from the first track on the disc media to the last, then to the second track, then to the second to last track, and then to the third track, and so on. This test checks the integrity of the DVD drive mechanics.
- Surface scan (Windows only) — reads entire tracks, beginning with the center track and moving outward to the maximum track. If any errors occur when reading a track, this test logs an error. This test scans for surface defects on the DVD media.

NOTE: Microsoft Windows may take a while to recognize a newly inserted DVD disc. Therefore, it is recommended that you wait a few seconds after inserting a disc into the DVDdrive before you run the DVD test.

omdiag storage floppy

Use the **omdiag storage floppy** command to test the diskette drive.

The Storage Floppy test examines your diskette drive by using a series of seek and read tests to see if your drive is working correctly. You must insert a diskette into your diskette drive to run this test. The floppy test performs the following tests:

- Linear seek — moves the diskette drive heads continuously, starting from the center of the disk and moving outward to the maximum track, one track at a time, until the entire disk is tested. This test checks the integrity of the diskette drive mechanics.
- Random seek — moves the diskette drive heads to several hundred random locations on the disc, one track at a time. This test checks the integrity of the diskette drive mechanics.
- Funnel seek — moves the diskette drive heads continuously in a funnel fashion; that is, the test moves the heads from the first track on the disk media to the last, then to the second track, then to the second to last track, then to the third track, and so on. This test checks the integrity of the diskette drive mechanics.
- Surface scan — reads entire tracks, beginning with the center track and moving outward to the maximum track. If any errors occur when reading a track, the test logs an error. This test scans for surface defects on the diskette media.

omdiag storage harddrive (Red Hat Linux only)

Use the **omdiag storage harddrive** command to run a series of tests to see if your drive is working correctly.

NOTE: The hard drive test can take more than ten minutes.

The Hard Drive test performs the following tests:

- Funnel seek — moves the drive heads continuously in a funnel fashion; that is, this test moves the heads from the first track on the drive to the last, then to the second track, then to the second to last track, then to the third track, and so on. This test checks the integrity of the hard drive mechanics.
- Linear seek — moves the hard drive heads continuously, starting from the center of the disk and moving outward to the maximum track, one track at a time, until the entire disk is tested. This test checks the integrity of the hard drive mechanics.
- Random seek — moves the drive heads to several hundred random locations on the disk, one track at a time. This test checks the integrity of the hard drive mechanics.
- Surface scan — reads entire tracks, beginning with the center track and moving outward to the maximum track. If any errors occur when reading a track, this test logs an error. This test scans for surface defects on the hard drive media.

omdiag storage idehd (Windows only)

Use the **omdiag storage idehd** command to test hard drives attached to a server through a qualified integrated drive electronics (IDE) adapter and determine if the drive has failed.

The IDE test includes an extended Self-Monitoring and Reporting Technology (SMART) self-test. The quick version of the test runs a shortened SMART test which verifies a subset of the entire disk.

omdiag storage lsdrive

Use the **omdiag storage lsdrive** command to runs a series of seek tests that check if the LS-120 drive is working correctly. To run this test, you must have a diskette, LS-120, or LS-240 diskette in the LS-120 drive. The LS-120 test performs the following tests:

- Linear seek — moves the drive heads continuously, starting from the center of the diskette media and moving outward to the maximum track, one track at a time, until the entire diskette is tested. This test checks the integrity of the drive mechanics.
- Random seek — moves the drive heads to several hundred random locations on the diskette, one track at a time. This test checks the integrity of the drive mechanics.
- Funnel seek — moves the diskette drive heads continuously in a funnel fashion; that is, from the first track on the diskette media to the last, then to the second track, then to the second to last track, then to the third track, and so on. This test checks the integrity of the drive mechanics.

- Surface scan (Windows only) — reads entire tracks, beginning from the center of the diskette media and moving outward to the maximum track. If any errors occur when reading a track, this test logs an error. This test scans for surface defects on the tested media.

NOTE: Defective diskettes may cause LS-120 drive test failures. If an error occurs, insert a different diskette and run the test again.

omdiag storage raidhd (Windows only)

Use the **omdiag storage raidhd** command to test RAID-attached hard drives and verify that they are functional. You can test hard drives attached to a server through either a Dell-qualified SCSI adapter or RAID adapter and determine if the drives have failed. See the readme file for the supported RAID adapters.

NOTE: This test runs an entire surface scan, which takes approximately 30 minutes in most configurations.

You can run the following tests:

- Elite — verifies a drive's ability to respond to commands, return diagnostic information, and ensure data integrity across the entire disk surface. The quick version of the test, rather then verifying data integrity across the entire disk, verifies data across only key areas of the disk, resulting in reduced test time.
- Blink drive lights — For drives attached to RAID controllers, this test blinks the lights of a drive for 30 seconds to assist in locating the drive.

omdiag storage scsictr

Use the **omdiag storage scsictr** command to test the SCSI, which is a standard computer interface for peripheral hardware.

The SCSI controller test tests the SCSI interface and all attached SCSI devices. The SCSI's integrated self-diagnostic test performs these tests by using standard SCSI commands to detect SCSI devices. All SCSI devices are tested with the SCSI self-test function using the **SEND DIAGNOSTIC** command. These tests ensure the SCSI subsystem is intact and that the devices are responding correctly.

omdiag storage scsihd (Windows only)

Use the **omdiag storage scsihd** command to test SCSI-attached hard drives and verify that they are functional.

NOTE: This test runs an entire surface scan, which takes approximately 30 minutes in most configurations.

You can run the following test for SCSI-attached drives:

- Elite — verifies a drive's ability to respond to commands, return diagnostic information, and ensure data integrity across the entire disk surface. The quick version of the test, rather then verifying data integrity across the entire disk, verifies data across only key areas of the disk, resulting in reduced test time.

omdiag storage smart (Linux only)

Use the **omdiag storage smart** command to test the SMART functionality for both integrated drive electronics (IDE) and SCSI drives. The test scans your system for each available hard drive and determines whether your hard drives have a SMART system implemented. After the test determines that the SMART system is functional, the test checks the drive for predictive failures. The SMART test includes the following tests:

- Status — checks a SMART capable IDE or SCSI drive to see if the drive detects or predicts any imminent failures. For each SMART capable drive found, the test attempts to enable SMART. If the SMART enable fails, a message is logged and the drive is not tested. If the SMART enable is successful, this test checks the SMART status. If SMART predicts and imminent failure, this test logs an error.
- Short self-test (IDE drives only) — executes the SMART drive self-test routine. The test scans the system for each available hard drive. The capabilities of each drive are then checked to see if the drive is SMART-capable. If the drive supports self-test, this test starts the short self-test on the drive and monitors the testing until completion. On encountering a failure, this test logs an error message based on the results returned by the drive.
- Extended self-test (IDE drives only) — runs the SMART drive extended self-test routine. The test scans the system for each available hard disk drive. The capabilities of each drive are then checked to see if the drive is SMART-capable. If the drive supports self-test, this test starts the extended self-test on the drive and monitors the testing until completion. On encountering a failure, this test logs an error message based on the results returned by the drive.

omdiag storage tapedrive

Use the **omdiag storage tapedrive** command to test the tape drive by verifying the read, write, and seek capabilities of the drive. This test also checks the "prepare tape functions," which include lock, unlock, and rewind.

The length of the test depends on how much data is on the tape media and if the data is compressed. Test duration may last well over 30 minutes if the tape is full and the data is compressed.

The Tape Drive test includes the following tests:

- Linear seek — seeks sequentially, block-by-block, from the start of the tape to the end of the data. For every seek, a block of data is read into a memory variable. If this test detects seek errors, it logs them. This test requires that the tape media contain some data.
- Backup (optional) — seeks to the end of the tape data and writes to and reads from the tape. This is considered a destructive test because it writes data to the tape media. This test requires that the tape media contain some data.

omdiag system

You can use the `omdiag system` command to test any of the components for the system, regardless of whether they are part of the chassis or the storage. For example, `omdiag system memory` tests the memory just the same as if you run `omdiag chassis memory`.

omdiag system -?

Use the **omdiag system -?** command to see a list of all components on the system.

SECTION 4

omreport: Viewing System Status Using the Instrumentation Service

The **omreport** command allows you to see detailed information about your system components. You can retrieve summaries for many system components at one time, or you can get details about a specific component. This section shows you how to get reports with the level of detail that you want.

Commands documented in this section vary in whether they define the fields that appear in the results of a particular omreport command. Fields are defined only if they have a special or less familiar use.

As with all other components, you can use **omreport** to *view* component status, and **omconfig** to *manage* a component. For information on how to configure components for management, see "omconfig: Managing Components Using the Instrumentation Service."

Often you can use **omreport** commands to get information you need to execute an **omconfig** command. For example, if you want to edit the minimum temperature for a warning event on a temperature probe, you need to know the index of the probe you want to configure. You can use **omreport chassis temps** to display a list of probes and their indexes.

Conventions for Parameter Tables

When listing the parameters that a command can take, the parameters are listed in alphabetical order instead of the order in which they appear in the command line interface.

The symbol |, often called *pipe*, indicates the exclusive *or*, so that *enable* | *disable* means that you can enable or disable the component or feature, but you cannot both enable and disable the component or feature.

omreport Command Summary

NOTE: Although this section lists all possible **omreport** commands, the commands available on your system depend on your system configuration. The results that display for the **omreport** command vary from one system to another. Data displays for installed components only.

The following table is a high-level summary of the **omreport** command. The column titled command level 1 shows the **omreport** command at its most general. The **command level 2** command shows the major objects or components that you can view using **omreport** (about, system, chassis, and storage). Command level 3 lists the specific objects and components for which you can view reports. **User Privilege Required** refers to the type of privilege you need to perform the command, where U=User, P=Power User, and A=Administrator. **Use** is a very general statement of the actions that can be performed using **omreport**. More details about syntax and use of the command appear later in this section.

The following command lists the omreport commands available for about, system, and main system chassis. For information about viewing storage components, see "omreport: Using the Storage Reports."

Table 4-1. omreport Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
omreport				Shows high level summary of status for system components.
	about		U, P, A	Shows version number and properties for the Server Administrator program.
	system		U, P, A	Shows a high level summary of system components.
		alertaction	U, P, A	Shows warning and failure threshold values, as well as actions that have been configured when an essential components detects a warning or failure state.
		alertlog	U, P, A	Allows the administrator to clear the alert log.
		assetinfo	U, P, A	Shows cost of ownership information for your system.
		cmdlog	U, P, A	allows the administrator to clear the command log.
		esmlog	U, P, A	Allows the administrator to clear the hardware log.

Table 4-1. omreport Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
		operating system	U, P, A	Shows the name and version of your operating system.
		postlog	U, P, A	Shows your system's power on self test (POST) log
		recovery	U, P, A	Shows how your system is configured to respond to a hung operating system.
		shutdown	U, P, A	Shows how the shutdown action is to be performed.
		thrmshutdown	U, P, A	Shows what shutdown action, if any, is to be taken when a temperature warning or failure condition is detected.
		summary	U, P, A	Shows key facts for all system components, including main system chassis, software, and storage.
		version	U, P, A	Shows a summary for all updateable components on your system.
	chassis		U, P, A	Shows a general status for all main components.
		acswitch	U, P, A	Shows failover settings where redundant power units are installed in a system.
		bios	U, P, A	Shows BIOS facts such as manufacturer, version, date last updated.
		biossetup	U, P, A	Shows BIOS setup properties that you have configured during system boot.
		currents	U, P, A	Shows warning threshold values and alert actions to be taken on warning or failure readings.
		fans	U, P, A	Shows status and thresholds for system fans.
		fancontrol	U, P, A	Shows properties you have set for fan speed
		info	U, P, A	Shows a status summary for main system chassis components.

Table 4-1. omreport Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
		leds	U, P, A	Shows the properties you have set for light emitting diodes (LEDs) to flash under various alert conditions.
		firmware	U, P, A	Shows firmware properties such as version, date of last update, and whether the firmware is updateable.
		intrusion	U, P, A	Displays intrusion status and the actions to be taken if chassis intrusion occurs.
		memory	U, P, A	Shows properties of your systems memory arrays.
		nics	U, P, A	Shows number of network interface cards installed in your system, nic manufacturer, and IP address.
		ports	U, P, A	Shows properties for your system's parallel and serial ports, such as I/O address, IRQ level, connector type, and maximum speed.
		processors	U, P, A	Shows properties of your system's processors, including speed, manufacturer, and processor family.
		powerbutton	U, P, A	Shows the power button control settings.
		pwrsupplies	U, P, A	Shows properties of power supply(s).
		slots	U, P, A	Shows properties of your system's expansion slots and other slot types.
		temps	U, P, A	Shows warning threshold values and alert actions to be taken on warning or failure readings.
		volts	U, P, A	Shows warning threshold values and alert actions to be taken on warning or failure readings.
	storage		U, P, A	See "omreport: Using the Storage Reports."

Help With the omreport Command

Use the **omreport -?** command to get a list of the available commands for **omreport**.

Use **omreport** <*command level2*> **-?** to get help on the level 2 commands about, chassis, and system. The following information on **omreport system -?** applies equally to getting help for the **omreport chassis** command.

To see a list of valid commands for **omreport** system, type:

```
omreport system -? | more
```

omreport about

Use the **omreport about** command to learn the product name and version number of the systems management application installed on your system. The following is example output from the **omreport about** command:

```
Product name     : Server Administrator
Version          : 1.0
Copyright        : Copyright (C) Dell Corp. 1995-2002. All rights
reserved.
Company          : Dell Computer Corporation.
```

For even more details about the environment for Server Administrator, type:

```
omreport about details=true
```

Server Administrator includes a number of services, each of which has a version number of its own. The **Contains** field reports version numbers for the services as well as other useful details. The output below is an example, and can change depending on your configuration and the version of Server Administrator that is installed on your system:

```
Contains:    Instrumentation Service 4.5.1
             Update Service 1.1
             Diagnostic Service 2.0.0
             Sun JRE - Dell Installed Version 3.1.1
             Server Agent Web Server 1.0.0
             Server Administrator Core 1.0.0
             Instrumentation Service Integration Layer 1.0.0
             Storage Management Service Integration Layer 1.0.0
```

omreport system Commands

Use the **omreport system** commands to view logs, to see how shutdown actions are configured, to view threshold values, cost of ownership information, and information about how recovery actions are configured.

omreport system

Use the **omreport system** command to see a general status for your system components. When you specify a level 3 command, such as **omreport system shutdown**, you can get detailed information for one system component rather than the high level status that you get with **omreport system**.

Type:

```
omreport system
```

If your system has both a main system chassis and at least one direct attached storage device, Server Administrator may display a summary that resembles the following example.

NOTE: As with all output shown in this guide, the following output is an example, and may vary depending on your system configuration.

```
Severity  :     Component
Ok        :     Main System Chassis
Critical  :     Storage
```

omreport system alertaction

Use this command to see a summary of alert actions that have been configured for warning and failure events on your system components. Alert actions determine how Server Administrator responds when a component has a warning or failure event.

The **omreport system alertaction** command is useful for *viewing* which alert actions have been specified for components. To *set* an alert action for a component, you must use the **omconfig system alertaction** command. See "omconfig: Managing Components Using the Instrumentation Service."

Components and Events for Which You Can View Alert Actions

You can view alert action properties for the following components and the events:

- current probe warning
- current probe failure

- fan warning
- fan failure
- chassis intrusion
- memory prefailure
- memory failure
- power supply failure
- degraded redundancy
- lost redundancy
- temperature warning
- temperature failure
- voltage warning
- voltage failure

Commands for Viewing Logs

You can use the **omreport system** command to view logs: the alert log, the command log, the hardware, or embedded systems management (ESM) log, and the POST log.

To view the contents of the alert log, type:

```
omreport system alertlog
```

To view the contents of the command log, type:

```
omreport system cmdlog
```

To view the contents of the ESM log, type:

```
omreport system esmlog
```

To view the contents of the POST log, type:

```
omreport system postlog
```

omreport system recovery

Use the **omreport system recovery** command to see whether there is an action configured for a hung operating system. You can also view the number of seconds that must elapse before an operating system is considered to be hung.

omreport system shutdown

Use the **omreport system shutdown** command to view any pending shutdown actions for your system. If properties for shutdown are configured, executing this command displays them.

omreport system tthrmshutdown

Use the **omreport system thrmshutdown** command to view which properties, if any, have been configured for a thermal shutdown action.

The three properties that display for thermal shutdown are disabled, warning, or failure. If the CLI displays the following message:

```
Thermal protect shutdown severity: disabled
```

the thermal shutdown feature has been disabled.

If the system is configured to shutdown when a temperature probe detects a warning or failure event, one of the following messages displays:

```
Thermal protect shutdown severity: warning
```

```
Thermal protect shutdown severity: failure
```

omreport chassis Commands

Use **omreport chassis** commands to view details for the entire chassis or for a particular component.

omreport chassis

When you type:

```
omreport chassis
```

Server Administrator displays a general status for your main system chassis components.

NOTE: As with all output shown in this guide, the following output is an example, and may vary depending on your system configuration.

```
Severity  :      Component
Ok        :      Fans
Critical  :      Intrusion
Ok        :      Memory
```

```
Ok        :      Power Supplies
Ok        :      Temperatures
Ok        :      Voltages
```

omreport chassis acswitch

Use the **omreport chassis acswitch** command if your system has redundant power supplies that are configured in a failover arrangement. When you type:

```
omreport chassis acswitch
```

Server Administrator displays the following output:

```
AC Failover Switch
AC Switch Redundancy
Redundancy Status                                  : Full
Number of devices required for full redundancy : 2
Redundancy Mode                                    : Redundant
Redundancy Configuration                           : Input Source Line
1, upon redundancy restoration, return to Line 1


AC Power Lines
Status           : Ok
Location         : AC Power Line 1
AC Present       : Power Present
Active Source    : Active

Status           : Ok
Location         : AC Power Line 2
AC Present       : Power Present
Active Source    : Not Active
```

Server Administrator reports values for the the **Redundancy Expected** and **Mode** fields.

omreport chassis biossetup

Use the **omreport chassis biossetup** command to view BIOS setup parameters that are normally available only during system boot.

Type:

```
omreport chassis biossetup
```

Output from this command summarizes each of the attributes in the table below and the setting that has been configured for each.

Table 4-2. BIOS Setup Properties

name=value pair 1	name=value pair 2	Description
Attribute=	**Setting=**	
attribute=bootsequence	setting= diskettefirst | hdonly | devicelist	Tells the BIOS which device is used to boot the system, and the order in which the boot routine is to check each device.
attribute=diskette	setting= off| auto | writeprotect	Off: Disable diskette drive during system boot. Auto: Auto enable the diskette drive during system boot. Writeprotect: Do not allow writes during system boot. Make the diskette drive read only during system boot.
attribute=ide	setting= on | off	On: enables the IDE drive during system boot. Off: disables the IDE drive during system boot.
attribute=mouse	setting= on | off	On: enables the mouse during system boot. Off: disables the mouse during system boot.

Table 4-2. BIOS Setup Properties

name=value pair 1	name=value pair 2	Description
attribute=nic	setting = enabled | disabled |enablednonepxe	Enabled: enables the NIC during system boot (with PXE on if the system has PXE). Disabled: disables the NIC during system boot. Enablednonepxe: enables the NIC during system boot with PXE off if the system has PXE.
attribute=numlock	setting= on | off	On: Use the keypad as number keys. Off: Use the keypad as arrow keys.
attribute=onboardraid	setting= raid| off | scsi	RAID: tells the BIOS to detect this device as a redundant array of independent disks (RAID) device. Off: disables the device during system boot SCSI: tells the BIOS to detect this device as a SCSI device.
attribute=ppaddress	setting= off | lpt1 | lpt2 | lpt3	off: disable the parallel port address during system boot LPT1: locate the device on lpt1 LPT2: locate the device on lpt2 LPT3: locate the device on lpt3
attribute=ppmode	setting= at | ps2	AT: set the parallel port mode to type at. PS2: set the parallel port mode to type ps2.
attribute=secondaryscsi	setting= on | off	On: enable this device during system boot Off: disable this device during system boot.

Table 4-2. BIOS Setup Properties

name=value pair 1	name=value pair 2	Description
attribute=serialport1	setting= off | auto | com1 |com3	Off: disable serialport1 during system boot.
		auto: map serialport1 to a COM port during system boot.
		COM1: map serialport1 to COM port 1 during system boot.
		COM3: map serialport1 to COM port 3 during system boot.
attribute=serialport2	setting= off | auto | com2 |com4	OFF: disable serialport2 during system boot.
		AUTO: map serialport2 to a COM port during system boot.
		COM2: map serialport2 to COM port 2 during system boot.
		COM4: map serialport2 to COM port 4 during system boot.
attribute=speaker	setting= on | off	On: enables the speaker during system boot.
		Off: disables the speaker during system boot.
attribute=usb	setting= enabled | disabled	Enabled: enables the universal serial bus during system boot.
		Disabled: disables the usb during system boot.

omreport chassis currents

Use the **omreport chassis currents** command to view current (amperage) probe status and settings. When you type:

```
omreport chassis currents
```

Server Administrator displays a summary of status, readings, and thresholds set for any current probes that may be present on your system.

omreport chassis fans

Use the **omreport chassis fans** command to view fan probe status and settings. When you type:

```
omreport chassis fans
```

Server Administrator displays a summary of status, readings, and thresholds set for any fan probes that may be present on your system.

omreport chassis fancontrol

Use the **omreport chassis fancontrol** command to see how fan speed is set on your system. Fan speed can be set to optimize speed for cooling or for quiet operation.

Table 4-3. Fan Control Settings

name=value pair 1	Description
speed=quiet	Set fan speed for quiet operation.
speed=maxcool	Set fan speed for maximum cooling.

omreport chassis info

Use the **omreport chassis info** to see a summary of installed component versions. Type:

```
omreport chassis info
```

Depending on your configuration, output may resemble the following example:

```
Index                                          : 0
Chassis Name                                   : finance
Host Name                                      : finance22
Embedded System Management Controller Version: 5.50
Primary Backplane Version                      : 5.51
Chassis Model                                  : PowerEdge 8450
Chassis Lock                                   : Present
Service Tag                                    : 678211C
Asset Tag                                      : FinceDept
Fault LED Flash on Severity Level              : Critical
```

omreport chassis intrusion

Use **omreport chassis intrusion** to find out whether the cover to your system is open. Server Administrator tracks chassis intrusion events because intrusions may indicate an attempt to steal a system component, or to perform unauthorized maintenance on the system. Type:

```
omreport chassis intrusion
```

A message that resembles the following may display:

```
Status          : Ok
Probe Name      : Main chassis intrusion
State           : Chassis is closed
```

omreport chassis leds

Use the **omreport chassis leds** command to find out whether clear hard drive fault is supported and what severity level lights up the LED. Type:

```
omreport chassis leds
```

The following is example output:

```
Clear hard drive fault                    : Supported
Flash fault led on severity level         : Critical
```

omreport chassis memory

Use **omreport chassis memory** to see details for each memory module slot in your system. Type:

```
omreport chassis memory
```

Example output for an occupied memory slot may resemble the following:

```
Index           : 1
Status          : OK
Connector Name  : DIMM_B
Type            : SDRAM-SYNCHRONOUS
Size            : 256 MB
```

An unoccupied memory slot still has a connector name. Example output for an unoccupied memory slot may resemble the following:

```
Index           : 2
Status          : Unknown
Connector Name  : DIMM_D
Type            : Not occupied
Size            : Unknown
```

omreport chassis nics

Use the **omreport chassis nics** command to view network interface card (NIC) properties. Type:

```
omreport chassis nics
```

Values display for the following fields: **Index** (number of the NIC card), **IP address**, **Vendor**, **Description**, and **Connection Status**.

omreport chassis ports

Use the **omreport chassis ports** command to view properties of your system's parallel and serial ports.

Values display for the following fields: **External Name**, **Base I/O Address**, **IRQ Level**, **Connector Type**, and **Maximum Speed**.

The *External Name* is the name of the port, such as serial or parallel, universal serial bus (USB), mouse, keyboard, and so on.

Base IO Address is the starting I/O address expressed in hexidecimal.

An *Interrupt ReQuest* (IRQ) is a hardware interrupt on a system. The hardware interrupt signals the system's central processing unit (CPU) that an event has started or ended in a peripheral component such as a modem or printer. When communicated over a peripheral component interconnect card, the IRQ level is a standard way to identify the type of device that is sending the interrupt request.

Connector Type refers to the type of plug or cable and plug that connects two devices together, in this case, the type of connector that attaches an external device to a system. There are many connector types, each designed to connect a different device type to a system. Examples include DB-9 male, AT, access bus, PS/2, and so on.

Maximum Speed is the port speed. Port speed refers to the data transmission rate of an input/output channel, measured in numbers of bits per second. Serial ports have an average speed of 115 Kbps and USB ports have an average speed of 12 Kbps.

omreport chassis powerbutton

Use this command to view power button settings. If the power button override is present on your system, you can see whether power button override is enabled or not.

omreport chassis processors

Use the **omreport chassis processors** command to view properties of your system's processors.

Values display for the following fields: **Connector Name**, **Manufacturer**, **Processor Family**, **Processor Version**, **Maximum Speed, Current Speed, External Clock Speed, Processor Upgrade**, and **State**.

Connector Name refers to the name or number of the device that occupies the processor slot in the system.

Processor Manufacturer is the business entity that sells the processor.

Processor Family refers to the type of processor made by a manufacturer such as Intel® Itanium® or Pentium® III.

Processor Version refers to the model and stepping number of the processor.

Maximum Speed is the highest expected transmission speed that the processor can achieve in millions of cycles per second (MHz).

Current Speed is the actual processor speed in MHz at system boot time.

External Clock Speed is the speed of the processor's external clock in MHz.

Processor Upgrade describes the upgrade socket or device for the processor. Options include upgrade device type unknown, there is no upgrade device type, upgrade device is on a daughter board, is in a zero insertion force (ZIF) socket, is a replacement, is in a low insertion force (LIF) socket, is a Slot 1 processor, is a Slot 2 processor, is a pin 370 processor.

State refers to whether the processor slot is enabled or disabled.

omreport chassis pwrsupplies

Use the **omreport chassis pwrsupplies** command to view properties of your system's power supplies.

For each power supply in the system, values display for the following fields: **Status**, **Location**, **Max Wattage,** and **Online Status.**

omreport chassis slots

Use the **omreport chassis slots** command to view properties of your system's power supplies.

For each power supply in the system, values display for the following fields: **Index**, **Slot ID**, **Adapter**, and **Data Bus Width**.

Index is the number of the slot in the system.

The *Slot ID* is the silk screen name printed on your system's motherboard next to the slot. Alphanumeric text uniquely identifies each slot in the system.

Adapter refers to the name and or type of the card that fits into the slot, for example, a storage array controller, SCSI adapters, host bus adapters (HBA).

Data bus width is the width, in bits, of the information pathway between the components of a system. Data bus width range is 16 to 64 bits.

omreport chassis temps

Use the **omreport chassis temps** command to view properties of your system's temperature probes. When you type:

```
omreport chassis temps
```

Server Administrator displays a summary of status, readings, and thresholds set for any temperature probes that may be present on your system.

omreport chassis volts

Use the **omreport chassis volts** command to view properties of your system's voltage probes. When you type:

```
omreport chassis volts
```

Server Administrator displays a summary of status, readings, and thresholds set for any voltage probes that may be present on your system.

SECTION 5

omreport: Using the Storage Reports

Use the **omreport storage** command to view information about enclosures, volumes, arrays, and disks that are part of your storage system.

Conventions for Parameter Tables

When listing the parameters that a command can take, the parameters are listed in alphabetical order instead of the order in which they appear in the command line interface.

The symbol |, often called *pipe*, indicates the exclusive *or*, so that *enable* | *disable* means that you can enable or disable the component or feature, but you cannot both enable and disable the component or feature.

omreport storage Command Summary

NOTE: Although this section lists all possible **omreport** storage commands, the commands available on your system depend on your system configuration. The results that display for the omreport storage command vary from one system to another. Data displays for installed components only.

The following table is a high-level summary of the **omreport storage** command. The column titled command level 1 shows the **omreport** command at its most general. **command level 2** shows the major objects or components that you can view using **omreport storage**. Command level 3 lists the specific storage objects and components for which you can view reports. **User Privilege Required** refers to the type of privilege you need to perform the command, where U=User, P=Power User, and A=Administrator. **Use** is a very general statement of the actions that can be performed using **omreport storage**. More details about syntax and use of the command appear later in this section.

Table 5-1. omreport storage Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
omreport				
	storage		U, P, A	Displays a high level status for all storage components.
		arraydisks	A	Displays a high level status for array disks.
		arrays	A	Displays detailed information for an array disk on a particular controller.
		osdiskinfo	A	Displays detailed information for a particular operating system disk.
		osdisks	A	Displays operating system disk properties.
		volumes	A	Displays properties for all volumes.
		enclosures	A	Displays properties for all enclosures.
		enclosureinfo	A	Displays detailed information for a particular enclosure.

omreport storage Commands

When you type

```
omreport storage
```

Server Administrator displays a general status for storage components.

NOTE: As with all output shown in this guide, the following output is an example, and may vary depending on your system configuration.

```
Severity  :     Component
Ok        :     Array Subsystems
Warning   :     OS Disks
Ok        :     Volumes
```

omreport storage arraydisks

Use the **omreport storage arraydisks controller=***ID* command (where *ID* is the ID number for the controller that controls the disks in the array) to view information for all enclosures and disks attached to a specific RAID controller. For example, if the controller's ID is "447244640307," enter the following command to see all enclosures and disks attached to that controller:

```
omreport storage arraydisks controller=47244640307
```

The report includes the following information for each enclosure in the array:

- ID — assigned ID number for the enclosure.
- Status — status of the enclosure.
- Name — name of the enclosure.
- Application Version — version of firmware installed on the enclosure.
- Product ID — vendor-assigned ID for the enclosure.
- Asset Tag — a label that specifies either manufacturer's information or, in the case of a customer-specified asset tag, customer's information (such as inventory number, serial number, and so on).
- Service Tag — An alphanumeric code that uniquely identifies a storage device.

The report includes the following information for each physical disk in the array:

- Status — status of the disk.
- Name — name of the array disk. If more than one array disk comprises a virtual disk, the name may include the number of the array disk, for example, ArrayDisk0:0, ArrayDisk0:1 means the first and second array disks on virtual disk 0.
- State — current state of the array disk.
- Type — type of disk, such as SCSI. Also indicates the port ID and LUN for the disk.
- Product ID — vendor-assigned ID for the physical disk.
- Rev — revision number of the firmware on the array disk.
- Vendor — manufacturer of the disk.
- Capacity — amount of total storage space on the physical disk.
- Unallocated Space — amount of usable storage space that is available.

If you want to see all disks that comprise a virtual disk, use the virtual disk ID in the command. For example, to see all disks that make up a virtual disk with the ID of "47244640361," enter the following command:

```
omreport storage arraydisks vdisk=47244640361
```

NOTE: You can find virtual disk and controller IDs by running the **omreport storage arrays** command, which shows the properties for all of the controllers in the system.

Use the **omreport storage arrays** command to view detailed information about the disk controller and the storage subsystems attached to the controller. The following information is provided about the controller:

- ID — assigned ID number for the controller.
- Name — name of the controller.
- State — current state of the controller.
- Firmware — version of firmware installed on the controller.

For each controller, you can view the following information about the virtual disks controlled by the controller:

- ID — assigned ID number for the virtual disk.
- Status — status of the virtual disk.
- Name — name of the virtual disk.

- State — current state of the virtual disk.
- Read cache — Read policies indicate whether or not the controller should read sequential sectors of the logical drive when seeking data. The read policies are as follows:
  - Read-Ahead. When using read-ahead policy, the controller reads sequential sectors of the logical drive when seeking data. Read-ahead policy may improve system performance if the data is actually written to sequential sectors of the logical drive.
  - No-Read-Ahead. Selecting no-read-ahead policy indicates that the controller should not use read-ahead policy.
  - Adaptive Read-Ahead. When using adaptive read-ahead policy, the controller initiates read-ahead only if the two most recent read requests accessed sequential sectors of the disk. If subsequent read requests access random sectors of the disk, the controller reverts to no-read-ahead policy. The controller continues to evaluate whether read requests are accessing sequential sectors of the disk, and can initiate read-ahead if necessary.
- Write cache — Write Policies specify whether the controller sends a write-request completion signal as soon as the data is in the cache or after it has been written to disk. The write policies are as follows:
  - Write-Back Caching. When using write-back caching, the controller sends a write-request completion signal as soon as the data is in the controller cache but has not yet been written to disk. Write-back caching may provide improved performance since subsequent read requests can more quickly retrieve data from the controller cache than they could from the disk. Write-back caching also entails a data security risk, however, since a system failure could prevent the data from being written to disk even though the controller has sent a write-request completion signal. In this case, data may be lost. Other applications may also experience problems when taking actions that assume the data is available on the disk.
  - Write-Through Caching. When using write-through caching, the controller sends a write-request completion signal only after the data is written to the disk. Write-through caching provides better data security than write-back caching, since the system assumes the data is available only after it has been safely written to the disk.

- Cache policy — indicates whether read cache, write cache, or both are enabled for a specific disk.

  The direct I/O and cache I/O cache policies apply to reads on a specific logical drive. These settings do not affect the read-ahead policy. The direct I/O and cache I/O cache policies are as follows:

  – Cache I/O — specifies that all reads are buffered in cache memory.
  – Direct I/O (default) — specifies that reads are not buffered in cache memory. When using direct I/O, data is transferred to the controller cache and the host system simultaneously during a read request. If a subsequent read request requires data from the same data block, it can be read directly from the controller cache. The direct I/O setting does not override the cache policy settings.

- Layout — RAID level for the array. See your Array Manager documentation for more information about RAID levels.
- Size — amount of storage on the disk in GB.

omreport storage enclosureinfo

Use the **omreport storage enclosureinfo enclosure=***ID* command (where *ID* is the ID number for the enclosure) to view information about a single enclosure. For example, if the enclosure's ID is "447244640512," enter the following command to see detailed information for that enclosure:

```
omreport storage enclosureinfo enclosure=47244640512
```

NOTE: You can find an enclosure ID by running the **omreport storage enclosures** command, which shows the properties for all of the enclosures in the system.

The following information displays for the enclosure:

- Fans
  – Status — status of the fan.
  – Name — name of the fan.
  – State — current state of the fan.
  – Speed — speed at which the fan is running.
- Temperature Probes
  – Status — status of the temperature probes.
  – State — state of the temperature probes.
  – Reading — actual temperature measured by a particular probe. Readings are always a snapshot of a device's measurements at a point in time.

  - Minimum Warning Threshold — minimum temperature, expressed in degrees, that will activate an alarm.
  - Maximum Warning Threshold — maximum temperature, expressed in degrees, that will activate an alarm.
  - Minimum Failure Threshold — minimum temperature, expressed in degrees, that will cause the enclosure to fail.
  - Maximum Failure Threshold — maximum temperature, expressed in degrees, that will cause the enclosure to fail.
  - Units — measurement type of temperature, such as Celsius.
- Power supplies
  - Status — status of the power supplies.
  - Name — name of the power supply, such as "Power Supply 1."
  - State — current state of the power supply.

omreport storage enclosures

Use the **omreport storage enclosures** command to view the enclosures that contain arrays disks for a particular controller. The following information displays for each enclosure on the controller:

- ID — assigned ID number for the enclosure.
- Status — status of the enclosure.
- Name — name of the enclosure.
- Application version — version of firmware on the enclosure.
- Product ID — identifying information for the storage enclosure, such as model and short description.
- Asset tag — a label that specifies either manufacturer's information or, in the case of a customer-specified asset tag, customer's information (such as inventory number, serial number, and so on).
- Service tag — An alphanumeric code that uniquely identifies a storage device.

omreport storage osdiskinfo

Use the **omreport storage osdiskinfo osdisk=***ID* command (where *ID* is the ID number for the operating system disk) to view detailed information for the operating system disks. For example, if the operating system disk's ID is `447244640714`, enter the following command to see the disks that comprised the operating system disk:

```
omreport storage osdiskinfo osdisk=447244640714
```

NOTE: You can find the ID by using the **omreport storage osdisks** command, which provides information for all operating system disks.

The **osdiskinfo** command provides information, as applicable, about the volumes, virtual disks, and array disks that make up an operating system disk.

osdiskinfo provides the following information about the volumes that contain operating system disks:

- Status — status of the volume.
- Label — name of the volume.
- State — state of the volume.
- File system — file system for the volume, such as NT File System (NTFS) or File Allocation Table (FAT).
- Size — total space on the volume in GB
- Unallocated Space — amount of storage that remains on the volume in GB.

osdiskinfo provides the following information about the virtual disk(s) that comprise the operating system disk:

- Status — status of the virtual disk.
- Name — name of the virtual disk.
- State — current state of the virtual disk.
- Read Cache — Read policies indicate whether or not the controller should read sequential sectors of the logical drive when seeking data. The read policies are as follows:
  - Read-Ahead. When using read-ahead policy, the controller reads sequential sectors of the logical drive when seeking data. Read-ahead policy may improve system performance if the data is actually written to sequential sectors of the logical drive.

  - No-Read-Ahead. Selecting no-read-ahead policy indicates that the controller should not use read-ahead policy.
  - Adaptive Read-Ahead. When using adaptive read-ahead policy, the controller initiates read-ahead only if the two most recent read requests accessed sequential sectors of the disk. If subsequent read requests access random sectors of the disk, the controller reverts to no-read-ahead policy. The controller continues to evaluate whether read requests are accessing sequential sectors of the disk, and can initiate read-ahead if necessary.

- Write Cache — Write Policies specify whether the controller sends a write-request completion signal as soon as the data is in the cache or after it has been written to disk. The write policies are as follows:
  - Write-Back Caching. When using write-back caching, the controller sends a write-request completion signal as soon as the data is in the controller cache but has not yet been written to disk. Write-back caching may provide improved performance since subsequent read requests can more quickly retrieve data from the controller cache than they could from the disk. Write-back caching also entails a data security risk, however, because a system failure could prevent the data from being written to disk even though the controller has sent a write-request completion signal. In this case, data may be lost. Other applications may also experience problems when taking actions that assume the data is available on the disk.
  - Write-Through Caching. When using write-through caching, the controller sends a write-request completion signal only after the data is written to the disk. Write-through caching provides better data security than write-back caching, since the system assumes the data is available only after it has been safely written to the disk.
- Cache Policy — indicates whether the cache policy for privileges to read from and write to the disk cache is enabled or not.

  The direct I/O and cache I/O cache policies apply to reads on a specific logical drive. These settings do not affect the read-ahead policy. The direct I/O and cache I/O cache policies are as follows:
  - Cache I/O — specifies that all reads are buffered in cache memory.
  - Direct I/O (default) — specifies that reads are not buffered in cache memory. When using direct I/O, data is transferred to the controller cache and the host system simultaneously during a read request. If a subsequent read request requires data from the same data block, it can be read directly from the controller cache. The direct I/O setting does not override the cache policy settings.

- Layout — RAID level on the virtual disk. See your Array Manager documentation for more information.
- Size — amount of storage on the virtual disk in GB.

omreport storage osdiskinfo provides the following information about the physical array disks that comprise the operating system disk:

- Status — status of the array disk.
- Label — name of the array disk. If there is more than one array disk comprises a virtual disk, the name may include the number of the array disk, for example, ArrayDisk0:0, ArrayDisk0:1 means the first and second array disks that make ArrayDisk0.
- State — current state of the array disk.
- Controller — name of the RAID controller that controls the array disk.

omreport storage osdisks

Use the **omreport storage osdisks** command to view information about for all of your operating system disks. The following information displays for each disk that contains operating system files:

- ID — assigned ID number for the disk. You can use this number in conjunction with the **omreport storage osdiskinfo** command to view information about a specific operating system disk. See "omreport storage osdiskinfo" for more information.
- Status — status of the operating system disk.
- Name — name of the operating system disk.
- State — current state of the operating system disk.
- Type — type of disk, such as SCSI. Also indicates the port ID and LUN for the operating system disk.
- Vendor — manufacturer of the disk.
- Unallocated space — amount of usable storage space that is available.

You can view operating system disk information for a volume by entering the volume ID as part of the parameter. For example:

```
omreport storage osdisks volume=60129542154
```

You obtain a volume's ID by running the **omreport storage volumes** command. See "omreport storage volumes" for more information.

omreport storage volumes

Use the **omreport storage volumes** command to view information about the volumes on your storage system. The following information displays for each volume:

- ID — assigned ID number for the volume. You can use this number in conjunction with the **omreport storage osdisks** command to view information about an operating system disk on a specific volume. See "omreport storage osdisks" for more information.
- Status — status of the volume.
- Label — name of the volume.
- State — current state of the volume.
- File System — file system for the volume, such as NTFS or FAT.
- Size — total space on the volume in GB.
- Unallocated Space — amount of storage that remains on the volume in GB.

SECTION 6

omupdate: Using the Update Service for BIOS and Firmware

The **omupdate** command allows you to select an update package to update your system's BIOS and firmware remotely.

omupdate Command Summary

NOTE: Although this section lists all possible **omupdate** commands, the commands available on your system depend on your system configuration. If you try to get help or execute a command for a component or package that is not installed on your system, Server Administrator issues a message that `the component is not found on this system.`

The following table is a high-level summary of the **omupdate** command. The column titled **command level 2** lists the major arguments that can be used with **omupdate**. One **name=value** pair is needed for some commands to execute. The **name=value** pair contains what are often called *parameters* of a command. **User Privilege Required** refers to the type of privilege you need to perform the command, where U=User, P=Power User, and A=Administrator. **Use** is a very general statement of the actions that can be performed using the **omupdate command**. More details about syntax and use of the command appear later in this section.

Table 6-1. omupdate Command

Command Level 1	Command Level 2	name=value pair 1	User Privilege Required	Use
omupdate				
	about		U, P, A	Displays version number and details for the Server Administrator program.
	biosupdate	path=<*file*>	A	Performs the BIOS update. You must specify the absolute path of the update package file.
	fwupdate	path=<*file*>	A	Performs the firmware update. You must specify the absolute path of the update package file.
	version	N/A	U, P, A	Displays a version report of all the components yo can update.

Help With the omupdate Command

Use the **omupdate -?** command to get a list of the available commands for **omupdate**.

Use **omupdate <***command level2***> -?** to get help on the level 2 commands **about**, **biosupdate**, **fwupdate**, and **version**.

To find out what happens when you run the command **omupdate version**, type:

```
omupdate version -?
```

A short description of the command's output appears:

```
version                Version report for all updateable components.
```

omupdate about

Use the **omupdate about** command to learn the product name and version number of the systems management application installed on your system. The following is example output from the omupdate about command:

```
Product name    : Server Administrator
Version         : 1.0
Copyright       : Copyright (C) Dell Corp. 1995-2002. All rights reserved.
Company         : Dell Computer Corporation.
```

For even more details about the environment for Server Administrator, type:

```
omconfig about details=true
```

Server Administrator includes a number of services, each of which has a version number of its own. The **Contains** field reports version numbers for the services as well as other useful details. The output below is an example, and can change depending on your configuration and the version of Server Administrator that is available:

```
Contains:    Instrumentation Service 4.5.1
             Update Service 1.1
             Diagnostics Service 2.0.0.23.269
             Sun JRE - Dell Installed Version 3.1.1
             Server Agent Web Server 1.0.0
             Server Administrator Core 1.0.0
```

```
Instrumentation Service Integration Layer 1.0.0
Storage Management Service Integration Layer 1.0.0
```

omupdate biosupdate

Use the **omupdate biosupdate** command to specify the absolute path of a BIOS update package file. To run the **omupdate biosupdate** command, type:

```
omupdate biosupdate path=<file>
```

For the <*file*> variable, you must enter the fully qualified path and filename of the BIOS update package file.

omupdate fwupdate

You can use the **omupdate fwupdate** command to specify the absolute path of a firmware update package file. To run the **omupdate fwupdate** command, type:

```
omupdate fwupdate path=<file>
```

For the <*file*> variable, you must enter the fully qualified path and filename of the firmware update package file.

omupdate version

Use the **omupdate version** command to learn the name version of each installed BIOS, firmware, systems management, and operating system package installed on your system.

The following is example output from the **omupdate about** command:

```
Name: BIOS
Version: A07
Updateable: Yes

Name: Embedded Systems Management Controller
Version: 5.50
Updateable: Yes
```

```
Name: Primary Backplane
Version: 5.51
Updateable: Yes

Name: Windows 2000
Version: 5.0 build(2195) Service Pack 2
Updateable: N/A
Name: Dell OpenManage Server Administrator
Version: 1.0
Updateable: N/A

Name: PERC 3/QC Controller 0
Version: Firmware Version 161J
Updateable: N/A
```

SECTION 7

omconfig: Managing Components Using the Instrumentation Service

The **omconfig** command allows you to provide values that define warning events, configure alert actions, clear logs, and configure system shutdown, as well as allowing you to perform other systems management tasks.

Examples of **omconfig** capabilities include the administrator's privilege to clear command, alert, and hardware logs; the administrator's privilege to configure and execute system shutdown; power user and administrator's privilege to default or specify values for warning events on current probes, fans, voltage probes, and temperature probes; power user and administrator's privilege to set alert actions in the event of a warning or failure event from intrusion, current probes, fans, voltage probes, and temperature probes.

For information on how to use the **omconfig** system command to view and to manage cost of ownership information (**assetinfo**), see "omconfig system assetinfo: Editing Cost of Ownership Values."

Often you must use **omreport** commands to get information you need to execute an **omconfig** command. For example, if you want to edit the minimum temperature for a warning event on a temperature probe, you need to know the index of the probe you want to configure. You can use **omreport chassis temps** to display a list of probes and their indexes. For more information on using the **omreport** command, see "omreport: Viewing System Status Using the Instrumentation Service."

Conventions for Parameter Tables

When listing the parameters that a command can take, the parameters are listed in alphabetical order instead of the order in which they appear in the command line interface.

The symbol |, often called *pipe*, shall mean the exclusive *or*, so that enable | disable means that you can enable or disable the component or feature, but you cannot both enable and disable the component or feature.

omconfig Command Summary

NOTE: Although this section lists all possible **omconfig** commands, the commands available on your system depend on your system configuration. If you try to get help or execute a command for a component that is not installed on your system, Server Administrator issues a message that `the component or feature is not found on this system`.

The following table is a high-level summary of the **omconfig** command. The columns titled **command level 2** and **command level 3** list the major arguments that can be used with **omconfig**. **User Privilege Required** refers to the type of privilege you need to perform the command, where U=User, P=Power User, and A=Administrator. **Use** is a very general statement of the actions that can be performed using **omconfig.** More details about syntax and use of the command appear later in this section.

Table 7-1. omconfig Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
omconfig				Set initial values for components, edit values for manageable components, set alert actions, and set warning thresholds.
	about		U, P, A	Display version number and properties for the Server Administrator program.
	system			
		alertaction	P, A	Determine in advance what actions are to be taken for warning or failure events on intrusion, fans, temperatures, voltages, power supplies, memory, and redundancy.
		alertlog	A	Displays the alert log and allows the administrator to clear the log.
		assetinfo	P, A	Enter and edit cost of ownership information for your system, including values for depreciation, lease, maintenance, service, and support.
		cmdlog	A	Displays your system's command log and allows the administrator to clear the log.
		esmlog	A	Displays your system's hardware log and allows the administrator to clear the log.
		recovery	A	Determine in advance how your system responds to a hung operating system.
		shutdown	A	Allows the administrator to select from several options when shutting down the system.
		thrmshutdown	A	Sets the severity level at which a thermal event triggers a system shutdown.

Table 7-2. omconfig Command Level 1, Level 2, and Level 3

Command Level 1	Command Level 2	Command Level 3	User Privilege Required	Use
	chassis			
		acswitch		Configures power cord redundancy where redundant power cords are installed.
		biossetup		Configures behavior of specific system components that are controlled by the BIOS.
		currents		Configures current probe warning thresholds by default or by value.
		fans		Configures fan probe warning thresholds by default or by value.
		fancontrol		Allows you to optimize fan speed for maximum cooling or quiet operation.
				Set warning threshold values by default or value.
				Set warning threshold values by default or value.
		info		Allows you to set an initial value for, or to edit the value for, asset tag or chassis name.
		leds		Specifies when to flash a chassis fault light emitting diode (LED) or chassis identification LED, and allows you to clear the LED for the system's hard drive.
		memory		Clear memory error count.
		powerbutton		Enables or disables power button settings.
		temps		Set warning threshold values by default or value.
		volts		Set warning threshold values by default or value.

Help With the omconfig Command

Use the **omconfig -?** command to get a list of the available commands for **omconfig**.

Use **omconfig** <*command level2*> **-?** to get help on the level 2 commands about, chassis, and system. The following information on **omconfig system** -? applies equally to getting help for the **omconfig chassis** command.

Use the **omconfig system -?** command to get a list of the available commands for **omconfig system**.

Use a command of the form **omconfig system** <*name of command level 3*> **-?** to get a list of the parameters you must use to execute a particular **omconfig system** command. For example, the following commands produce a list of valid parameters for **omconfig system alertaction** and **omconfig system shutdown**:

```
omconfig system alertaction -?

omconfig system shutdown -?
```

In the case of the **omconfig system alertaction** command, you can use various options to prevent all of the CLI help from scrolling by before you can read it.

To scroll through the command output one screen at a time, type:

```
omconfig system alertaction -? | more
```

where | more allows you to press <spacebar> to see the next screen of CLI help output.

To make a file that contains all of the help for the **omconfig system alertaction -?** command, type:

```
omconfig system alertaction -? -outa alert.txt
```

where *-outa* directs the output of the command to a file called **alert.txt**.

On a Microsoft® Windows® or Red Hat Linux operating system, you can read the help for alertaction by typing:

```
more alert.txt
```

omconfig about

Use the **omconfig about** command to learn the product name and version number of the systems management application installed on your system. The following is example output from the **omconfig about** command:

```
Product name : Server Administrator
Version : 1.0
Copyright : Copyright (C) Dell Corp. 1995-2002. All rights
reserved.
Company : Dell Computer Corporation.
```

For even more details about the environment for Server Administrator, type:

```
omconfig about details=true
```

Server Administrator includes a number of services, each of which has a version number of its own. The **Contains** field reports version numbers for the services as well as other useful details. The output below is an example, and can change depending on your configuration and the version of Server Administrator that is available:

```
Contains:    Instrumentation Service 4.5.1
             Update Service 1.1
             Diagnostic Service 2.0.0
             Sun JRE - Dell Installed Version 3.1.1
             Server Agent Web Server 1.0.0
             Server Administrator Core 1.0.0
             Instrumentation Service Integration Layer 1.0.0
             Storage Management Service Integration Layer 1.0.0
```

omconfig chassis

Use the **omconfig chassis** commands to default or to set values for current, fan, voltage, and temperature probes, to configure BIOS behavior during system start up, to clear memory error counts, and to enable or disable power button control features where system configuration permits.

Use the **omconfig chassis -?** command to see a list of all **omconfig chassis** commands

omconfig chassis acswitch

Use the **omconfig chassis acswitch** command to configure how your system's power units respond to a failure in alternating current (AC) input.

Table 7-3. AC Switch Redundancy Configurations

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	Description
omconfig	chassis	acswitch		
			mode=source1	Input source Line 1, on restoration, remain on Line 2. When power fails on power unit Line 1, switch to Line 2. Remain on Line 2 after power is restored on Line 1.
			mode=source1return	Input source **Line 1**, on restoration, return to **Line 1.** When power fails on power unit **Line 1**, switch to **Line 2**. Switch back to **Line 1** after power is restored on **Line 1**.

Table 7-3. AC Switch Redundancy Configurations

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	Description
			mode=source2	Input source Line 2, on restoration, remain on Line 1. When power fails on power unit Line 2, switch to Line 1. When redundancy is restored remain on Line 1.
			redunexpected=<true|false>	Whether power unit redundancy is configured for this system.

omconfig chassis biossetup

Use the **omconfig chassis biossetup** command to configure system BIOS settings that are normally available only in your system's biossetup boot time settings.

NOTE: You must reboot your system before any changes to biossetup settings take effect.

NOTE: Not all BIOS setup options are available on every system.

Table 7-4. BIOS Setup

name=value pair 1	name value=pair 2	Description
Attribute=	**Setting=**	
attribute=bootsequence	setting= diskettefirst | hdonly | devicelist	Tells the BIOS which device is used to boot the system, and the order in which the boot routine is to check each device.
attribute=diskette	setting= off| auto | writeprotect	Off: Disable Diskette Drive. Auto: Auto enable the diskette drive. Writeprotect: Do not allow writes. Make the diskette drive read only.
attribute=mouse	setting= on | off	On: enables the mouse. Off: disables the mouse.

Table 7-4. BIOS Setup

name=value pair 1	name value=pair 2	Description
attribute=nic	setting = enabled | disabled |enablednonepxe	Enabled: enables the NIC during system boot (with PXE on if the system has PXE). Disabled: disables the NIC during system boot. Enablednonepxe: enables the NIC during system boot with PXE off if the system has PXE.
attribute=numlock	setting= on | off	On: Use the keypad as number keys. Off: Use the keypad as arrow keys.
attribute=onboardraid	setting= raid| off | scsi	**NOTICE:** If you modify the setting for *primary scsi* or *onboardraid*, your system becomes inoperable until you reinstall the operating system. RAID: tells the BIOS to detect this device as a redundant array of independent disks (RAID) device. Off: disables the device. SCSI: tells the BIOS to detect this device as a SCSI device.
attribute=ppaddress	setting= off | lpt1 | lpt2 | lpt3	off: disable the parallel port address LPT1: locate the device on lpt1 LPT2: locate the device on lpt2 LPT3: locate the device on lpt3
attribute=ppmode	setting= at | ps2 at | ps2 |epp |ecpat	AT: set the parallel port mode to type at. PS2: set the parallel port mode to type ps2.
attribute=secondaryscsi	setting= on | off	On: enable this device Off: disable this device.

Table 7-4. BIOS Setup

name=value pair 1	name value=pair 2	Description
attribute=serialport1	setting= off | auto | com1 |com3	Off: disable serialport1. AUTO: map serialport1 to a COM port. COM1: map serialport1 to COM port 1. COM3: map serialport1 to COM port 3.
attribute=serialport2	setting= off | auto | com2 |com4	OFF: disable serialport2. AUTO: map serialport2 to a COM port. COM2: map serialport2 to COM port 2. COM4: map serialport2 to COM port 4.
attribute=speaker	setting= on | off	On: enables the speaker. Off: disables the speaker.
attribute=usb	setting= enabled | disabled	Enabled: enables the universal serial bus. Disabled: disables the usb.

omconfig chassis currents

Use the **omconfig chassis currents** command to set amperage probe warning thresholds. As with other components, you can view both warning and failure threshold values, but you cannot set failure thresholds. Your system's manufacturer sets the minimum and maximum failure thresholds.

NOTE: Settable thresholds vary from one system configuration to another.

Valid Parameters for Current Warning Thresholds

The following are valid parameters for setting current warning thresholds:

Table 7-5. omconfig chassis currents

name=value pair	Description
index=<number>	Number of the probe, or probe index (must be specified).
warnthresh=default	Set minimum and maximum warning thresholds to default.
minwarnthresh=<number>	Minimum warning threshold (3 decimal places).
maxwarnthresh=<number>	Maximum warning threshold (3 decimal places).

Default Minimum and Maximum Warning Thresholds

If you want to set both the upper and lower current warning threshold values to the recommended default value, type:

```
omconfig chassis currents index=0 warnthresh=default
```

You cannot default one value and set another. In other words, if you default the minimum warning threshold value, you are also selecting the default value for the maximum warning threshold value.

Specify a Value for Minimum and Maximum Warning Thresholds

If you prefer to specify values for the current probe warning thresholds, you must specify the number of the probe you are configuring, and the minimum warning threshold value. To set the maximum warning threshold value, you need a second command. You must specify the number of the probe you are configuring, and the maximum warning threshold value. In the example below, the two lines needed to set the minimum and maximum current probe warning threshold values are shown. In the example, the probe that is being configured is probe 0.

```
omconfig chassis currents index=0 minwarnthresh=3.310
omconfig chassis currents index=0 maxwarnthresh=3.381
```

When you issue the command and the system sets the values you specify, a message appears:

```
Current probe warning threshold(s) set successfully.
```

omconfig chassis fans

Use the **omconfig chassis fans** command to set fan probe warning thresholds. As with other components, you can view both warning and failure threshold values, but you cannot set failure thresholds. Your system's manufacturer sets the minimum and maximum failure thresholds.

Valid Parameters for Fan Warning Thresholds

The following are valid parameters for setting fan warning thresholds:

Table 7-6. omconfig chassis fans

name=value pair	Description
index=<number>	Number of the probe, or probe index (must be specified).
warnthresh=default	Set minimum and maximum warning thresholds to default.
minwarnthresh=<number>	Minimum warning threshold.
maxwarnthresh=<number>	Maximum warning threshold.

Default Minimum and Maximum Warning Thresholds

If you want to set both the upper and lower fan warning threshold values to the recommended default value, type:

```
omconfig chassis fans index=0 warnthresh=default
```

You cannot default one value and set another. In other words, if you default the minimum warning threshold value, you are also selecting the default value for the maximum warning threshold value.

Specify a Value for Minimum and Maximum Warning Thresholds

If you prefer to specify values for the fan probe warning thresholds, you must specify the number of the probe you are configuring, and the minimum warning threshold value. In a separate command, you must specify the number of the probe you are configuring, and the maximum warning threshold. In the example below, the two lines needed to set the minimum and maximum fan probe warning threshold values are shown. In the example, the probe that is being configured is probe 0.

```
omconfig chassis fans index=0 minwarnthresh=3.31
omconfig chassis fans index=0 maxwarnthresh=3.38
```

When you issue the command and the system sets the values you specify, a message appears:

```
Fan probe warning threshold(s) set successfully.
```

omconfig chassis fancontrol

Use the **omconfig chassis fancontrol** command to set fan speed. You can optimize speed for cooling or for quiet operation.

Table 7-7. omconfig chassis info

Name Value Pair	Description
speed=quiet	Set fan speed for quiet operation.
speed=maxcool	Set fan speed for maximum cooling.

omconfig chassis info

Use the **omconfig chassis info** command to enter an asset tag name for your system and a chassis name for your system.

Table 7-8. omconfig chassis info

Name Value Pair	Description
index=<number>	Number of the chassis whose asset tag or name you are setting.
tag=<text>	Asset tag in the form of alphanumeric text. Letters or numbers cannot exceed ten characters.
name=<text>	Name of the chassis.

In the example, the asset tag for the main system chassis is being set to **buildsys**.

```
omconfig chassis info index=0 tag=buildsys
```

Index 0 always defaults to main system chassis. The following command omits the index= value, but accomplishes the same thing:

```
omconfig chassis info tag=buildsys
```

An acceptable command, when executed, results in a message that says:

```
Chassis info set successfully.
```

For some chassis, you can assign a different name. You cannot rename the main system chassis. In the example below, the command renames chassis 2 from **storscsi1** to **storscsia**:

```
omconfig chassis info index=2 name=storscsia
```

As with other commands, the CLI issues an error message if you do not have a a chassis 2 (the main chassis=0). The CLI allows you issue commands only for the system configuration you have.

omconfig chassis leds

Use the **omconfig chassis leds** command to specify when to flash a chassis fault light emitting diode (LED) or chassis identification LED, and allows you to clear the LED for the system's hard drive.

Table 7-9. omconfig chassis leds

Name Value Pair 1	Name Value Pair 2	Description
index=<number>	NA	Number of the chassis where the LED resides (defaults to chassis 0, main system chassis).
led=fault	severity= warning | critical	Select to flash the LED either when a warning event occurs, or when a critical event occurs.
led=hdfault	action=clear	Set the number of faults for the hard disk drive back to zero (0).
led=identify	flash= off | on time-out= number	Set the chassis identify LED to off or on. Set the time-out value for the LED to flash to a number of seconds.

omconfig chassis memory

Use **omconfig chassis memory** to clear the error count for a particular memory module.

Table 7-10. Clear Memory Module Error Count

name=value pair 1	name=value pair 2	Description
index=<number>	errorcount=clear	Clear the memory error count for the memory module specified by the index.

For example, to clear the error count for memory model 1, type:

```
omconfig chassis memory index=1 errorcount=clear
```

omconfig chassis powerbutton

Use this command to enable or to disable power button override on systems where this feature is present.

name=value pair 1	Description
enable=<true|false>	Enable or disable the power button on the system.

omconfig chassis temps

Use the **omconfig chassis temps** command to set warning thresholds for temperature probes. As with other components, you can view both warning and failure threshold values, but you cannot set failure thresholds. Your system's manufacturer sets the minimum and maximum failure thresholds.

NOTE: Settable thresholds vary from one system configuration to another.

Valid Parameters for Temperature Warning Thresholds

The following are valid parameters for setting temperature warning thresholds:

Table 7-11. omconfig chassis temps

name=value pair 1	Description
index=<number>	Number of the probe, or probe index (must be specified).
warnthresh=default	Set minimum and maximum warning thresholds to default.
minwarnthresh=<number>	Minimum warning threshold (1 decimal place).
maxwarnthresh=<number>	Maximum warning threshold (1 decimal place).

Default Minimum and Maximum Warning Thresholds

If you want to set both the upper and lower temperature warning threshold values to the recommended default value, type:

```
omconfig chassis temps index=0 warnthresh=default
```

You cannot default one value and set another. In other words, if you default the minimum warning threshold value, you are also selecting the default value for the maximum warning threshold value.

Specify a Value for Minimum and Maximum Warning Thresholds

If you prefer to specify values for the temperature probe warning thresholds, you must specify the number of the probe you are configuring, and the minimum warning threshold value. To set the maximum warning threshold value, you need a second command. You must specify the number of the probe you are configuring, and the maximum warning threshold value. In the example below, the two lines needed to set the minimum and maximum temperature probe warning threshold values are shown. In the example, the probe that is being configured is probe 4.

```
omconfig chassis temps index=4 minwarnthresh=11.2
omconfig chassis temps index=4 maxwarnthresh=58.7
```

When you issue the command and the system sets the values you specify, a message appears:

```
Temperature probe warning threshold(s) set successfully.
```

omconfig chassis volts

Use the **omconfig chassis volts** command to set voltage probe warning thresholds. As with other components, you can view both warning and failure threshold values, but you cannot set failure thresholds. Your system's manufacturer sets the minimum and maximum failure thresholds.

Valid Parameters for Voltage Warning Thresholds

The following are valid parameters for setting voltage warning thresholds:

NOTE: Settable thresholds vary from one system configuration to another.

Table 7-12. omconfig chassis volts

name=value pair 1	Description
index=<number>	Number of the probe, or probe index (must be specified).
warnthresh=default	Set minimum and maximum warning thresholds to default.
minwarnthresh=<number>	Minimum warning threshold (3 decimal places).
maxwarnthresh=<number>	Maximum warning threshold (3 decimal places).

Default Minimum and Maximum Warning Thresholds

If you want to set both the upper and lower voltage warning threshold values to the recommended default value, type:

```
omconfig chassis voltage index=2 warnthresh=default
```

You cannot default one value and set another. In other words, if you default the minimum warning threshold value, you are also selecting the default value for the maximum warning threshold value.

Specify a Value for Minimum and Maximum Warning Thresholds

If you prefer to specify values for the voltage probe warning thresholds, you must specify the number of the probe you are configuring, and the minimum warning threshold value. In a separate command, you must specify the number of the probe you are configuring, and the maximum warning threshold. In the example below, the two lines needed to set the minimum and maximum fan probe warning threshold values are shown. In the example, the probe that is being configured is probe 0.

```
omconfig chassis volts index=2 minwarnthresh=1.900
omconfig chassis volts index=2 maxwarnthresh=2.250
```

When you issue the command and the system sets the values you specify, a message appears:

```
Voltage probe warning threshold(s) set successfully.
```

omconfig system

Use the **omconfig system** commands to clear logs, determine how various shutdown actions occur, set initial values for, or edit values for, cost of ownership information, and determine how to respond to a hung operating system.

omconfig system alertaction

You can use the **omconfig system alertaction** command to determine how Server Administrator responds when a component has a warning or failure event.

Defining Alert Action

An alert action is an action that you can specify for your system to take when specified conditions are met. Alert actions determine in advance what actions are to be taken for warning or failure events on intrusion, fans, temperatures, voltages, power supplies, memory, and redundancy.

For example, if a fan probe on your system reads a fan RPM of 300, and if your minimum warning threshold value for that fan probe is 600 RPMs, then your system generates a fan probe warning. Alert action settings determine how persons are notified of this event. For temperature, voltage, and current probe readings that fall within the warning or failure range, you can also configure alert actions.

Syntax for Setting Alert Actions

Setting an alert action requires two name=value pairs. The first name=value pair is the event type. The second name=value pair is the action you want to take for this event. For example, in the command

```
omconfig system alertaction event=powersupply broadcast=true
```

the event is powersupply failure, and the action is to broadcast a message to all Server Administrator users.

Available Alert Actions

For each component that allows you to configure an alert action, the following alert actions are available:

Table 7-13. Alert Actions You Can Set for Warning and Failure Events

Alert Action Setting	Description
beep= true | false	True: enable your system's beep speaker. When enabled, the speaker on the system from which you are running Server Administrator beeps.
	False: disable your system's beep speaker.
alert= true | false	True: enable your system's console alert. When enabled, the monitor attached to the system from which you are running Server Administrator displays a visual alert message.
	False: disable your system's console alert.
broadcast= true | false	True: enable a message or alert to be broadcast to all users that have drives mapped to the system.
	False: disable alert broadcasts.
clearall	Clear all actions for this event.
defaultall	Set all actions for this event to the default for events of this type.
execappath	Sets the fully qualified path and filename of the application you want to execute in case of an event for the component described in this window.
execapp=false	Disable the executable application.

Components and Events for Which You Can Set Alert Actions

The table below lists the components and the events for which you can set alert actions. Components are listed in alphabetical order, except that warning events always precede failure events for a component.

Table 7-14. Events for Setting Alert Actions

Event Name	Description
event=currentwarn	Set actions when a current probe detects a warning value.
event=currentfail	Set actions when a fan probe detects a failure value.
event=fanwarn	Set actions when a fan probe detects a warning value.
event=fanfail	Set actions when a fan probe detects a failure value.
event=intrusion	Set actions when a chassis intrusion event is detected.
event=memprefail	Set actions when a memory probe detects a pre-failure value.
event=memfail	Set actions when a memory probe detects a failure value.
event=powersupply	Set power supply failure actions.
event=redundegrad	Set actions when a redundant component becomes inoperative, resulting in less than full redundancy for that component.
event=redunlost	Set actions when one or more redundant components become inoperative, resulting in lost, or a "no redundant components working" condition for that component.
event=tempwarn	Set actions when a temperature probe detects a warning value.
event=tempfail	Set actions when a temperature probe detects a failure value.
event=voltwarn	Set actions when a voltage probe detects a warning value.
event=voltfail	Set actions when a fan probe detects a failure value.

Example Set Alert Action Commands

The examples below are valid example commands. For each successful command issued, a message appears:

```
Alert action(s) configured successfully.
```

Example Current Probe Actions

To disable system speaker beeping if a current probe detects a warning event, type:

```
omconfig system alertaction event=currentwarn beep=false
```

To enable broadcast messages if a current probe detects a failure event, type:

```
omconfig system alertaction event=currentfail broadcast=true
```

Example Fan Probe Actions

To set fan warning alert actions to default, type:

```
omconfig system alertaction event=fanwarn defaultall=true
```

To generate alerts when a fan probe detects a failure value, type:

```
omconfig system alertaction event=fanfail alert=true
```

Example Chassis Intrusion Actions

To clear all alert actions for chassis intrusion, type:

```
omconfig system alertaction event=intrusion clearall=true
```

Commands for Clearing Logs

NOTE: For more information about alert messages, see the *Dell OpenManage Server Administrator Messages Reference Guide*.

You can use the **omconfig system** command to clear three logs: the alert log, the command log, and the hardware, or embedded systems management (ESM) log.

To clear the contents of the alert log, type:

```
omconfig system alertlog action=clear
```

To clear the contents of the command log, type:

```
omconfig system cmdlog action=clear
```

To clear the contents of the ESM log, type:

```
omconfig system esmlog action=clear
```

omconfig system recovery

Use the **omconfig system recovery** command to set the action that is to be taken when the operating system has hung or crashed. You can also set the number of seconds that must pass before the system is considered to have a hung operating system.

NOTE: Upper and lower limits for the timer are dependent on your system model and configuration.

Table 7-15. Recovery Parameters

name=value pair 1	Description
action=none	Take no action when the operating system is hung or has crashed.
action=reboot	Shutdown the operating system and initiate system startup, performing BIOS checks and reloading the operating system.
action=poweroff	Turn the electrical power to the system off.
action=powercycle	Power cycle turns the electrical power to the system off, pauses, turns the power on, and reboots the system. Power cycling is useful when you want to re initialize system components such as hard disk drives.
timer=<*number*>	Number of seconds that must pass before a system is considered to have a hung operating system (20 seconds to 480 seconds).

Example Recovery Commands

To set the action on hung operating system detection to powercycle, type:

```
omconfig system recovery action=powercycle
```

To set the amount of time that the system must be hung before a recovery action is initiated to 120 seconds, type:

```
omconfig system recovery timer=120
```

omconfig system shutdown

Use the **omconfig system shutdown** command to determine how the system shuts down. During system shutdown, the default is to shut down the operating system before powering off the system. Shutting down the OS first closes down the file system before powering the system down. If you do not want to shut down the operating system first, you can use the parameter **osfirst=false**.

Table 7-16. Shutdown Parameters

name=value pair	Description
action=reboot	Shutdown the operating system and initiate system startup, performing BIOS checks and reloading the operating system.
action=poweroff	Turn the electrical power to the system off.
action=powercycle	Power cycle turns the electrical power to the system off, pauses, turns the power on, and reboots the system. Power cycling is useful when you want to reinitialize system components such as hard disk drives.
osfirst= true | false	Close the file system and exit the operating system before shutting down the system.

Example Shutdown Commands

To set the shutdown action to reboot, type:

```
omconfig system shutdown action=reboot
```

To bypass operating system shutdown before the system is powered off, type:

```
omconfig system shutdown osfirst=false
```

omconfig system thrmshutdown

Use the **omconfig system thrmshutdown** command to configure a thermal shutdown action. A thermal shutdown can be configured to occur when a temperature probe detects a temperature probe warning or failure event.

name=value pair 1	Description
severity= disabled | warning | failure	Disabled: disable thermal shutdown. An administrator must intervene. Warning: perform a shutdown when a temperature warning event is detected. Failure: perform a shutdown when a temperature failure event is detected.

Example Thermal Shutdown Commands

To trigger a thermal shutdown when a temperature probe detects a failure event, type:

```
omconfig system thrmshutdown severity=failure
```

To disable thermal shutdown so that an administrator has to initiate an **omconfig system shutdown**, type:

```
omconfig system thrmshutdown severity=disabled
```

SECTION 8

omconfig system assetinfo: Editing Cost of Ownership Values

omconfig System Asset Info Overview

The **omconfig system assetinfo** command helps you to edit a comprehensive set of parameters that make up your system's total cost of ownership. This section explains the parameters that can be reported and configured under the **omconfig system assetinfo** command.

Using the **omconfig system assetinfo** command, you can set governing values for configurable objects. Examples of **assetinfo** configuration capabilities include: setting values for system owner, purchase price, details of any lease that is in effect, depreciation methods and rates, and location of the system, warranty and extended warranty duration, outsourcing details, and service level agreement.

User Level Required for Adding Asset Information

Power users and administrators can add and edit asset information.

Adding Acquisition Information

Acquisition refers to the facts about a business entity's purchase or lease of a system. Use the **omconfig system assetinfo info=acquisition** command to add detailed information about the purchase or lease of a system.

Table 8-1. omconfig system assetinfo info=acquisition

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=acquisition		
				costcenter=<text>	Cost center is the name or code for the business entity that acquired the system.
				expensed=<yes|no>	System is charged to a specific purpose or department such as research and development or sales.

Table 8-1. omconfig system assetinfo info=acquisition

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
				installdate=<mmddyy>	Date the system was put into service.
				ponum=<num>	Number of the document that authorized payment for the system.
				purchasecost=<num>	Price that owner paid for the system.
				purchasedate=<mmddyy>	Date that owner purchased system.
				signauth=<text>	Name of the person who approved the purchase or the service call on the system.
				waybill=<num>	Receipt from the carrier for the goods received.

Example Commands for Adding Acquisition Information

To provide a value for an acquisition parameter, type a command of the form: **omconfig system assetinfo info=acquisition** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=acquisition purchasedate=122101
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For example, if you want to enter more than one parameter value for **info=acquisition**, use the following example as a syntax guide:

```
omconfig system assetinfo info=acquisition purchasecost=5000
waybill=123456 installdate=120501 purchasedate=050601 ponum=9999
signauth="John Smith" expensed=yes costcenter=fince
```

Server Administrator responds:

```
Asset information set successfully.
```

Adding Depreciation Information

Depreciation is a set of methods for computing the devaluation of your asset over time. For example, the depreciation of a system that is expected to have a useful life of 5 years would be 20 per cent. Use the **omconfig system assetinfo=depreciation** command to add details about how your system's depreciation is to be computed.

Table 8-2. omconfig system assetinfo info=depreciation

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=depreciation		
				duration=<num>	Duration is the length of time over which a system is depreciated. Enter the number of months or years.
				method=<text>	Steps and assumptions used to compute the system's depreciation.
				percent=<num>	Portion of 100 that an asset is devalued or depreciated.
				unit=<months|years>	Unit is months or years.

Example Commands for Adding Depreciation Information

To provide a value for a depreciation parameter, type a command of the form: **omconfig system assetinfo info=depreciation <***name=value pair 2***>**. For example, type:

```
omconfig system assetinfo info=depreciation method=straightline
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Extended Warranty Information

Use the **omconfig system extwarranty** command to assign values for extended warranty information. A warranty is a contract between the manufacturer or dealer and the purchaser of a system. The warranty identifies out the components that are covered for repair or replacement for a specified length of time or usage. The extended warranty comes into force after the original warranty expires. For details on how to edit warranty values, see "Adding Warranty Information."

Table 8-3. omconfig system assetinfo info=extwarranty

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=extwarranty		
				cost	Cost of the extended warranty service.
				enddate	Date that the extended warranty agreement ends.
				provider	Business entity that provides the extended warranty service.
				startdate	Date that the extended warranty service begins.

Example Command for Adding Extended Warranty Information

To provide a value for an extended warranty parameter, type a command of the form: **omconfig system assetinfo info=extwarranty** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=extwarranty enddate=012503
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Lease Information

A lease is an agreement to pay for the use of a system for a specified period of time. The lessor retains ownership of the system.

Table 8-4. omconfig system assetinfo info=lease

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=lease		
				buyout	Amount of money paid to purchase a system from a lessor.
				lessor	Business entity that is leasing the system out.
				multischedule	Whether cost of leasing the system is computed by more than one rate schedule.
				ratefactor	Factor used to calculate the lease payment.
				value	Fair market value of the system at the end of the lease period.

Example Command for Adding Lease Information

To provide a value for a lease parameter, type a command of the form: **omconfig system assetinfo info=lease** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=lease value=4500
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Maintenance Information

Maintenance refers to activities required to keep the system in good working order.

Table 8-5. omconfig system assetinfo info=maintenance

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=maintenance		
				enddate	Date that the extended warranty agreement ends.
				provider	Business entity that provides the maintenance service.
				startdate	Date that the maintenance begins.
				restrictions	Activities that are not covered by the maintenance contract.

Example Command for Adding Maintenance Information

To provide a value for a maintenance parameter, type a command of the form: **omconfig system assetinfo info=maintenance** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=maintenance startdate=012504
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Out Source Information

Outsourcing is the practice of contracting with another business to maintain the system in good working order.

Table 8-6. omconfig system assetinfo info=outsource

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=outsource		
				levels	Levels of service offered by the provider.
				problemcomponent	System component that requires maintenance.
				providerfee	Amount of money charged for maintenance.
				signauth	Person who signed or authorized the service.

Example Command for Adding Outsource Information

To provide a value for an outsource parameter, type a command of the form: **omconfig system assetinfo info=outsource** <*name=value pair* 2>. For example, type:

```
omconfig system assetinfo info=outsource providerfee=75
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Owner Information

The owner is the party that holds legal property title to the system.

Table 8-7. omconfig system assetinfo info=owner

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=owner		
				insurance	Name of the insurance company that insures the system.
				ownername	Business entity that owns the system.
				type <owned | leased | rented>	Whether the user of the system owns, leases, or rents the system.

Example Command for Adding Owner Information

To provide a value for an outsource parameter, type a command of the form: **omconfig system assetinfo info=owner** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=owner type=rented
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Service Contract Information

A service contract is an agreement that specifies fees for preventive maintenance and repair of the system.

Table 8-8. omconfig system assetinfo info=service

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=service		
				renewed	Whether the service agreement has been renewed.
				type	Type of service covered by the contract.
				vendor	Business entity that offers service on the system.

Example Command for Adding Service Information

To provide a value for a service parameter, type a command of the form: **omconfig system assetinfo info=owner** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=service vendor=fixsystemco
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding Support Information

Support refers to technical assistance that the system user can seek when the user desires guidance on the proper use of a system to perform tasks.

Table 8-9. omconfig system assetinfo info=support

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=support		
				automaticfix	Name of any application used to fix a problem automatically.
				helpdesk	Date that the extended warranty agreement ends.
				outsourced <true | false>	Whether an external business entity provides technical support, or whether the system owner's employees provide technical support.
				type <network | storage>	Whether support is for network attached devices or for storage devices.

Example Command for Adding Support Information

To provide a value for a service parameter, type a command of the form: **omconfig system assetinfo info=support** <*name=value pair 2*>. For example, type:

```
omconfig system assetinfo info=support outsourced=true
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

Adding System Information

System information includes primary user of the system, phone number for the primary user, and the system location.

Table 8-10. omconfig system assetinfo info=system

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=system		
				location	Date that the extended warranty agreement ends.
				primaryphone	Phone number of the system's primary user.
				primaryuser	Primary user of the system.

Example Command for Adding System Information

To provide a value for a service parameter, type a command of the form: **omconfig system assetinfo info=owner** <*name=value pair* 2>. For example, type:

```
omconfig system assetinfo info=system location=firstfloor
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair** 2 belong to the same **name=value pair** 1. For an example, see "Example Commands for Adding Acquisition Information."

Adding Warranty Information

Use the **omconfig system warranty** command to assign values for warranty information. A warranty is a contract between the manufacturer or dealer and the purchaser of a system. The warranty identifies out the components that are covered for repair or replacement for a specified length of time or usage. For details on how to edit extended warranty values, see "Adding Extended Warranty Information."

Table 8-11. omconfig system assetinfo info=warranty

Command Level 1	Command Level 2	Command Level 3	name=value pair 1	name=value pair 2	Use
omconfig					
	system				
		assetinfo			
			info=warranty		
				cost	Cost of the warranty service.
				duration	Number of days or months that the warranty is in force.
				enddate	Date that the warranty agreement ends.
				unit <days | months>	Whether the number for duration refers to length in days or months

Example Command for Adding Warranty Information

To provide a value for a service parameter, type a command of the form: **omconfig system assetinfo info=warranty** <*name=value pair* 2>. For example, type:

```
omconfig system assetinfo info=warranty unit=days
```

Server Administrator responds:

```
Asset information set successfully.
```

You can enter more than one **omconfig system assetinfo** command at the same time, as long as all of the parameters for **name=value pair 2** belong to the same **name=value pair 1**. For an example, see "Example Commands for Adding Acquisition Information."

SECTION 9

Working With CLI Command Results

Server Administrator Command Line Interface (CLI) users can use command output in various ways. This section explains how to save command output to a file, and how to select a format for your command results that fits different objectives.

Output Options for Command Results

CLI command output displays to standard output on your system either in a command window, or in an X-terminal, or on a screen, depending on your operating system type.

You can redirect command results to a file instead of displaying them to standard output. Saving command output to a file allows you to use the command output for later analysis or comparison.

Whether you display command results to standard output or have the command results written to a file, you can format the results. The format you select determines the way the command output is displayed and the way the command output is written to a file.

Controlling Command Output Display

Each operating system provides a means of controlling the way that command results display to standard output. The following is a useful command for ensuring that command results do not scroll by before you can view them. The same command syntax works for both the Microsoft® command prompt and the Red Hat Linux terminal. To display command output with control over scrolling, type the CLI command and append the pipe symbol followed by the word more. For example, type:

```
omreport system summary | more
```

The multiscreen system summary displays the first screen. When you want to see the next screen of command output, press <spacebar>.

In the Novell® NetWare®, you can use the **inetcfg** command to view console messages that have scrolled by.

Writing Command Output to a File

When redirecting command results to a file, you can specify a filename (and a directory path if necessary) to which you want the command results to be written. When specifying the path to which you want your file to be written, use the appropriate syntax for your operating system.

You can save command results in two ways. You can overwrite any file that has the same name as the output file you specify, or you can keep adding results of commands to a file of the same name.

Save Command Results to a File That Can be Overwritten

Use the **-outc** option when you want to overwrite data that is stored in previously written files. For example, at 11:00 A.M. you capture fan probe RPM readings for fan probe 0 on your system and wrote the results to a file called **fans.txt**. You type:

```
omreport chassis fans index=0 -outc fans.txt
```

Partial results written to the file are:

```
Index                        : 0
Status                       : OK
Probe Name                   : System Fan
Reading                      : 2380
Minimum Warning Threshold    : 600
Maximum Warning Threshold    : 5700
Minimum Failure Threshold    : 500
Maximum Failure Threshold    : 6000
```

Four hours later, you repeat the command. You have no interest in the 11:00 A.M. snapshot as written to **fans.txt**. You type the same command:

```
omreport chassis fans index=0 -outc fans.txt
```

The 3:00 p.m. data overwrites the 11:00 A.M. data in the **fans.txt** file.

Fans.txt now reads as follows:

```
Index                        : 0
Status                       : OK
Probe Name                   : System Fan
Reading                      : 3001
Minimum Warning Threshold    : 700
Maximum Warning Threshold    : 5500
Minimum Failure Threshold    : 500
Maximum Failure Threshold    : 6000
```

You cannot refer to the previous command results to compare the earlier fan probe 0 output with the present output, because in using the -outc option, you overwrote **fans.txt**.

Append Command Results to an Existing File

Use the **-outa** option when you want to append new command results to data that is stored in a previously written file. For example, at 11:00 A.M. you captured fan probe RPM readings for fan probe 0 on your system and wrote the results to a file called **fans.txt**. If you want to compare these results with output for the same probe obtained four hours later, you can use the -outa command to append the new output to **fans.txt**. Type

```
omreport chassis fans index=0 -outa fans.txt
```

Fans.txt now reads as follows:

```
Index                       : 0
Status                      : OK
Probe Name                  : System Fan
Reading                     : 2380
Minimum Warning Threshold   : 600
Maximum Warning Threshold   : 5700
Minimum Failure Threshold   : 500
Maximum Failure Threshold   : 6000
Index                       : 0
Status                      : OK
Probe Name                  : System Fan
Reading                     : 3001
Minimum Warning Threshold   : 700
Maximum Warning Threshold    : 5500
Minimum Failure Threshold   : 500
Maximum Failure Threshold   : 6000
```

You can use a text editor to insert the time that each block of data was captured. In comparing the two snapshots for fan probe 0, you can see that the second report shows several changes. The reading of fan RPM has increased by 621 RPMs but is still within normal range. Someone has raised the minimum warning threshold at by 200 RPM and has decreased the maximum warning threshold by 2000 RPMs.

Selecting a Format for Your CLI Command Output

You can specify a format for your CLI command results. The format determines how the command output is displayed. If the command results are directed to a file, the format is captured by the file to which you write your command results.

Formats include:

- List (lst)
- Semicolon separated values (ssv)
- Table (tbl)
- Raw xml (xml)

Syntax for the formatting option is:

```
<command> -fmt <format option>
```

For example, type:

```
omreport system summary -fmt tbl
```

where **-fmt tbl** specifies table format.

You can combine the format option with the option to direct output to a file. For example, type:

```
omreport system summary -fmt tbl -outa summary.txt
```

where **-fmt tbl** specifies table format and **-outa** specifies that you append the command results to a file called **summary.txt.**

List Format

The default format is **lst** or list format. Use lst format when you want to optimize output for simple readability. You need to specify a format for your command output only if you want a format other than **lst** format.

To see the following example command output in list format, type:

```
omreport system summary
```

No special format option is required because list format is the default display format. The network data part of the example system summary appears as follows:

```
--------------
Network Data
--------------
Network Interface Card 0 Data
IP Address                    : 143.166.152.108
Subnet Mask                   : 255.255.255.0
Default Gateway               : 143.166.152.1
MAC Address                   : 00-02-b3-23-d2-ca
```

Table

Use the **tbl** or table format option to have your data formatted in table rows and columns. To see the following example command output in table format, type:

```
omreport system summary -fmt tbl
```

The example output displays as follows:

```
------------------------------
Network Interface Card 0 Data
------------------------------
| ATTRIBUTE                   |VALUE
| IP Address                  | 143.166.152.108
| Subnet Mask                 | 255.255.255.0
| Default Gateway             | 143.166.152.1
| MAC Address                 | 00-02-b3-23-d2-ca
```

Semicolon Separated Values

Use the **-fmt ssv** option to have command formatted in semicolon separated value format. This format allows you to import your command output results into a spreadsheet program such as Microsoft® Excel. To see the following example command output in semicolon separated value format, type:

```
omreport system summary -fmt ssv
```

The example output displays as follows:

```
------------------------------

Network Data

------------------------------

Network Interface Card 0 Data

IP Address;143.166.152.108

Subnet Mask;255.255.255.0

Default Gateway;143.166.152.1

MAC Address;00-02-b3-23-d2-ca
```

Raw XML

Use the **-fmt xml** formatting option to produce output suitable for use by systems management applications, or for input into other applications that consume xml. To see the following example command output in raw xml format, type:

```
omreport system summary -fmt xml
```

The example output displays as follows:

```
<NICStatus>1</NICStatus><IPAddress>143.166.152.108</IPAddress><Sub
netMask>255.255.255.0</SubnetMask><DefaultGateway>143.166.152.1</D
efaultGateway><MACAddr>00-02-b3-23-d2-ca</MACAddr>
```

Glossary

The following list defines or identifies technical terms, abbreviations, and acronyms used in Dell user documents.

A
Abbreviation for ampere(s).

AC
Abbreviation for alternating current.

AC power switch
A switch with two AC power inputs that provides AC power redundancy by failing over to a standby AC input in the event of a failure to the primary AC input.

access
Refers to the actions a user can take on a variable value. Examples include read-only and read-write.

adapter card
An expansion card that plugs into an expansion-card connector on the computer's system board. An adapter card adds some specialized function to the computer by providing an interface between the expansion bus and a peripheral device. Examples of adapter cards include network cards, sound cards, and SCSI adapters.

ADB
Abbreviation for assign database.

AGP
Abbreviation for Advanced Graphics Port. A high performance graphics interface becoming available for Pentium Pro systems.

ASCII
Acronym for American Standard Code for Information Interchange. A text file containing only characters from the ASCII character set (usually created with a text editor, such as Notepad in Windows®), is called an ASCII file.

ASIC
Acronym for application-specific integrated circuit.

ASPI
Advanced SCSI programming interface.

asset tag code
An individual code assigned to a computer, usually by a system administrator, for security or tracking purposes.

attribute
As it relates to an attribute is a piece of information related to a component. Attributes can be combined to form groups. If an attribute is defined as read-write, it may be defined by a management application.

autoexec.bat file
The **autoexec.bat** file is executed when you boot your computer (after executing any commands in the **config.sys** file). This start-up file contains commands that define the characteristics of each device connected to your computer, and it finds and executes programs stored in locations other than the active directory.

backup
A copy of a program or data file. As a precaution, you should back up your computer's hard drive on a regular basis. Before making a change to the configuration of your computer, you should back up important start-up files from your operating system.

baud rate
A measurement of data transmission speed. For example, modems are designed to transmit data at one or more specified baud rate(s) through the COM (serial) port of a computer.

beep code
A diagnostic message in the form of a pattern of beeps from your computer's speaker. For example, one beep, followed by a second beep, and then a burst of three beeps is beep code 1-1-3.

BGA
Abbreviation for Ball Grid Array, an IC package that uses an array of solder balls, instead of pins, to connect to a PC board.

binary
A base-2 numbering system that uses 0 and 1 to represent information. The computer performs operations based on the ordering and calculation of these numbers.

BIOS
Acronym for basic input/output system. Your computer's BIOS contains programs stored on a flash memory chip. The BIOS controls the following:

- Communications between the microprocessor and peripheral devices, such as the keyboard and the video adapter
- Miscellaneous functions, such as system messages

bit
The smallest unit of information interpreted by your computer.

boot routine
When you start your computer, it clears all memory, initializes devices, and loads the operating system. Unless the operating system fails to respond, you can reboot (also called *warm boot*) your computer by pressing <Ctrl><Alt><Del>; otherwise, you must perform a cold boot by pressing the reset button or by turning the computer off and then back on.

bootable diskette
You can start your computer from a diskette. To make a bootable diskette, insert a diskette in the diskette drive, type `sys a:` at the command line prompt, and press <Enter>. Use this bootable diskette if your computer will not boot from the hard drive.

bpi
Abbreviation for bits per inch.

bps
Abbreviation for bits per second.

BTU
Abbreviation for British thermal unit.

bus
An information pathway between the components of a computer. Your computer contains an expansion bus that allows the microprocessor to communicate with controllers for all the various peripheral devices connected to the computer. Your computer also contains an address bus and a data bus for communications between the microprocessor and RAM.

byte
Eight contiguous bits of information, the basic data unit used by your computer.

C
Abbreviation for Celsius.

cache
A fast storage area that keeps a copy of data or instructions for quicker data retrieval. For example, your computer's BIOS may cache ROM code in faster RAM. Or, a disk-cache utility may reserve RAM in which to store frequently accessed information from your

computer's disk drives; when a program makes a request to a disk drive for data that is in the cache, the disk-cache utility can retrieve the data from RAM faster than from the disk drive.

capability
Refers to the actions that an object can perform, or actions that can be taken on a managed object. For example, if a card is hot-pluggable, it is capable of being replaced while the system power is ON.

CDRAM
Abbreviation for cached DRAM, which is a high-speed DRAM memory chip developed by Mitsubishi that includes a small SRAM cache.

CD-ROM
Abbreviation for compact disc read-only memory. CD drives use optical technology to read data from CDs. CDs are read-only storage devices; you cannot write new data to a CD with standard CD drives.

chip
A set of microminiaturized, electronic circuits that are designed for use as processors and memory in computers. Small chips can hold from a handful to tens of thousands of transistors. They look like tiny chips of aluminum, no more than 1/16" square by 1/30" thick, which is where the term "chip" came from. Large chips, which can be more than a half inch square, hold millions of transistors. It is actually only the top one thousandth of an inch of a chip's surface that holds the circuits. The rest of it is just a base.

CIM
Acronym for Common Information Model, which is a model for describing management information from the DMTF. CIM is implementation independent, allowing different management applications to collect the required data from a variety of sources. CIM includes schemas for systems, networks, applications and devices, and new schemas will be added. It provides mapping techniques for interchange of CIM data with MIB data from SNMP agents and MIF data from DMI-compliant systems.

CIMOM
Acronym for common information model object manager.

CI/O
Acronym for comprehensive input/output.

cm
Abbreviation for centimeter(s).

CMOS
Acronym for complementary metal-oxide semiconductor. In computers, CMOS memory chips are often used for NVRAM storage.

COMn
The device names for the first through fourth serial ports on your computer are COM1, COM2, COM3, and COM4. The default interrupt for COM1 and COM3 is IRQ4, and the default interrupt for COM2 and COM4 is IRQ3. Therefore, you must be careful when configuring software that runs a serial device so that you don't create an interrupt conflict.

component
As they relate to DMI, manageable components are operating systems, computer systems, expansion cards, or peripherals that are compatible with DMI. Each component is made up of groups and attributes that are defined as relevant to that component.

config.sys file
The **config.sys** file is executed when you boot your computer (before running any commands in the **autoexec.bat** file). This start-up file contains commands that specify which devices to install and which drivers to use. This file also contains commands that determine how the operating system uses memory and controls files.

controller
A chip that controls the transfer of data between the microprocessor and memory or between the microprocessor and a peripheral device such as a disk drive or the keyboard.

control panel
The part of the computer that contains indicators and controls, such as the power switch, hard drive access indicator, and power indicator.

conventional memory
The first 640 KB of RAM. Conventional memory is found in all computers. Unless they are specially designed, MS-DOS® programs are limited to running in conventional memory.

COO
Acronym for cost of ownership.

cooling unit
Sets of fans or other cooling devices in a system chassis.

coprocessor
A chip that relieves the computer's microprocessor of specific processing tasks. A math coprocessor, for example, handles numeric processing. A graphics coprocessor handles video rendering. The Intel® Pentium® microprocessor, for example, includes a built-in math coprocessor.

cpi
Abbreviation for characters per inch.

CPU
Abbreviation for central processing unit. See also **microprocessor**.

CRC
Abbreviation for cyclic redundancy code, which is a number derived from, and stored or transmitted with, a block of data in order to detect corruption. By recalculating the CRC and comparing it to the value originally transmitted, the receiver can detect some types of transmission errors.

cursor
A marker, such as a block, underscore, or pointer that represents the position at which the next keyboard or mouse action will occur.

DAT
Acronym for digital audio tape.

dB
Abbreviation for decibel(s).

dBA
Abbreviation for adjusted decibel(s).

DC
Abbreviation for direct current.

device driver
A program that allows the operating system or some other program to interface correctly with a peripheral device, such as a printer. Some device drivers—such as network drivers—must be loaded from the **config.sys** file (with a **device=** statement) or as memory-resident programs (usually, from the **autoexec.bat** file). Others—such as video drivers—must load when you start the program for which they were designed.

DIMM
Acronym for dual in-line memory module. A small circuit board containing DRAM chips that connects to the system board.

DIN
Acronym for *Deutsche Industrie Norm* which is the standards-setting organization for Germany.

A DIN connector is a connector that conforms to one of the many standards defined by DIN. DIN connectors are used widely in personal computers. For example, the keyboard connector for PCs is a DIN connector.

DIP
Acronym for dual in-line package. A circuit board, such as a system board or expansion card, may contain DIP switches for configuring the circuit board. DIP switches are always toggle switches, with an ON position and an OFF position.

directory
Directories help keep related files organized on a disk in a hierarchical, "inverted tree" structure. Each disk has a "root" directory; for example, a `C:\>` prompt normally indicates that you are at the root directory of hard drive C. Additional directories that branch off of the root directory are called *subdirectories*. Subdirectories may contain additional directories branching off of them.

display adapter
See **video adapter**.

DMA
Abbreviation for direct memory access. A DMA channel allows certain types of data transfer between RAM and a device to bypass the microprocessor.

DMI
Abbreviation for Desktop Management Interface. DMI enables the management of your computer system's software and hardware. DMI collects information about the system's components, such as the operating system, memory, peripherals, expansion cards, and asset tag. Information about the system's components is displayed as a MIF file or through the Dell Inspector program.

DMTF
Abbreviation for Distributed Management Task Force, a consortium of companies representing hardware and software providers, of which Dell is a member.

dpi
Abbreviation for dots per inch.

DPMS
Abbreviation for Display Power Management Signaling. A standard developed by the Video Electronics Standards Association (VESA®) that defines the hardware signals sent by a video controller to activate power management states in a monitor. A monitor is said to be DPMS-compliant when it is designed to enter a power management state after receiving the appropriate signal from a computer's video controller.

DRAC
Refers to a remote management capability.

DRAM
Acronym for dynamic random-access memory. A computer's RAM is usually made up entirely of DRAM chips. Because DRAM chips cannot store an electrical charge indefinitely, your computer continually refreshes each DRAM chip in the computer.

drive-type number
Your computer can recognize a number of specific hard drives. Each is assigned a drive-type number that is stored in NVRAM. The hard drive(s) specified in your computer's System Setup program must match the actual drive(s) installed in the computer. The System Setup program also allows you to specify physical parameters (logical cylinders, logical heads, cylinder number, and logical sectors per pack) for drives not included in the table of drive types stored in NVRAM.

DTE
Abbreviation for data terminal equipment. Any device, such as a computer system, that can send data in digital form by means of a cable or communications line. The DTE is connected to the cable or communications line through a data communications equipment (DCE) device, such as a modem.

ECC
Abbreviation for error checking and correction.

ECP
Abbreviation for Extended Capabilities Port.

EDO
Acronym for extended data output dynamic random access memory which is a type of DRAM that is faster than conventional DRAM. EDO RAM can start fetching the next block of memory at the same time that it sends the previous block to the CPU.

EEPROM
Acronym for electrically erasable programmable read-only memory.

EIDE
Abbreviation for enhanced integrated drive electronics. EIDE devices add one or more of the following enhancements to the traditional IDE standard:

- Data transfer rates of up to 16 MB/sec
- Support for drives other than just hard drives, such as CD and tape drives
- Support for hard drives with capacities greater than 528 MB
- Support for up to two controllers, each with up to two devices attached

EISA
Acronym for Extended Industry-Standard Architecture, a 32-bit expansion-bus design. The expansion-card connectors in an EISA computer are also compatible with 8- or 16-bit ISA expansion cards.

To avoid a configuration conflict when installing an EISA expansion card, you must use the EISA Configuration Utility. This utility allows you to specify which expansion slot contains the card and obtains information about the card's required system resources from a corresponding EISA configuration file.

EMC
Abbreviation for Electromagnetic Compatibility.

EMI
Abbreviation for electromagnetic interference.

EMM
Abbreviation for expanded memory manager. A utility that uses extended memory to emulate expanded memory on computers with an Intel386™ or higher microprocessor.

EMS
Abbreviation for Expanded Memory Specification.

EPP
Abbreviation for Enhanced Parallel Port which provides improved bidirectional data transmission. Many devices are designed to take advantage of the EPP standard, especially devices, such as network or SCSI adapters that connect to the parallel port of a portable computer.

EPROM
Acronym for erasable programmable read-only memory.

ESD
Abbreviation for electrostatic discharge.

expanded memory
A technique for accessing RAM above 1 MB. To enable expanded memory on your computer, you must use an EMM. You should configure your system to support expanded memory only if you run application programs that can use (or require) expanded memory.

expansion bus
Your computer contains an expansion bus that allows the microprocessor to communicate with controllers for peripheral devices, such as a network card or an internal modem.

expansion-card connector
A connector on the computer's system board or riser board for plugging in an expansion card.

extended memory
RAM above 1 MB. Most software that can use it, such as the Windows operating system, requires that extended memory be under the control of an XMM.

external cache memory
A RAM cache using SRAM chips. Because SRAM chips operate at several times the speed of DRAM chips, the microprocessor can retrieve data and instructions faster from external cache memory than from RAM.

F
Abbreviation for Fahrenheit.

FAT
Acronym for file allocation table. The file system structure used by MS-DOS® to organize and keep track of file storage. The Windows NT® operating systems can optionally use a FAT file system structure.

FCC
Abbreviation for Federal Communications Commission.

FEPROM
Acronym for Flash Erasable Programmable Read-Only Memory. Flash memory is a kind of non-volatile storage device similar to EEPROM, but the erasing is done only in blocks or the entire chip.

flash bios
A PC BIOS that is stored in flash memory rather than in a ROM. A flash BIOS chip can be updated in place, whereas a ROM BIOS must be replaced with a newer chip.

flash memory
A type of EEPROM chip that can be reprogrammed from a utility on diskette while still installed in a computer; most EEPROM chips can only be rewritten with special programming equipment.

format
To prepare a hard drive or diskette for storing files. An unconditional format deletes all data stored on the disk.

FPBGA
Acronym for field programmable gate array, a programmable logic chip (PLD) with a high density of gates.

FRU
Acronym for field replaceable unit.

ft
Abbreviation for feet.

FTP
Abbreviation for file transfer protocol.

g
Abbreviation for gram(s).

G
Abbreviation for gravities.

GB
Abbreviation for gigabyte(s). A gigabyte equals 1,024 megabytes or 1,073,741,824 bytes.

graphics coprocessor
See **coprocessor**.

graphics mode
A video mode that can be defined as *x* horizontal by *y* vertical pixels by *z* colors.

group
As it relates to DMI, a group is a data structure that defines common information, or attributes, about a manageable component.

GUI
Acronym for graphical user interface.

h
Abbreviation for hexadecimal. A base-16 numbering system, often used in programming to identify addresses in the computer's RAM and I/O memory addresses for devices. The sequence of decimal numbers from 0 through 16, for example, is expressed in hexadecimal notation as: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, 10. In text, hexadecimal numbers are often followed by *h*.

heat sink
A metal plate with metal pegs or ribs that help dissipate heat. Most microprocessors include a heat sink.

HIP
Abbreviation for Dell OpenManage Hardware Instrumentation Package (HIP).

HMA
Abbreviation for high memory area. The first 64 KB of extended memory above 1 MB. A memory manager that conforms to the XMS can make the HMA a direct extension of conventional memory. See also **upper memory area** and **XMM**.

host adapter
A host adapter implements communication between the computer's bus and the controller for a peripheral

device. (hard drive controller subsystems include integrated host adapter circuitry.) To add a SCSI expansion bus to your system, you must install or connect the appropriate host adapter.

hot plug
The ability to remove and replace a redundant part while the system is being used. Also called a "hot spare."

HPFS
Abbreviation for the High Performance File System option in the Windows NT operating systems.

Hz
Abbreviation for hertz.

ICES
Abbreviation for Interface-Causing Equipment Standard (in Canada).

ICU
Abbreviation for ISA Configuration Utility.

IDE
Abbreviation for Integrated Device Electronics. IDE is a computer system interface, used primarily for hard drives and CDs.

I/O
Abbreviation for input/output. The keyboard is an input device, and a printer is an output device. In general, I/O activity can be differentiated from computational activity. For example, when a program sends a document to the printer, it is engaging in output activity; when the program sorts a list of terms, it is engaging in computational activity.

ID
Abbreviation for identification.

IHV
Acronym for independent hardware vendor. IHVs often develop their own MIBs for components that they manufacture.

interlacing
A technique for increasing video resolution by only updating alternate horizontal lines on the screen. Because interlacing can result in noticeable screen flicker, most users prefer noninterlaced video adapter resolutions.

internal microprocessor cache
An instruction and data cache built in to the microprocessor. The Intel Pentium microprocessor includes a 16-KB internal cache, which is set up as an 8-KB read-only instruction cache and an 8-KB read/write data cache.

IPX
Acronym for internetwork packet exchange.

IRQ
Abbreviation for interrupt request. A signal that data is about to be sent to or received by a peripheral device travels by an IRQ line to the microprocessor. Each peripheral connection must be assigned an IRQ number. For example, the first serial port in your computer (COM1) is assigned to IRQ4 by default. Two devices can share the same IRQ assignment, but you cannot operate both devices simultaneously.

ISA
Acronym for Industry-Standard Architecture. A 16-bit expansion bus design. The expansion-card connectors in an ISA computer are also compatible with 8-bit ISA expansion cards.

ITE
Abbreviation for information technology equipment.

jumper
Jumpers are small blocks on a circuit board with two or more pins emerging from them. Plastic plugs containing a wire fit down over the pins. The wire connects the pins and creates a circuit. Jumpers provide a simple and reversible method of changing the circuitry in a printed circuit board.

K
Abbreviation for kilo-, indicating 1,000.

KB
Abbreviation for kilobyte(s), 1,024 bytes.

KB/sec
Abbreviation for kilobyte(s) per second.

Kbit(s)
Abbreviation for kilobit(s), 1,024 bits.

Kbit(s)/sec
Abbreviation for kilobit(s) per second.

key combination
A command requiring you to press multiple keys at the same time. For example, you can reboot your computer by pressing the <Ctrl><Alt><Del> key combination.

kg
Abbreviation for kilogram(s), 1,000 grams.

kHz
Abbreviation for kilohertz, 1,000 hertz.

LAN
Acronym for local area network. A LAN system is usually confined to the same building or a few nearby buildings, with all equipment linked by wiring dedicated specifically to the LAN.

lb
Abbreviation for pound(s).

LCC
Acronym for leaded or leadless chip carrier.

LIF
Acronym for low insertion force. Some computers use LIF sockets and connectors to allow devices, such as the microprocessor chip, to be installed or removed with minimal stress to the device.

LED
Abbreviation for light-emitting diode. An electronic device that lights up when a current is passed through it.

local bus
On a computer with local-bus expansion capability, certain peripheral devices (such as the video adapter circuitry) can be designed to run much faster than they would with a traditional expansion bus. Some local-bus designs allow peripherals to run at the same speed and with the same width data path as the computer's microprocessor.

LPTn
The device names for the first through third parallel printer ports on your computer are LPT1, LPT2, and LPT3.

LRA
Acronym for local response agent.

m
Abbreviation for meter(s).

mA
Abbreviation for milliampere(s).

mAh
Abbreviation for milliampere-hour(s).

math coprocessor
See **coprocessor**.

Mb
Abbreviation for megabit.

MB
Abbreviation for megabyte(s). The term *megabyte* means 1,048,576 bytes; however, when referring to hard drive storage, the term is often rounded to mean 1,000,000 bytes.

MB/sec
Abbreviation for megabytes per second.

Mbps
Abbreviation for megabits per second.

MBR
Abbreviation for master boot record.

MCA
Abbreviation for Micro Channel Architecture, which is designed for multiprocessing. MCA eliminates potential conflicts that arise when installing new peripheral devices. MCA is not compatible with either EISA or XT bus architecture, so older cards cannot be used with it.

memory
A computer can contain several different forms of memory, such as RAM, ROM, and video memory. Frequently, the word *memory* is used as a synonym for RAM; for example, an unqualified statement such as "a computer with 16 MB of memory" refers to a computer with 16 MB of RAM.

memory address
A specific location, usually expressed as a hexadecimal number, in the computer's RAM.

memory manager
A utility that controls the implementation of memory in addition to conventional memory, such as extended or expanded memory.

memory module
A small circuit board containing DRAM chips that connects to the system board.

MHz
Abbreviation for megahertz.

MIB
Acronym for management information base. MIB is used to send detailed status/commands from or to an SNMP managed device.

microprocessor
The primary computational chip inside the computer that controls the interpretation and execution of arithmetic and logic functions. Software written for one microprocessor must usually be revised to run on another microprocessor. *CPU* is a synonym for microprocessor.

MIDI
Abbreviation for musical instrument digital interface.

MIF
Acronym for management information format. A MIF file contains information, status, and links to component instrumentation. MIF files are installed into the MIF database by the DMI service layer. The content of a MIF is defined by a DTMF working committee and is published in the form of a MIF definition document. This document identifies the groups and attributes that are relevant to DMI-manageable components.

mm
Abbreviation for millimeter(s).

modem
A device that allows your computer to communicate with other computers over telephone lines.

MOF
Acronym for managed object format, which is an ASCII file that contains the formal definition of a CIM schema.

mouse
A pointing device that controls the movement of the cursor on a screen. Mouse-aware software allows you to activate commands by clicking a mouse button while pointing at objects displayed on the screen.

MPEG
Acronym for Motion Picture Experts Group. MPEG is a digital video file format.

ms
Abbreviation for millisecond(s).

MS-DOS
Abbreviation for Microsoft® Disk Operating System.

MTBF
Abbreviation for mean time between failures.

multifrequency monitor
A monitor that supports several video standards. A multifrequency monitor can adjust to the frequency range of the signal from a variety of video adapters.

mV
Abbreviation for millivolt(s).

name
The name of an object or variable is the exact string that identifies it in an SNMP Management Information Base (MIB) file, or in a DMI Management Information Format (MIF) file, or in a CIM Management Object File (MOF).

NDIS
Abbreviation for Network Driver Interface Specification.

NIC
Acronym for network interface controller.

NIF
Acronym for network interface function. This term is equivalent to NIC.

NLM
Abbreviation for NetWare® Loadable Module.

NMI
Abbreviation for nonmaskable interrupt. A device sends an NMI to signal the microprocessor about hardware errors, such as a parity error.

noninterlaced
A technique for decreasing screen flicker by sequentially refreshing each horizontal line on the screen.

ns
Abbreviation for nanosecond(s), one billionth of a second.

NTFS
Abbreviation for the NT File System option in the Windows NT operating system.

NuBus
Proprietary expansion bus used on Apple Macintosh personal computers.

NVRAM
Acronym for nonvolatile random-access memory. Memory that does not lose its contents when you turn off your computer. NVRAM is used for maintaining the date, time, and system configuration information.

OID
Abbreviation for object identifier. An implementation-specific integer or pointer that uniquely identifies an object.

online access service
A service that typically provides access to the Internet, e-mail, bulletin boards, chat rooms, and file libraries.

OTP
Abbreviation for one-time programmable.

parallel port
An I/O port used most often to connect a parallel printer to your computer. You can usually identify a parallel port on your computer by its 25-hole connector.

parameter
A value or option that you specify to a program. A parameter is sometimes called a *switch* or an *argument*.

partition
You can divide a hard drive into multiple physical sections called *partitions* with the **fdisk** command. Each partition can contain multiple logical drives.

After partitioning the hard drive, you must format each logical drive with the **format** command.

PC 98
The third PC 9x specification, which defines five categories (Consumer, Office, Mobile, Entertainment and Workstation). It eliminates the ISA bus and pushes the minimum requirements to a 200MHz CPU with 32MB of RAM and 256K of L2 cache. PC 98 machines must support OnNow, and the BIOS must support booting from a CD and be Y2K compliant. Systems cannot ship with ISA cards installed, but may have an ISA bus for legacy devices.

PC card
A credit-card sized, removable module for portable computers standardized by PCMCIA. PC Cards are also known as "PCMCIA cards." PC Cards are 16-bit devices that are used to attach modems, network adapters, sound cards, radio transceivers, solid state disks and hard disks to a portable computer. The PC Card is a "plug and play" device, which is configured automatically by the Card Services software.

PCI
Abbreviation for Peripheral Component Interconnect. A standard for local-bus implementation developed by Intel Corporation.

PCMCIA
Personal Computer Memory Card International Association. An international trade association that has developed standards for devices, such as modems and external hard drives, that can be plugged into portable computers.

PERC
Acronym for PowerEdge Expandible RAID controller.

peripheral device
An internal or external device—such as a printer, a disk drive, or a keyboard—connected to a computer.

PGA
Abbreviation for pin grid array, a type of microprocessor socket that allows you to remove the microprocessor chip.

physical memory array
The physical memory array is the entire physical memory of a system. Variables for physical memory array include maximum size, total number of memory slots on the motherboard, and total number of slots in use.

physical memory array mapped
The physical memory array mapped refers to the way physical memory is divided.
For example, one mapped area may have 640 KB and the other mapped area may have between 1 Megabyte and 127 Megabytes.

PIC
Acronym for programmable interrupt controller.

PIP
Acronym for peripheral interchange program. A CP/M utility program that was used to copy files.

pixel
A single point on a video display. Pixels are arranged in rows and columns to create an image. A video resolution, such as 640 x 480, is expressed as the number of pixels across by the number of pixels up and down.

PLCC
Acronym for plastic leaded chip carrier.

Plug and Play
An industry-standard specification that makes it easier to add hardware devices to personal computers. Plug and Play provides automatic installation and configuration, compatibility with existing hardware, and dynamic support of mobile computing environments.

PME
Abbreviation for Power Management Event. A PME is a pin on a peripheral component interconnect that allows a PCI device to assert a wake event.

POST
Acronym for power-on self-test. Before the operating system loads when you turn on your computer, the POST tests various system components such as RAM, the disk drives, and the keyboard.

power supply
An electrical system that converts AC current from the wall outlet into the DC currents required by the computer circuitry. The power supply in a personal computer typically generates multiple voltages.

power unit
A set of power supplies in a system chassis.

ppm
Abbreviation for pages per minute.

PQFP
Abbreviation for plastic quad flat pack, a type of microprocessor socket in which the microprocessor chip is permanently mounted.

Program Diskette Maker
The Program Diskette Maker allows you to create program diskette sets, or master copies, of software that Dell installed on your computer system. It is essential that you create these diskette sets as soon as possible. You may need a set of master diskettes if you ever experience problems with your hard drive and need to reinstall your Dell-installed software. If your system includes Dell-installed software, you can select this program from the Dell Accessories program folder.

program diskette set
The set of diskettes from which you can perform a complete installation of an operating system or application program. When you reconfigure a program, you often need its program diskette set.

protected mode
An operating mode supported by 80286 or higher microprocessors, protected mode allows operating systems to implement:

- A memory address space of 16 MB (80286 microprocessor) to 4 GB (Intel386 or higher microprocessor)
- Multitasking
- Virtual memory, a method for increasing addressable memory by using the hard drive

The Windows NT, OS/2, and UNIX® 32-bit operating systems run in protected mode. MS-DOS cannot run in protected mode; however, some programs that you can start from MS-DOS, such as the Windows operating system, are able to put the computer into protected mode.

provider
A provider is an extension of a CIM schema that communicates with managed objects and accesses data and event notifications from a variety of sources. Providers forward this information to the CIM Object Manager for integration and interpretation.

PS/2
Abbreviation for Personal System/2.

PXE
Abbreviation for Pre-boot eXecution Environment.

QFP
Acronym for quad flat pack.

RAID
Acronym for redundant array of independent drives.

RAM
Acronym for random-access memory. The computer's primary temporary storage area for program instructions and data. Each location in RAM is identified by a number called a *memory address*. Any information stored in RAM is lost when you turn off your computer.

RAMBUS
Acronym for Rambus DRAM, a type of memory (DRAM) developed by Rambus, Inc.

RAMDAC
Acronym for random-access memory digital-to-analog converter.

RAW
Unprocessed. The term refers to data that is passed along to an I/O device without being interpreted. In contrast, *cooked* refers to data that is processed before being passed to the I/O device.

It often refers to uncompressed text that is not stored in any proprietary format. The term comes from UNIX, which supports cooked and raw modes for data output to a terminal.

RDRAM
Acronym for Rambus DRAM. A dynamic RAM chip technology from Rambus, Inc. Direct RDRAMs are used in computers. Direct RDRAM chips are housed in RIMM modules, which are similar to DIMMs but have different pin settings. The chips can be built with dual channels, doubling the transfer rate to 3.2 GB/sec.

read-only file
A read-only file is one that you are prohibited from editing or deleting. A file can have read-only status if:

- Its read-only attribute is enabled.
- It resides on a physically write-protected diskette or on a diskette in a write-protected drive.
- It is located on a network in a directory to which the system administrator has assigned read-only rights to you.

readme file
A text file included with a software package or hardware product that contains information supplementing or updating the documentation for the software or hardware. Typically, readme files provide installation information, describe new product enhancements or corrections that have not yet been documented, and list known problems or other things you need to be aware of as you use the software or hardware.

real mode
An operating mode supported by 80286 or higher microprocessors, real mode imitates the architecture of an 8086 microprocessor.

refresh rate
The rate at which the monitor redraws the video image on the monitor screen. More precisely, the refresh rate is the frequency, measured in Hz, at which the screen's horizontal lines are recharged (sometimes also referred to as its *vertical frequency*). The higher the refresh rate, the less video flicker can be seen by the human eye. The higher refresh rates are also noninterlaced.

RFI
Abbreviation for radio frequency interference.

RGB
Abbreviation for red/green/blue.

RIMM
Acronym for Rambus In-line Memory Module, which is the Rambus equivalent of a DIMM module.

ROM
Acronym for read-only memory. Your computer contains some programs essential to its operation in ROM code. Unlike RAM, a ROM chip retains its contents even after you turn off your computer. Examples of code in ROM include the program that initiates your computer's boot routine and the POST.

rpm
Abbreviation for revolutions per minute.

RTC
Abbreviation for real-time clock. Battery-powered clock circuitry inside the computer that keeps the date and time after you turn off the computer.

SCA
Acronym for single connector attachment.

schema
A collection of class definitions that describes managed objects in a particular environment. A CIM schema is a collection of class definitions used to represent managed objects that are common to every management environment, which is why CIM is called the Common Information Model.

SCSI
Acronym for small computer system interface. An I/O bus interface with faster data transmission rates than standard ports. You can connect up to seven devices (15 for some newer SCSI types) to one SCSI interface.

SDMS
Abbreviation for SCSI device management system.

sec
Abbreviation for second(s).

SEC
Abbreviation for single-edge contact.

serial port
An I/O port used most often to connect a modem to your computer. You can usually identify a serial port on your computer by its 9-pin connector.

settings

Settings are conditions of a manageable object help to determine what happens when a certain value is detected in a component. For example, a user can set the upper critical threshold of a temperature probe to 75 degrees Celsius. If the probe reaches that temperature, the setting results in an alert being sent to the management console so that user intervention can be taken. Some settings, when reached, can trigger a system shutdown or other response that can prevent damage to the system.

service tag number

A bar code label on the computer that identifies it when you call Dell for customer or technical support.

SGRAM

Acronym for synchronous graphics RAM.

shadowing

A computer's system and video BIOS code is usually stored on ROM chips. Shadowing refers to the performance-enhancement technique that copies BIOS code to faster RAM chips in the upper memory area (above 640 KB) during the boot routine.

SIMD

Abbreviation for Single Instruction Multiple Data.

SIMM

Acronym for single in-line memory module. A small circuit board containing DRAM chips that connects to the system board.

SIP

Acronym for single in-line package, which is a type of housing for electronic components in which the connecting pins protrude from one side. A SIP is also called a Single In-line Pin Package (SIPP).

SKU

Acronym for stock keeping unit.

SMART

Acronym for Self-Monitoring Analysis Reporting Technology. A technology that allows hard drives to report errors and failures to the system BIOS, which then displays an error message on the screen. To take advantage of this technology, you must have a SMART-compliant hard drive and the proper support in the system BIOS.

SMBIOS

Acronym for system management BIOS.

SMD

Acronym for surface mount device.

SNMP

Abbreviation for Simple Network Management Protocol. SNMP is an industry-standard interface that allows a network manager to remotely monitor and manage workstations.

SODIMM

Acronym for small outline-DIMM. A DIMM module with a thinner profile due to the use of TSOP chip packages. SODIMMs are commonly used in laptop computers.

SOIC

Acronym for Small Outline IC, a small-dimension, plastic, rectangular, surface mount chip package that uses gull-wing pins extending outward.

SOJ

Acronym for small outline package J-lead, a small-dimension, plastic, rectangular surface mount chip package with j-shaped pins on its two long sides.

SRAM

Abbreviation for static random-access memory. Because SRAM chips do not require continual refreshing, they are substantially faster than DRAM chips.

state

Refers to the condition of an object that can have more than one condition. For example, an object may be in the "not ready" state.

status

Refers to the health or functioning of an object. For example, a temperature probe can have the status normal if the probe is measuring acceptable temperatures. When the probe begins reading temperatures that exceed limits set by the user, it reports a critical status.

SVGA

Abbreviation for super video graphics array. VGA and SVGA are video standards for video adapters with greater resolution and color display capabilities than previous standards.

To display a program at a specific resolution, you must install the appropriate video drivers and your monitor must support the resolution. Similarly, the number of colors that a program can display depends on the capabilities of the monitor, the video driver, and the amount of video memory installed in the computer.

switch

On a computer system board, switches control various circuits or functions in your computer system. These switches are known as *DIP switches;* they are normally packaged in groups of two or more switches in a plastic case. Two common DIP switches are used on system boards: *slide* switches and *rocker* switches. The names of the switches are based on how the settings (on and off) of the switches are changed.

syntax

The rules that dictate how you must type a command or instruction so that the computer understands it. A variable's syntax indicates its data type.

system board

As the main circuit board, the system board usually contains most of your computer's integral components, such as the following:

- Microprocessor
- RAM
- Controllers for standard peripheral devices, such as the keyboard
- Various ROM chips

Frequently used synonyms for system board are *motherboard* and *logic board*.

system configuration information

Data stored in memory that tells a computer what hardware is installed and how the computer should be configured for operation.

system diskette

System diskette is a synonym for *bootable diskette*.

system memory

System memory is a synonym for *RAM*.

System Setup program

A BIOS-based program that allows you to configure your computer's hardware and customize the computer's operation by setting such features as password protection and energy management. Some options in the System Setup program require that you reboot the computer (or the computer may reboot automatically) in order to make a hardware configuration change. Because the System Setup program is stored in NVRAM, any settings remain in effect until you change them again.

system.ini file

A start-up file for the Windows operating system. When you start Windows, it consults the **system.ini** file to determine a variety of options for the Windows operating environment. Among other things, the **system.ini** file records which video, mouse, and keyboard drivers are installed for Windows.

Running the Control Panel or Windows Setup program may change options in the **system.ini** file. On other occasions, you may need to change or add options to the **system.ini** file manually with a text editor, such as Notepad.

table

In SNMP MIBs, a table is a two dimensional array that describes the variables that make up a managed object.

termination
Some devices (such as the last device at each end of a SCSI cable) must be terminated to prevent reflections and spurious signals in the cable. When such devices are connected in a series, you may need to enable or disable the termination on these devices by changing jumper or switch settings on the devices or by changing settings in the configuration software for the devices.

text editor
An application program for editing text files consisting exclusively of ASCII characters. Windows Notepad is a text editor, for example. Most word processors use proprietary file formats containing binary characters, although some can read and write text files.

text mode
A video mode that can be defined as *x* columns by *y* rows of characters.

threshold values

Systems are normally equipped with various sensors that monitor temperature, voltage, current, and fan speed. The sensor's threshold values specify the ranges (min and max values) for determining whether the sensor is operating under normal, noncritical, critical or fatal conditions. Dell-supported threshold values are

- UpperThresholdFatal
- UpperThresholdCritical
- UpperThresholdNon-critical
- Normal
- LowerThresholdNon-critical
- LowerThresholdCritical
- LowerThresholdFatal

time-out
A specified period of system inactivity that must occur before an energy conservation feature is activated.

tpi
Abbreviation for tracks per inch.

TQFP
Acronym for thin quad flat pack.

TSR
Abbreviation for terminate-and-stay-resident. A TSR program runs "in the background." Most TSR programs implement a predefined key combination (sometimes referred to as a *hot key*) that allows you to activate the TSR program's interface while running another program. When you finish using the TSR program, you can return to the other application program and leave the TSR program resident in memory for later use.

TSR programs can sometimes cause memory conflicts. When troubleshooting, rule out the possibility of such a conflict by rebooting your computer without starting any TSR programs.

TSOP
Acronym for thin small outline package. A very-thin, plastic, rectangular surface mount chip package with gull-wing pins on its two short sides. TSOPs are about a third as thick as SOJ chips.

UART
Acronym for universal asynchronous receiver transmitter, the electronic circuit that makes up the serial port.

UDP
Acronym for user datagram protocol.

UL
Abbreviation for Underwriters Laboratories.

UMB
Abbreviation for upper memory blocks.

unicode
A fixed width, 16-bit world wide character encoding, developed and maintained by the Unicode Consortium.

upper memory area
The 384 KB of RAM located between 640 KB and 1 MB. If the computer has an Intel386 or higher microprocessor, a utility called a *memory manager* can

create UMBs in the upper memory area, in which you can load device drivers and memory-resident programs.

UPS
Abbreviation for uninterruptible power supply. A battery-powered unit that automatically supplies power to your computer in the event of an electrical failure.

USB
Abbreviation for Universal Serial Bus. A USB connector provides a single connection point for multiple USB-compliant devices, such as mice, keyboards, printers, and computer speakers. USB devices can also be connected and disconnected while the system is running.

utility
A program used to manage system resources—memory, disk drives, or printers, for example.

UTP
Abbreviation for unshielded twisted pair.

UUID
Acronym for Universal Unique Identification.

V
Abbreviation for volt(s).

VAC
Abbreviation for volt(s) alternating current.

varbind
An algorithm used to assign and object identifier or OID. The varbind gives rules for arriving at the decimal prefix that uniquely identifies an enterprise, as well as the formula for specifying a unique identifier for the objects defined in that enterprise's MIB.

variable
A component of a managed object. A temperature probe, for example, has a variable to describe its capabilities, its health or status, and certain indexes that you can use to help you in locating the right temperature probe.

VCCI
Abbreviation for Voluntary Control Council for Interference.

VCR
Abbreviation for video cassette recorder.

VDC
Abbreviation for volt(s) direct current.

VESA
Acronym for Video Electronics Standards Association.

VGA
Abbreviation for video graphics array. VGA and SVGA are video standards for video adapters with greater resolution and color display capabilities than previous standards. To display a program at a specific resolution, you must install the appropriate video drivers and your monitor must support the resolution. Similarly, the number of colors that a program can display depends on the capabilities of the monitor, the video driver, and the amount of video memory installed for the video adapter.

VGA feature connector
On some systems with a built-in VGA video adapter, a VGA feature connector allows you to add an enhancement adapter, such as a video accelerator, to your computer. A VGA feature connector can also be called a *VGA pass-through connector*.

video adapter
The logical circuitry that provides—in combination with the monitor—your computer's video capabilities. A video adapter may support more or fewer features than a specific monitor offers. Typically, a video adapter comes with video drivers for displaying popular application programs and operating systems in a variety of video modes.

On some Dell computers, a video adapter is integrated into the system board. Also available are many video adapter cards that plug into an expansion-card connector.

Video adapters often include memory separate from RAM on the system board. The amount of video

memory, along with the adapter's video drivers, may affect the number of colors that can be simultaneously displayed. Video adapters can also include their own coprocessor for faster graphics rendering.

video driver
A program that allows graphics-mode application programs and operating systems to display at a chosen resolution with the desired number of colors. A software package may include some "generic" video drivers. Any additional video drivers may need to match the video adapter installed in the computer.

video memory
Most VGA and SVGA video adapters include memory chips in addition to your computer's RAM. The amount of video memory installed primarily influences the number of colors that a program can display (with the appropriate video drivers and monitor capabilities).

video mode
Video adapters normally support multiple text and graphics display modes. Character-based software displays in text modes that can be defined as *x* columns by *y* rows of characters. Graphics-based software displays in graphics modes that can be defined as *x* horizontal by *y* vertical pixels by *z* colors.

video resolution
Video resolution—800 x 600, for example—is expressed as the number of pixels across by the number of pixels up and down. To display a program at a specific graphics resolution, you must install the appropriate video drivers and your monitor must support the resolution.

virtual memory
A method for increasing addressable RAM by using the hard drive. For example, in a computer with 16 MB of RAM and 16 MB of virtual memory set up on the hard drive, the operating system would manage the system as though it had 32 MB of physical RAM.

virus
A self-starting program designed to inconvenience you. Virus programs have been known to corrupt the files stored on a hard drive or to replicate themselves until a computer or network runs out of memory.

The most common way that virus programs move from one computer to another is via "infected" diskettes, from which they copy themselves to the hard drive. To guard against virus programs, you should do the following:

- Periodically run a virus-checking utility on your computer's hard drive
- Always run a virus-checking utility on any diskettes (including commercially sold software) before using them

VLSI
Abbreviation for very-large-scale integration.

VLVESA
Acronym for very low voltage enterprise system architecture.

vpp
Abbreviation for peak-point voltage.

VRAM
Acronym for video random-access memory. Some video adapters use VRAM chips (or a combination of VRAM and DRAM) to improve video performance. VRAM is dual-ported, allowing the video adapter to update the screen and receive new image data at the same time.

W
Abbreviation for watt(s).

Wakeup on LAN
The ability for the power in a client station to be turned on by the network. Remote wake-up enables software upgrading and other management tasks to be performed on users' machines after the work day is over. It also enables remote users to gain access to machines that have been turned off. Intel calls remote wake-up "Wake-on-LAN."

WH
Abbreviation for watt-hour(s).

win.ini file
A start-up file for the Windows operating system. When you start Windows, it consults the **win.ini** file to determine a variety of options for the Windows operating environment. Among other things, the **win.ini** file records what printer(s) and fonts are installed for Windows. The **win.ini** file also usually includes sections that contain optional settings for Windows application programs that are installed on the hard drive.

Running the Control Panel or Windows Setup program may change options in the **win.ini** file. On other occasions, you may need to change or add options to the **win.ini** file manually with a text editor such as Notepad.

Windows 95
An integrated and complete Microsoft Windows operating system that does not require MS-DOS and that provides advanced operating system performance, improved ease of use, enhanced workgroup functionality, and simplified file management and browsing.

Windows NT
High-performance server and workstation operating system software developed by Microsoft that is intended for technical, engineering, and financial applications.

write-protected
Read-only files are said to be *write-protected*. You can write-protect a 3.5-inch diskette by sliding its write-protect tab to the open position or by setting the write-protect feature in the System Setup program.

XMM
Abbreviation for extended memory manager, a utility that allows application programs and operating systems to use extended memory in accordance with the XMS.

XMS
Abbreviation for eXtended Memory Specification.

ZIF
Acronym for zero insertion force. Some computers use ZIF sockets and connectors to allow devices such as the microprocessor chip to be installed or removed with no stress applied to the device.

ZIP
A 3.5 inch removable disk drive from Iomega. Originally, it provided a 100 MB removable cartridges. The drive is bundled with software that can catalog the disks and lock the files for security.

A 250 MB version of the Zip drive also reads and writes the 100 MB Zip cartridges.

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