Dell™ OpenManage™
Deployment Toolkit Version
Command Line Interface

Reference Guide

Notes and Cautions

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

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

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Introduction

Dell™ OpenManage™ Deployment Toolkit (DTK) includes a set of utilities for configuring and deploying Dell PowerEdge™ systems. DTK is designed for customers who need to build scripted installations in order to deploy large numbers of systems in a reliable fashion without having to dramatically change their current deployment processes.

DTK consists of command line utilities to configure various system features, sample scripts to perform common deployment tasks, and documentation for each utility. You can use DTK in a Microsoft® Windows® Preinstallation Environment (Windows PE) or a Linux environment.

What's New in This Release

Deployment Toolkit version 1.0 was the first release of a Dell-designed and tested suite of utilities, sample script files, and best practices models to use for configuring and deploying Dell systems in a customized, predictable, and unattended manner. DTK versions 1.1, 1.3, and 1.4 included added support and additional utility options. DTK version 2.0 was the first release with flexibility to use DTK in either a Windows PE or an embedded Linux environment. DTK version 3.0 was released to support *xx*1*x* systems.

This release of DTK includes adding support for:

- New SYSCFG options for BIOS configuration
- New SYSCFG options for power management configuration
- New SYSCFG options for IPv6 configuration
- New RAIDCFG options
- Support for new Dell systems

    NOTE: For the list of Dell systems supported for this version of DTK, see the readme.txt file in the root folder, or the *Dell Systems Software Support Matrix* on the *Dell Systems Management Tools and Documentation* DVD or on the Dell Support website at **support.dell.com**.

Requirements

For Windows PE, the DTK utilities support Windows PE version 2005 (created using 32-bit version of Microsoft Windows Server® 2003, Service Pack 1 [SP1]) and Windows PE 2.0 (created using 32-bit version built on the Windows Vista® kernel).

NOTE: DTK utilities do not support Windows PE created with any 64-bit version of Microsoft Windows Server 2003.

For embedded Linux, the DTK utilities can be run on Red Hat® Enterprise Linux® (version 4, update 4) 32-bit.

Toolkit Utilities

Overview

DTK contains utilities that allow you to configure the BIOS, baseboard management controller (BMC), remote access controller (RAC), RAID controllers, and hard-drive partitions on supported Dell systems. Additionally, the utilities can be integrated with the sample files provided with the toolkit to fully configure one-to-many target systems in a scripted mass system deployment.

NOTE: In a Linux environment, the DTK utilities do not have a **.exe** extension.

System Configuration Utility

The SYSCFG utility performs the following tasks:

- Reports and sets BIOS configuration options
- Reports and sets BMC/RAC configuration options
- Reports and sets user-configurable states
- Reports system information, including PCI device detection

RAID Configuration Utility

The RAIDCFG utility reports and sets RAID configuration options.

RAC Configuration Utility

The RACADM utility reports and sets RAC configuration options for Dell Remote Access Controller (DRAC) III (Linux only) and DRAC 4.

NOTE: DRAC 5 is configured by SYSCFG.

Disk Partitioning Utility

The UPINIT script creates, formats, and populates a Dell Utility Partition.

Replication

File Format

The **-i** and **-o** options use a **.ini** file format for SYSCFG options. All name/value entries that follow the [syscfg] section header in the **.ini** file belong to the SYSCFG utility. For an example of the **syscfg.ini** file, see "Sample SYSCFG Utility .ini File Format."

SYSCFG Replication Rules

Not all BIOS and BMC options can be replicated using a **.ini** file. For example, boot sequence and device sequence are only replicated if a device name list can be supplied. A numerical device list cannot be replicated since these index values can change from system to system. In addition, because the service tag information is static, it is not commented out in the output file or replicated. See the description of each option for further replication information.

The **syscfg.ini** file cannot be used across different systems. The file output operation places system identification information at the beginning of the [syscfg] section. This information is used to determine if the file can be accepted as input for a system. The following information is used for system identification:

- System ID Byte(s)
- System Name
- BIOS Version

If these values do not match the values found on the system, the file input operation fails.

The following is the SYSCFG behavior during replication:

- Options not available in SYSCFG are termed invalid options. If SYSCFG encounters an invalid option in the **syscfg.ini** file, the SYSCFG utility terminates.

- Unsupported options are options available in SYSCFG but not applicable on certain systems. If SYSCFG encounters an unsupported option, SYSCFG logs this option and continues to the next option.

  For example, the **virtualization** option is not available on *x*8*xx* series systems.

- Unsupported arguments are arguments valid in SYSCFG but not applicable on certain systems. If SYSCFG encounters an unsupported argument, SYSCFG terminates.

  For example, `syscfg --embsataraid=ahci` is not applicable on some *x*9*xx* series systems.

- SYSCFG logs a message in the log file for each option processed in the **syscfg.ini** file. To generate the log file, use the **logfile** option.

RAID Replication

The RAID replication feature reads the RAID configuration information from the source system and creates a **raid.ini** file. This **raid.ini** file can be applied on the RAID configurations of the target system. The RAID replication requires both, the source system and the target system to have similar RAID controllers.

RACADM Replication

The **RACREP.BAT** sample script applies RAC configuration options to the target system based on the configuration information that has been saved in a configuration file. User input is optional, depending on variables set in the **RACREP.BAT** sample script. This script uses the **RACADM.EXE** utility to configure the RAC in the target system using the RAC configuration file, **raccfg.ini**. The **raccfg.ini** configuration file is passed as the first parameter to the **RACREP.BAT** script. If this parameter is not passed, the default variable values used in this script are set in the **TKENVSET.BAT** scripts. An optional second parameter can be passed to this file, which specifies the IP address used in configuring the RAC. The **raccfg.ini** file is generated with the **RACCAP.BAT** sample script.

Other Dell Documents You Might Need

Besides this *Command Line Interface Reference Guide*, you can find the following guides on the Dell OpenManage documentation page of the Dell Support website at **support.dell.com** or on the *Dell Systems Management Tools and Documentation* DVD.

- The *Dell OpenManage Deployment Toolkit User's Guide* provides general, best practices procedures that focus on the basic tasks for successful deployment of Dell systems.

- The *Dell Systems Software Support Matrix* provides information about the various Dell systems, the operating systems supported by these systems, and the Dell OpenManage components that can be installed on these systems.

- The *Dell OpenManage Installation and Security User's Guide* provides additional information about performing an unattended installation of Dell OpenManage Server Administrator on systems running supported Windows, Red Hat Enterprise Linux, and SUSE® Linux Enterprise Server operating systems.

- The *Dell OpenManage Server Administrator User's Guide* provides information on using Server Administrator on supported operating systems.

- The *Dell OpenManage Server Administrator Compatibility Guide* provides compatibility information about Server Administrator installation and operation on various hardware platforms (or systems) running supported Windows, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server operating systems.

- The *Dell Update Packages User's Guide* provides information about obtaining and using Dell Update Packages as part of your system update strategy.

Additionally, the Deployment Toolkit **readme.txt** file, which is available as part of the DTK download and on the Dell Support website at **support.dell.com**, provides the latest available information about the installation and operation of the DTK components.

Obtaining Technical Assistance

If at any time you do not understand a procedure described in this guide or if your product does not perform as expected, help tools are available to assist you. For more information about these help tools, see "Getting Help" in your system's *Hardware Owner's Manual*.

Additionally, Dell Enterprise Training and Certification is available; see **www.dell.com/training** for more information. This service may not be offered in all locations.

2

Command Syntax Overview

Syntax refers to the way a command and its parameters are entered.
Dell™ OpenManage™ Deployment Toolkit (DTK) Command Line Interface
(CLI) commands can be arranged in any order in a command line instance as
long as they conform to the basic command line syntax.

Command Line Syntax

The general usage models of the DTK utilities are as follows:

- **SYSCFG**

  ```
  syscfg option1 [arg1] ... optionX [argX]
  ```

  OR

  ```
  syscfg bmcoption1 bmcsuboption1
  [arg1]...bmcsuboptionX [argX]
  ```

- **RAIDCFG**

  ```
  raidcfg [mandatory options] <optional arguments>
  ```

- **RACADM**

  ```
  racadm <options> <subcommand> <subcommand_options>
  ```

- **UPINIT**

  ```
  For WinPE:upinit --disk=0 --size=32 --file=
  t:\upimage.bin
  ```

  ```
  For Linux:upinit --disk=/dev/sda --size=32 --file=
  /tmp/upimage.bin
  ```

The DTK command line switches, configuration file formatting, and error
reporting follow similar style and behavior. However, individual DTK utilities
can sometimes differ from one another in significant ways. You should
familiarize yourself with the command line syntax and utility-specific options
and arguments for each utility before using DTK.

📝 **NOTE:** Some of the command line options in DTK are followed by an asterisk.
Such options are used for reporting purposes only.

Table 2-1 lists the generic command line characters and arguments present in the command line options with a short description of these characters.

Table 2-1. Command Line Syntax

Element	Description
-	Single-character options are prefixed with a preceding hyphen (-). **NOTE:** This delimiter is not applicable to Baseboard Management Controller (BMC) suboptions.
--	Multi-character options are prefixed with two (2) preceding hyphens (--).
utilname	Generic designation for a DTK utility name.
o	Generic single-character designation for an option.
optionX	Generic multi-character designation for a utility name, where X can be used to distinguish multiple options used in the same command line instance.
argX	Generic designation for an argument, where X can be used to distinguish multiple arguments used in the same command line instance.
[mandatory option]	Generic designation for a mandatory argument.
<optional argument>	Generic designation for an optional argument.
<*string*>	Generic designation for a string.
<*filename*>	Generic designation for a filename.
[ ]	Indicates a component of the command line. Enter only the information within the brackets, not the brackets themselves.
...	Indicates that the previous argument can be repeated several times in a command. Enter only the information, not the ellipsis (...) itself.
		Separates two mutually exclusive choices in a syntax line. For example: `usb: Turns the usb controller on or off.` `Argument: enable	disable	legacy` Enter only one choice: `--usb=enable`, `--usb=disable`, or `--usb=legacy`.

Case Sensitivity

- Command line options, pre-defined and user-defined arguments, and filenames given as arguments are all case sensitive.
- Unless specified otherwise, enter all commands, options, arguments, and command line switches in lowercase letters.

Command Line Option Delimiters

- Single-character options are prefixed with a preceding hyphen (-).
- Multi-character options are prefixed with two (2) preceding hyphens (--).

Example: `utilname -o --option`

Table 2-2 lists some examples of valid and invalid DTK command lines.

Table 2-2.   DTK Command Line Examples

Valid/ Invalid	DTK Command Line	Example
valid	`syscfg --option1 --option2`	`syscfg --asset --floppy`
invalid	`syscfg --option1=argument --option2  --option3`	`syscfg --asset=1750 --floppy --bootseq`
valid	`syscfg -o=filename --option1 --option2`	`syscfg -o=/tmp/myfile.txt --floppy --bootseq`
valid	`syscfg -l=filename --option1 --option2`	`syscfg  -l= /tmp/myfile.txt --floppy --bootseq`
valid	`syscfg   -i=filename --option1 --option2`	`syscfg  -i= /tmp/myfile.txt --floppy --bootseq`
valid	`syscfg   --option= argument   bmcoption --option1=argument`	`syscfg  --embnic=on pcp  --hostname=webserver`

NOTE: Options that specify **report** or **set** actions should not be mixed in a command line instance.

NOTE: Example 2 is invalid because the **report** and **set** actions are used in the same command line.

NOTE: Examples 3, 4, and 5 are valid because the aliases use neither **report** nor **set** actions.

Read and Write Commands

Options can report a certain value or set of values based on the presence of an argument. These **read** or **write** actions are implied in the DTK command line arguments. The **get**, **read**, **set**, or **write** commands, for example, are not required.

NOTE: Options that specify **read** or **write** actions should not be mixed in a command line instance.

Table 2-3.   Read and Write Command Examples

Valid/Invalid	DTK Command Line Example
valid	syscfg --option1 --option2
valid	syscfg --option1=arg --option2=arg
invalid	syscfg --option1=arg --option2

File Input and Output Commands

- File input is specified by the -i <*filename*> command, where <*filename*> is the name of the input file.

- File output is specified by the -o <*filename*> command, where <*filename*> is the name of the output file.

Log Files

The -l <*filename*> or --logfile <*filename*> option records information output on the command line to the specified log file. Each new line of output is preceded by a time stamp.

If the log file already exists, information is appended to the file. This allows multiple tools to use the same log file to record information. This option should be used instead of redirection to record a utility's output since time data can assist with task diagnosis.

The log duplicates all standard output and error information to the specified file. Each log file begins with a time stamp and utility name. For example, *YYYY/MM/DD HH:MM:SS <utilname> - <output text>*.

The following is an example of the logging behavior:

`2003/11/28 10:23:17 syscfg - option1=on`

`2003/11/28 10:23:17 syscfg - option2=on`

`2003/11/28 10:23:17 syscfg - option3=off`

NOTE: The log files may contain sensitive information such as passwords and authentication information. To protect such information, it is recommended that only the administrator access the log files.

Help Option

The **-h** and **--help** options display general usage information for the utility. If the argument matches a valid option, that option's usage information is displayed. If the option has arguments, the arguments are displayed, separated by a | character. If the argument does not match a valid option, a usage error is given (and usage information is displayed). This option cannot be replicated.

Error Checking and Error Messages

The DTK utilities check your commands for correct syntax when you enter them. When a command is executed successfully, a message displays stating that your command has been successful. Unrecognized or invalid options and arguments result in a usage error that displays the DTK utility name and version along with a short message. For information about the error messages, see "Messages and Codes."

3

SYSCFG

This section documents the Deployment Toolkit (DTK) system configuration utility. It describes the command line parameters, configuration file format, and individual executables used to configure server BIOS and baseboard management controller (BMC) settings, DTK state settings, and system information including PCI device detection.

Features

The SYSCFG utility has the following general features:

- Displays help and usage information
- Outputs configuration options to a file or screen
- Reads configuration options from a file or CLI parameters
- Configures BMC/remote access controller (RAC) users, local area network (LAN) channel and serial channel settings, BMC/RAC platform event filter (PEF) settings, and BMC/RAC serial-over-LAN (SOL) settings
- Configures the nonmaskable interrupt (NMI) and power button
- Reports the BMC/RAC firmware version, BMC/RAC device global unique identifier (GUID), and BMC/RAC LAN channel and serial channel information
- Reports BMC/RAC session information
- Clears BMC/RAC system event log (SEL)
- Restores BMC/RAC factory defaults
- Records and reports the state data value
- Displays system configuration information
- Returns specific error codes and messages
- Logs activity to a given filename
- Configures the BIOS features

NOTE: In Microsoft® Windows® Preinstallation Environment (Windows PE), the SYSCFG utility is located at **\dell\toolkit\tools**. In Linux, you can find it in **/opt/dell/toolkit/bin**.

SYSCFG General Options

📝 **NOTE:** Some of the options in SYSCFG are followed by an asterisk. These commands do not accept any suboptions or arguments. The values associated with these commands are those that are reported by the BIOS. These values cannot be modified.

Table 3-1 lists the SYSCFG general options.

Table 3-1. SYSCFG General Options

Options	Suboptions	Valid Arguments	Description
No option	NA	NA	If an option is not given, the SYSCFG utility outputs usage information. The usage information is displayed in the format shown below.
			Example:
			`A:>syscfg`
			`syscfg version 1.X.123 A06`
			`© 2005 Dell Inc. All rights reserved.`
			`Usage: syscfg --option[=argument] or`
			`syscfg --option [argument] or`
			`syscfg option --suboption [=suboptionargument]`
			`For more information about a particular command, use the option '-h' followed by the command name.`
			`Example: syscfg -h bmcversion.`
			`Options without preceding delimiters have suboptions.`
			`Example: syscfg lancfgparams`
			`Options with preceding delimiters do not have suboptions.`
			`Example: syscfg --powerbutton`
			`option1     option4     option7`
			`option2     option5     option8`
			`option3     option6     option9`

Table 3-1. SYSCFG General Options *(continued)*

Options	Suboptions	Valid Arguments	Description

--envar		valid filename
		
		valid path
		
		media should be writable
			When used with the **–s** option, this option stores the environment variable data to a file. This file can be called from other scripts to set the environment variable. The value of *<filename>* need not be specified if the DTKENVSCR environment variable is set to a valid filename. In this case, the filename pointed to by DTKENVSCR is used to store the environment variable data.
			
			Example:
			
			`syscfg --mem -s=temp --envar=`
			`z:\scripts\file.bat`
			
			When used without the **-s** option, **--envar** takes the default variable.
			
			Linux Example:
			
			`syscfg --svctag --envar=`
			`/tmp/myvars.txt`
			
			`svctag = 2G8LC1S`
			
			`syscfg_var = '2G8LC1S'`
			
			`source /tmp/myvars.txt`
			
			Windows PE Example:
			
			`syscfg --svctag --envar=`
			`i:\myvars.bat`
			
			`svctag = 2G8LC1S`
			
			`syscfg_var = '2G8LC1S'`
			
			`call i:\myvars.bat`

Table 3-1. SYSCFG General Options *(continued)*

Options	Suboptions	Valid Arguments	Description
-h or --help	NA	none or *<valid option name>*	Without an argument, this option displays general usage information for the utility. If the argument matches a valid option, that option's usage information is displayed. If the option has arguments, the arguments are displayed, separated by a | character. If the option has suboptions, all suboptions, valid arguments, and a description are listed. If the argument does not match a valid option, a usage error is given (and usage information is displayed). This option cannot be replicated. Example: `A:>syscfg -h lanchannelaccess` `lanchannelaccess: Reports LAN channel access information.` `Suboptions:` `pefalerting: Enable or disable PEF (Platform Event Filter) alerting.` `Arguments: enable	disable`  `ipmioverlan: Enable or disable IPMI over LAN access.`  `Arguments: disable	alwaysavail`  `channelprivlmt: Sets the maximum privilege level that can be accepted on the LAN channel.`  `Arguments: user	operator	administrator`

Table 3-1. SYSCFG General Options (continued)

Options	Suboptions	Valid Arguments	Description
-i or --infile	NA	*<filename>*	This option directs the SYSCFG utility to take input from a **.ini** file. The utility searches the file for a section heading identical to the utility name. An error is returned if the file or section is not found. If the section is found, each name/value pair is applied to the system. The names must match a valid option, and the arguments must be in the proper format for the option. If an option is not available on a system and it is specified in a file, the utility ignores the option. If any errors are found in the format of the names or values, an error is returned and the options are not applied to the system. If this option is used with other function command options, they are applied in the order in which they appear on the command line, overriding any previous commands. This option can be replicated.
			Example:
			`A:>syscfg -i ` *`filename`*`.ini`
-l or --logfile	NA	*<filename>*	This option logs the command line output to a time-stamped file. The utility either appends the information to an existing log file or creates a new file. The log file contains the same information as the standard output, plus timestamp information. Users should use this option instead of redirection for task diagnosis. This option can be replicated. See "Log Files" for more information.
			Example:
			`A:>syscfg -l ` *`logfile`*

Table 3-1. SYSCFG General Options *(continued)*

Options	Suboptions	Valid Arguments	Description
-o or --outfile- o or -- outfile	NA	*<filename>*	This option outputs all replicable options to the specified filename. The format of the output is in a **.ini** format, with the utility name as the section header. If a file with the same name already exists, the information is appended to the file. If this option is used with other function commands, the commands are applied in the order in which they appear. This option captures replicable BMC and BIOS options. Example: `A:>syscfg -o filename.ini`

-s	NA	*<string>*	This option prints the variable name and the value assigned to it to the console. This option when used with --envar, picks up the environment variable data and stores it in a file. This file can be called from a script. See "--envar" for more information.
			
			Example:
			
			`A:>syscfg -s ENVNAME --svctag`
			
			`svctag=SERVICE`
			
			`ENVNAME=SERVICE`

-- version*			This option displays the version information, current time, and date for the utility. This option cannot be replicated.
			
			Example:
			
			`A:>syscfg --version`
			
			`syscfg version 1.X.XX AXX`
			
			`© 2005 Dell Inc. All rights reserved.`
			
			NOTE: The asterisk is not part of the command syntax.

SYSCFG for BIOS Configuration

SYSCFG uses BIOS interfaces to manipulate boot order and BIOS settings. It configures all options available on the BIOS setup screen, including boot order, embedded device configuration, and asset tag management.

Options for BIOS Configuration

Table 3-2 documents valid options and arguments along with a description of their expected behavior. Options and arguments are case sensitive. All options and pre-defined arguments are lowercase unless stated otherwise.

NOTE: Some of the following options or arguments might not be available on all systems due to the BIOS version or hardware feature set. Running SYSCFG without arguments displays only those options that are valid for your system.

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration

Option	Valid Arguments	Description
--acpower	on, off, last	This option sets the behavior for the system after AC power is lost. This option specifies how the system responds to the restoration of AC power and is particularly useful in systems that are turned off using a power strip. When set to **on**, the system turns on after AC is restored. When set to **off**, the system does not turn on after AC is restored. When set to **last**, the system turns on if the system was on when AC power was lost; if the system was off when AC power was lost, the system remains off when power is restored. This option is available on all supported systems. This value can be replicated.
		Example:
		`A:>syscfg --acpower=on`
		`acpower=on`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--adjcacheprefetch	enable, disable	When this option is set to **enabled**, the processor fetches the cache line containing the currently requested data, and prefetches the following cache line.
		When this option is set to **disabled**, the processor fetches only the cache line containing the currently requested data.
		Example:
		`A:>syscfg --adjcacheprefetch= enable`
		`adjcacheprefetch=enable`
--asset	*<string>*	This option reports or sets the customer-programmable asset tag number for a system. The maximum length of an asset tag is 10 characters. Asset tag values cannot contain any spaces. This option is available on all supported systems. This value can be replicated.
		Example:
		`A:>syscfg --asset=ASSETTAG`
		`asset=ASSETTAG`
--assignintr	standard, distributed	This option controls the interrupt assignment of PCI devices in the system. This option is set to **standard** by default, causing standard interrupt routing that uses interrupt A, B, C, D for all PCIe devices. When set to **distributed**, the interrupt routing is swizzled at the MCH root ports to minimize sharing of interrupts across all PCIe (and PCI-X in the Programmable Interrupt Controller (PIC) mode) devices.
		Example:
		`A:>syscfg --assignintr=standard`
		`assignintr=standard`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--bezelir	enable, disable	This option enables or disables the ESM to monitor and log front bezel intrusion conditions.
		
		Example:
		
		`A:>syscfg --bezelir=enable`
		
		`bezelir=enable`

--bootmode	uefi, bios	This option enables booting to Unified Extensible Firmware Interface (UEFI) -capable operating systems or ensures compatibility with operating systems that do not support UEFI.
		
		Example:
		
		`A:>syscfg --bootmode=uefi`
		
		`bootmode=uefi`
		
		NOTE: This option is available only on *xx*1*x* systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--bootseq	numerical list, separated by commas
	
	or
	
	list of device names, separated by commas
		This option sets the boot order for a system. Without an argument, this option prints the boot order list. The argument must be formatted as a comma-separated numerical list with no spaces. The list must be within the bounds of the current boot list, i.e. the low and high numbers must match, and the same number of entries must be supplied. This option is available on all supported systems. Systems that use a numerical list for boot order cannot be replicated.
		
		Some systems also allow the boot order to be expressed as a list of device names. Device names are formatted as a *name.location.instance* string, where *name* is the name of the device, *location* is either **slot** or **embedded** (**emb**), and *instance* is the numerical position of the device. Some device name examples are shown below. Systems that support a list of device names for boot order can be replicated.
		
		Numerical Lists Examples
		
		`A:>syscfg --bootseq=2,3,4,5,1,6`
		
		`The following devices are set in the boot sequence:`
		
		`Device 2:* usbcdrom.slot.1 - USB CD-ROM device`
		
		`Device 3:* virtualcd.slot.1 – VIRTUAL CDROM`
		
		`Device 4:* hdd.emb.0 - Hard drive C:`
		
		`Device 5:* nic.emb.1 - MBA v2.5.12  Slot 0500`
		
		`Device 1:* virtualfloppy.slot.1 - VIRTUAL FLOPPY`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
		`Device 6:* usbfloppy.slot.1 - USB Floppy device`
		NOTE: The asterisk indicates that the device is enabled in the BIOS.
		Device Name Examples
		Example of device names:
		`nic.slot.1` (network adapter 1 in PCI slot)
		`nic.emb.1` (network adapter 1 on system board)
		`hdd.emb.0` (hard drive C:)
		`cdrom.emb.0` (CD drive)
		Device Name Lists Examples
		Example 1:
		`#syscfg --bootseq`
		`The following devices are set in the boot sequence:`
		`Device 2:* cdrom.emb.0 - IDE CD-ROM device`
		`Device 3:* hdd.emb.0 - Hard drive C:`
		`Device 5:* virtual.slot.1 - VIRTUALCDROM DRIVE`
		`Device 1:* floppy.emb.0 - Diskette drive A:`
		`Device 6:* virtual.slot.2 - VIRTUALFLOPPY DRIVE`
		`Device 4:* nic.emb.1 - IBA GE Slot 0638 v1226`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
		Example 2:
| | | ```
#syscfg --bootseq=
nic.emb.1,virtual.slot.1
``` |
| | | ```
The following devices are set in
the boot sequence:
``` |
| | | ```
Device 4:* nic.emb.1 - IBA GE Slot
0638 v1226
``` |
| | | ```
Device 6:* virtual.slot.2 -
VIRTUALFLOPPY DRIVE
``` |
| | | ```
Device 2:* cdrom.emb.0 - IDE CD-
ROM device
``` |
| | | ```
Device 3:* hdd.emb.0 - Hard drive
C:
``` |
| | | ```
Device 5:* virtual.slot.1 -
VIRTUALCDROM DRIVE
``` |
| | | ```
Device 1:* floppy.emb.0 - Diskette
drive A:
``` |
| | | **NOTE:** The asterisk indicates that the device is enabled in the BIOS. |
| --bootseqretry | enable, disable | This option enables or disables the boot sequence retry feature. When set to **enable**, the system will re-attempt to set the boot order after a 30 seconds timeout if the last boot attempt has failed. This option can be replicated. |
| | | ```
A:>syscfg --bootseqretry=enable
``` |
| | | ```
bootseqretry=enable
``` |
| --cmosdefaults | enable, disable | This option enables or disables the CMOS defaults to be on or off in the next boot. |
| | | ```
A:>syscfg --cmosdefaults=enable
``` |
| | | ```
cmosdefaults=enable
``` |
| | | **NOTE:** This option is available only on *x9xx, xx0x,* and *xx*1*x* systems. |

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--conboot	enable, disable	This option configures or reports whether console redirection occurs after boot. This option is available on all supported systems that support console redirection. This option can be replicated.
		
		Example:
		
		`A:>syscfg --conboot=enable`
		
		`conboot=enable`

--conred	serial1, serial2, off, bmcsol, mmb	This option configures or reports the communication port for console redirection. If this option is set to a serial port, then the serial port option is not available. See the descriptions for --serial1 and --serial2. If only one serial port is present on a system, the **serial2** argument is not available. This option can be replicated.
		
		Example:
		
		`A:>syscfg --conred=serial1`
		
		`conred=serial1`

--conterm	vt100, ansi	This option configures or reports the terminal type for console redirection. This option is available on all supported systems that support console redirection. This option can be replicated.
		
		Example:
		
		`A:>syscfg --conterm=vt100`
		
		`conterm=vt100`

--cpucore	1, 2, 4	This option allows the user to control the number of enabled cores in each processor. The default value is set to the maximum number of cores per processor.
		
		Example:
		
		`A:>syscfg --cpucore=1`
		
		`cpucore=1`
		
		NOTE: This option is available only on *x*9*xx*, *xx*0*x*, and *xx*1*x* systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--cpuxdsupport	enable, disable	This option enables or disables the execute disable (XD) feature of the CPU.
		
		Example:
		
		`A:>syscfg --cpuxdsupport=enable`
		
		`cpuxdsupport=enable`
		
		NOTE: This option is available only on *x*9*xx, xx*0*x,* and *xx*1*x* systems running on Intel® processors.

--cstates	enable, disable	This option enables or disables the power c states of the processor.
		
		`A:>syscfg --cstates=enable`
		
		`cstates=enable`
		
		NOTE: This option is available only on *xx*1*x* systems.

--dbpm	enable, disable	This option enables or disables demand-based power management. This option can be replicated.
		
		Example:
		
		`A:>syscfg --dbpm=enable`
		
		`dbpm=enable`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--devseq	numerical list, separated by commas or list of device names, separated by commas	This option sets the hard-drive sequence for a system. Without an argument, this option displays the device list. The argument must be formatted as a comma-separated numerical list of device index values. The list must be within the bounds of the current boot list. For example, the low and high numbers must match. Systems that use a numerical list for boot order cannot be replicated. This option is available on all supported systems. Some systems allow the boot order to be expressed as a list of device names. Systems that support device names also support replication of the boot order through the output file option. Device names are formatted as a *name.location.instance* string, where *name* is the name of the device, *location* is either **slot** or **embedded** (**emb**), and *instance* is the numerical position of the device. Some device name examples are shown below. Systems that support a list of device names for boot order can be replicated.

	numerical list, separated by commas
	
	or
	
	list of device names, separated by commas
		Example 1:
		
		`A:>syscfg --devseq`
		
		`The following devices are set in the disk device sequence:`
		
		`Device 1:* hdd.emb.0 - System BIOS boot devices`
		
		`Device 2:* scsiraid.slot.3 - PERC 4/SC Adapter(bus 02 dev 02)`
		
		`Device 3:* usbkey.slot.0 - Hard-disk-emulated USB flash drive`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
		Example 2:
		``A:>syscfg --devseq=
hdd.emb.1,scsiraid.emb.1```
		``The following devices are set in
the disk device sequence:Device
1:* hdd.emb.0 - System BIOS boot
devices```
		``Device 2:* scsiraid.emb.1 - AIC-
7899, A:00 Seagate```
		NOTE: The asterisk indicates that the device is enabled in the BIOS.
--embhypervisor	off, on	This option enables or disables the embedded hypervisor port.
		Example:
		```A:>syscfg --embhypervisor=on```
		```embhypervisor=on```
--embideraid	on, off	This option enables or disables the embedded IDE RAID controller. This option is only valid for supported systems that have IDE ROMB. This option can be replicated.
		Example:
		```A:>syscfg --embideraid=on```
		```embideraid=on```

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration (continued)

Option	Valid Arguments	Description
--embnic1	on, off, onnopxe, onwithiscsi	This option turns the first embedded NIC on with PXE on, off, or on without PXE enabled. This option is only valid for supported systems that have an NIC. If the NIC is enabled without PXE, it is not found in the boot order. If the NIC is turned on with PXE, it is placed at the end of the boot order. The **onnopxe** argument is not supported on all systems.
		The **onwithiscsi** argument enables the embedded NIC to boot from the iSCSI server. The **embnic1** option can be replicated.
		Example:
		`A:>syscfg --embnic1=onnopxe`
		`embnic1=onnopxe`
--embnic2	on, off, onnopxe, onwithiscsi	This option turns the second embedded NIC on with PXE enabled, off, or on without PXE enabled. This option is only valid for supported systems that have two embedded NICs. If the second NIC is enabled without PXE, it is not found in the boot order. If the second NIC is turned on with PXE, it is placed at the end of the boot order. The **onnopxe** argument is not supported on all systems. This option can be replicated.
		The **onwithiscsi** argument enables the embedded NIC to boot from the iSCSI server. The **embnic2** option can be replicated.
		Example:
		`A:>syscfg --embnic2=onnopxe`
		`embnic2=onnopxe`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--embnic3	on, off, onnopxe, onwithiscsi	This option turns the third embedded NIC on with PXE enabled, off, or on without PXE enabled. This option is only valid for supported systems that have three embedded NICs. If the second NIC is enabled without PXE, it is not found in the boot order. If the third NIC is turned on with PXE, it is placed at the end of the boot order. The **onnopxe** argument is not supported on all systems. This option can be replicated.
		The **onwithiscsi** argument enables the embedded NIC to boot from the iSCSI server. The **embnic3** option can be replicated.
		Example:
		`A:>syscfg --embnic3=onnopxe`
		`embnic3=onnopxe`
--embnic4	on, off, onnopxe, onwithiscsi	This option turns the fourth embedded NIC on with PXE enabled, off, or on without PXE enabled. This option is only valid for supported systems that have four embedded NICs. If the fourth NIC is enabled without PXE, it is not found in the boot order. If the fourth NIC is turned on with PXE, it is placed at the end of the boot order. The **onnopxe** argument is not supported on all systems. This option can be replicated.
		The **onwithiscsi** argument enables the embedded NIC to boot from the iSCSI server. The **embnic4** option can be replicated.
		Example:
		`A:>syscfg --embnic4=onnopxe`
		`embnic4=onnopxe`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--embnic1nic2	enable, disable	This option enables or disables the operating system interface of the first and second embedded NIC controllers.
		
		Example:
		
		`A:>syscfg --embnic1nic2=enable`
		
		`--embnic1nic2=enable`
		
		NOTE: This option is available only on Dell™ PowerEdge™ 1855, PowerEdge 6850, and *xx*1*x* systems.

--embnic3nic4	enable, disable	This option enables or disables the operating system interface of the third and fourth embedded NIC controllers.
		
		Example:
		
		`A:>syscfg --embnic3nic4=enable`
		
		`--embnic3nic4=enable`
		
		NOTE: This option is available only on *xx*1*x* systems.

--embnics	on, off	This option enables or disables both embedded NICs. This option is only present on systems that do not support the **embnic1** and **embnic2** options. This option can be replicated.
		
		Example:
		
		`A:>syscfg --embnics=on`
		
		`embnics=on`

Table 3-2. **SYSCFG Options and Arguments for BIOS Configuration** *(continued)*

Option	Valid Arguments	Description

--embnic1pxe	enable, disable	This option enables or disables PXE on the first embedded NIC. If PXE is disabled, the first NIC is not found in the boot order. If PXE is enabled, the first NIC is placed at the end of the boot order. This option is only present on systems that do not support the **embnic1** option. This option can be replicated.
		
		Example:
		
		`A:>syscfg --embnic1pxe=enable`
		
		`embnic1pxe=enable`

--embnic2pxe	enable, disable	This option enables or disables PXE on the second embedded NIC. If PXE is disabled, the second NIC is not found in the boot order. If PXE is enabled, the second NIC is placed at the end of the boot order. This option is only present on systems that do not support the **embnic2** option. This option can be replicated.
		
		Example:
		
		`A:>syscfg --embnic2pxe=disable`
		
		`embnic2pxe=disable`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--embsataraid	off, combined, ata, raid, qdma	This option configures an embedded SATA RAID controller. This option can be replicated.
		
		off — disables the embedded SATA RAID controller.
		
		combined — sets the SATA RAID controller to combined mode.
		
		ata — sets SATA RAID controller to ATA mode.
		
		raid — sets SATA RAID controller to RAID mode.
		
		qdma — sets the SATA RAID controller to support ATAPI devices at transfer rates much higher than PIO. A device driver must be installed on your system to use the QDMA mode.
		
		Example:
		
		`A:>syscfg --embsataraid=off`
		
		`embsataraid=off`

--embscsi1	on, off	This option enables or disables the first embedded SCSI controller. This option is only valid for supported systems that have an embedded SCSI controller. This option can be replicated.
		
		Example:
		
		`A:>syscfg --embscsi1=on`
		
		`embscsi1=on`

--embscsi2	on, off	This option enables or disables the second embedded SCSI controller. This option is only valid for supported systems that have an embedded SCSI controller. This option can be replicated.
		
		Example:
		
		`A:>syscfg --embscsi2=on`
		
		`embscsi2=on`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--embscsiraid	raid, off, scsi	This option enables or disables the embedded SCSI RAID controller. This option is only valid for supported systems that have SCSI ROMB. Some systems do not support the **scsi** argument. This option can be replicated.
		⚠ **CAUTION: If you change the controller from SCSI to RAID mode, data loss may occur. Backup any data you need to save before changing modes.**
		Example:
		`A:>syscfg --embscsiraid=raid`
		`embscsiraid=raid`
--embscsiraidchb	raid, scsi	This option sets the second channel on an embedded RAID controller to SCSI or RAID. This option is only valid for supported systems that support RAID/RAID and RAID/SCSI settings for channels A and B. This option can be replicated.
		Example:
		`A:>syscfg --embscsiraidchb=raid`
		`embscsiraidchb=raid`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--extserial	com1, com2, rad	This option sets the behavior of the external serial connector. When set to **com1**, the BIOS maps the external serial connector to COM port 1. The **com1** setting is the default.
		When set to **com2**, the external serial connector is routed to the COM2 interface. Terminal escape sequences can toggle the external connector between the system (COM2) and the remote access device.
		When set to **rad**, the external serial connector is routed to the remote access device interface. Terminal escape sequences can toggle the external connector between the system (COM2) and the remote access device.
		This option can be replicated.
		NOTE: This option is not supported on PowerEdge 1955 systems.
		Example:
		A:>syscfg --extserial=com1
		extserial=com1
		On *x9xx* systems, the **--serialcomm** option can be used with the external serial (**--extserial**) option instead of the **--conred** option.
--embvideoctrl	enable, disable	This option enables or disables the embedded video controller.
		Example:
		A:>syscfg --embvideoctrl=enable
		embvideoctrl=enable
		NOTE: This option is available only on *xx*1*x* systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--fiberchannel	enable, disable	This option enables or disables embedded fiber channel. This option can be replicated.
		Example:
		`A:>syscfg --fiberchannel=enable`
		`fiberchannel=enable`
--floppy	auto, off, readonly	This option sets the diskette drive controller to auto, off, or read-only. This option is available on all supported systems that have a supported diskette drive. This option can be replicated.
		Example:
		`A:>syscfg --floppy=auto`
		`floppy=auto`
--fsbr	115200, 57600, 19200, 9600	This option sets the console redirection fail safe baud rate in bps.
		Example:
		`A:>syscfg --fsbr=9600`
		fsbr=9600
--hddfailover	off, on	This option specifies the device in the hard disk drive sequence menu that has not been attempted in the boot sequence.When set to **on**, all devices are attempted in order. When set to **off**, only the first device in the hard disk sequence is attempted. This option can be replicated.
		Example:
		`A:>syscfg --hddfailover=on`
		`hddfailover=on`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration _(continued)_

Option	Valid Arguments	Description
--hwprefetcher	enable, disable	When set to **enable**, this option makes the processor look ahead and see what data might be needed next. When some data is found, it loads several steps in advance.
		When set to **disable**, it does not look ahead.
		This option can be replicated.
		Example:
		`A:>syscfg --hwprefetcher=enable`
		`hwprefetcher=enable`
--idecdrom	auto, off	This option enables or disables the CD drive. This option can be replicated.
		Example:
		`A:>syscfg --idecdrom=auto`
		`idecdrom=auto`
--idracgui	enable, disable	Enables and disables the iDRAC GUI. This option can be replicated.
		Example:
		`A:>syscfg --idracgui=disable`
		`idracgui=disable`
--integratedraid	enable, disable	This option enables or disables the integrated RAID controller. This option can be replicated.
		Example:
		`A:>syscfg --integratedraid=disable`
		`integratedraid=disable`
--integratedsas	enable, disable	This option enables or disables the integrated SAS controller. This option can be replicated.
		Example:
		`A:>syscfg --integratedsas=enable`
		`integratedsas=enable`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--internalusb	off, on	This option enables or disables all the user-accessible USB ports. This option can be replicated.
		
		Example:
		
		`A:>syscfg --internalusb=on`
		
		`internalusb=on`

--ioat	enable, disable	This option enables or disables the I/O Acceleration Technology (I/OAT) DMA Engine option. This option must be enabled only if the hardware and software support I/OAT on your system. This option can be replicated.
		
		Example:
		
		`A:>syscfg --ioat=enable`
		
		`ioat=enable`

--lcd	default, none, user, idracipv4address, idracmacaddress, ossystemname, servicetag, ipv6address, ambienttemp, systemwatts	This option determines whether to display the default string (model name and number) or a user-defined string on the front-panel LCD. This option can be replicated.
		
		Example:
		
		`A:>syscfg --lcd=default`
		
		`lcd=default`
		
		NOTE: The idracipv4address, idracmacaddress, ossystemname, servicetag, ipv6address, ambienttemp, and systemwatts arguments are available only on *xx*1*x* systems.

--lcd1	*<string>*	This option sets the first line of user-defined text on the system LCD. This option can be replicated. **NOTE:** Before setting user strings for this option, ensure that `--lcd` is set to **user**. **NOTE:** If you have a PowerEdge *x*6*xx*, *x*7*xx*, or *x*8*xx* system, you need to reboot your system for the settings to take effect.

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--lcd2	*\<string\>*	This option sets the second line of user-defined LCD strings.

--logicproc	enable, disable	This option enables or disables logical processing for a system. This option is available on all systems that support logical processing (Hyperthreading). This option can be replicated.
		
		Example:
		
		`A:>syscfg --logicproc=enable`
		
		`logicproc=enable`

--lpt	lpt1, lpt2, lpt3, disable	This option configures or reports the I/O address of the LPT (parallel) port. This option is available on all supported systems with an LPT port. This option is recorded to an output file for replication.
		
		Example:
		
		`A:>syscfg --lpt=lpt1`
		
		`lpt=lpt1`

--lptmode	ps2, at	This option configures or reports the mode of an LPT (parallel) port. This option is available on all supported systems with an LPT port. This option is recorded to an output file for replication.
		
		Example:
		
		`A:>syscfg --lptmode=ps2`
		
		`lptmode=ps2`

--memintleave	enable, disable	This option enables or disables the memory interleave mode. This option can be replicated.
		
		Example:
		
		`A:>syscfg --memintleave=enable`
		
		`memintleave=enable`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--memoperatingmode	optimizer, mirror, advancedecc	This option selects the memory operating mode. This feature is active only if a valid memory configuration is detected.
		Example:
		`A:>syscfg --memoperatingmode= optimizer`
		`memoperatingmode=optimizer`
		NOTE: This option is available only on *xx*1*x* systems.
--memremap	off, auto	This option enables or disables memory remapping.
		`A:>syscfg --memremap=off`
		`memintleave=off`
--memtest	enable, disable	This option enables or disables the POST extended memory test.
		Example:
		`A:>syscfg --memtest=disable`
		`memtest=disable`
--mouse	off, on	This option turns the mouse controller on or off. This option can be replicated.
		Example:
		`A:>syscfg --mouse=off`
		`mouse=off`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--nextboot	valid device name (from the **--bootseq** option device list)	This option sets the specified device as the first device in the boot order for the next boot cycle only. The device must be a device from the **--bootseq** option device list. Run the **--bootseq** option to see a list of available device names. See --bootseq for more information. This option is not replicated.

Example 1:

A:>syscfg --bootseq

Device 1: floppy.emb.0 - Diskette Drive A:

Device 2: cdrom.emb.0 - CD-ROM device

Device 3: hdd.emb.0 - Hard Drive C:

Device 4: nic.emb.1 - Intel Boot Agent Version 4.0.17

Device 5: nic.emb.2 - Intel Boot Agent Version 4.0.17

Example 2:

A:>syscfg --nextboot=nic.emb.1

nextboot=nic.emb.1

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--noraidprompt*	NA	This option specifies that the BIOS must not prompt for confirmation when changing the mode of a RAID controller. This option can only be used with the **--embscsiraid** or **--embscsiraidchb** options.
		Without this option, the user is prompted during POST to confirm the change of a RAID controller from RAID(SCSI) to SCSI(RAID). This option is not replicated.
		⚠ **CAUTION: When changing a RAID controller from SCSI to RAID or from RAID to SCSI, data is lost on the affected hard drives. The warning message for this data is not displayed if you use the --noraidprompt option. To avoid data loss, back up any information on the hard drives before changing the type of controller used with the drives.**
		Example:
		`A:>syscfg --embscsiraid=raid --noraidprompt`
		`embscsiraid=raid`
		NOTE: The asterisk is not part of the command syntax.
--numlock	on, off	This option enables or disables the keyboard number lock during POST. This option is not replicated.
		Example:
		`A:>syscfg --numlock=on`
		`numlock=on`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--oldsetuppwd	*<string>*	This option is required to set a new setup password when a setup password is currently set. The setup password locks the BIOS setup screen. The argument string supplied to this option is the current password. If this password is not correct, the new setup password is not applied to the system. Generally, passwords are limited to alphanumeric characters and cannot exceed 32 characters in length. This option is not replicated.

Example:

```
A:>syscfg --setuppwd=
asetuppassword --oldsetuppwd=
currentpassword
```

```
The password has been set. Please
use a warm reboot to apply the
password to the system.
```

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--oldsyspwd	*<string>*	This option supplies the current system password for the BIOS. This option is only given when setting the new system password. If this password does not match the current system password, the new password is not applied to the system. The system password is required when booting the system. The argument string supplied to this option will be the password. Generally, passwords are limited to alphanumeric characters and cannot exceed 32 characters in length. This option is not replicated.
		Example 1:
		`A:>syscfg --syspwd=`*anotherpassword* `--oldsyspwd=`*password*
		`The password has been set. Please use a warm reboot to apply the password to the system.`
		Example 2:
		`A:>syscfg --syspwd=asyspassword --oldsyspwd=currentpassword`
		`The old password entered is incorrect. The new password will not be set. Please try again.`
--opticaldrivectrl	enable, disable	This option enables or disables the optical CD-ROM controller.
		Example:
		`A:>syscfg --opticaldrivectrl= enable`
		`opticaldrivectrl=enable`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--osmode	enable, disable	This option enables or disables operating system installation mode for installing operating systems. Enabling this option causes the BIOS to only report 256 MB to the operating system. Some operating systems cannot be installed if a system has more than 2 GB of memory. This option can be replicated.
		
		Example:
		
		`A:>syscfg --osmode=enable`
		
		`osmode=enable`

--oswatchdogtimer	enable, disable	If your system stops responding, the watchdog timer aids in the recovery of your operating system. When this option is set to **enable**, the operating system is allowed to initialize the timer. When set to **disable** (the default), the timer will have no effect on the system.
		
		Example:
		
		`A:>syscfg --oswatchdogtimer=enable`
		
		`oswatchdogtimer=enable`

--ovrwrt*	NA	This option is only used with the **-o** option to cause the output file to be overwritten if a file of the same name already exists. This option cannot be replicated.
		
		Example:
		
		`A:>syscfg -o=`*`filename`*`.ini --ovrwrt`
		
		`The file `*`filename`*` has been overwritten.`
		
		NOTE: The asterisk is not part of the command syntax.

power

NOTE: For details about the **power** suboptions and arguments, see Table 3-4. This option is available only on *xx*1*x* systems.

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--powerbutton	enable, disable	This option enables or disables the power button for a system. This option is recorded to an output file for replication. This option is available on all supported systems.
		Example:
		`A:>syscfg --powerbutton=enable`
		`powerbutton=enable`
		NOTE: The system must be rebooted for BIOS options to take effect.
--pwdlock	lock, unlock	This option locks the system password. If the system password is locked, it can be modified only through the F2 screen with the setup password. This option can be replicated.
		Example:
		`A:>syscfg --pwdlock=lock`
		`pwdlock=lock`
--redmem	off, spare, mirror, raid	This option allows selection of the desired redundant memory mode, or disables redundant memory. This option can be replicated.
		Example:
		`A:>syscfg --redmem=off`
		`redmem=off`
		NOTE: The system must be rebooted for BIOS options to take effect.
		NOTE: This option is not available on *xx*1*x* systems.
--rptkeyerr	enable, disable	This option configures or reports whether the BIOS reports keyboard errors during POST. This option can be replicated.
		Example:
		`A:>syscfg --rptkeyerr=disable`
		`rptkeyerr=disable`

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--sata0	auto, off	This option enables or disables SATA port 0. This option can be replicated.
		
		Example:
		
		`A:>syscfg --sata0=auto`
		
		`sata0=auto`
		
		NOTE: This option maps to **--sata_a** for PowerEdge *x9xx* systems.

--sata1	auto, off	This option enables or disables SATA port 1. This option can be replicated.
		
		Example:
		
		`A:>syscfg --sata1=auto`
		
		`sata1=auto`
		
		NOTE: This option maps to **--sata_b** for PowerEdge *x9xx* systems.

--sata2	auto, off	This option enables or disables SATA port 2. This option can be replicated.
		
		Example:
		
		`A:>syscfg --sata2=auto`
		
		`sata2=auto`
		
		NOTE: This option maps to **--sata_c** for PowerEdge *x9xx* systems.

--sata3	auto, off	This option enables or disables SATA port 3. This option can be replicated.
		
		Example:
		
		`A:>syscfg --sata3=auto`
		
		`sata3=auto`
		
		NOTE: This option maps to **--sata_d** for PowerEdge *x9xx* systems.

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--sata4	auto, off	This option enables or disables SATA port 4. This option can be replicated.
		Example:
		`A:>syscfg --sata_4=auto`
		`sata_4=auto`
		NOTE: This option maps to **--sata_e** for PowerEdge *x9xx* systems.
--sata5	auto, off	This option enables or disables SATA port 5. This option can be replicated.
		Example:
		`A:>syscfg --sata_5=auto`
		`sata_5=auto`
		NOTE: This option maps to **--sata_f** for PowerEdge *x9xx* systems.
--sata6	auto, off	This option enables or disables SATA port 6. This option can be replicated.
		Example:
		`A:>syscfg --sata_6=auto`
		`sata_6=auto`
		NOTE: This option maps to **--sata_g** for PowerEdge *x9xx* systems.
--sata7	auto, off	This option enables or disables SATA port 7. This option can be replicated.
		Example:
		`A:>syscfg --sata_7=auto`
		`sata_7=auto`
		NOTE: This option maps to **--sata_h** for PowerEdge *x9xx* systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--snoopfilter	enable, disable	This option enables or disables the snoop filter option from the system BIOS.
		
		Example:
		
		`A:>syscfg --snoopfilter=enable`
		
		`snoopfilter=enable`

--speaker	on, off	This option turns the built-in speaker on or off. This option can be replicated.
		
		NOTE: The **--speaker** option is not supported on certain PowerEdge systems.
		
		Example:
		
		`A:>syscfg --speaker=on`
		
		`speaker=on`

--serial1	disable, com1, com3, com1_bmc, bmcserial, bmclan, rac	This option configures or reports the first serial port communication port. This option can be replicated.
		
		bmcserial — maps serial port 1 to BMC Serial.
		
		bmclan — routes the serial traffic destined for serial1 out to NIC1.
		
		com1_bmc — maps serial port 1 to COM port 1 BMC.
		
		rac — maps serial port 1 to the RAC device.
		
		Example:
		
		`A:>syscfg --serial1=rac`
		
		`serial1=rac`

--serial2	auto, disable, com2, com4	This option configures or reports the second serial port communication port. This option can be replicated.
		
		Example:
		
		`A:>syscfg --serial2=disable`
		
		`serial2=disable`

Table 3-2.   SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--serialcomm	on, com1cr, com2cr, off	This option sets the behavior of the serial port communication. When set to **on**, this option tells the BIOS to enable COM port 1 and COM port 2. These ports are made available for use by the operating system or applications. BIOS Console Redirection is disabled.
		When set to **com1cr**, this option tells the BIOS to enable COM port 1 and COM port 2. These ports are made available for use by the operating system or applications. BIOS Console Redirection is through COM port 1.
		When set to **com2cr**, this option tells the BIOS to enable COM port 1 and COM port 2. These ports are made available for use by the operating system or applications. BIOS Console Redirection is through COM port 2.
		When set to **off**, this option tells the BIOS to disable COM port 1 and COM port 2.
		This option is replicated.
		Example:
		A:>syscfg --serialcomm=on
		serialcomm=on
		On *x9xx* systems, the **--serialcomm** option can be used with the external serial (**--extserial**) option instead of the **--conred** option.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--setuppwd	*<string>*	This option sets the setup password for the BIOS. The setup password locks the BIOS F2 screen. The argument string supplied to this option is the password. Generally, passwords are limited to alphanumeric characters and cannot exceed 32 characters in length. If a current setup password is set, it must be given through the **--oldsetuppwd** option. This option is not replicated.

Example 1:

```
A:>syscfg --setuppwd=
asetuppassword
```

```
The password has been set.
Please use a warm reboot to apply
the password to the system.
```

Example 2:

```
A:>syscfg --setuppwd=
asetuppassword
--oldsetuppwd=currentpassword
```

```
The password has been set.
Please use a warm reboot to apply
the password to the system.
```

Example 3:

```
A:>syscfg --setuppwd=
asetuppassword
--oldsetuppwd=currentpassword
```

```
The old password entered is
incorrect. The new password will
not be set. Please try again.
```

NOTE: You cannot disable your password using DTK. To disable your password, you must use the system BIOS.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--sma	enable, disable	This option enables or disables processor sequential memory access.
		
		Example:
		
		`A:>syscfg --sma=disable`
		
		`sma=disable`

--svctag*	NA	This option reports the service tag for a system. If the system is modular, it displays the service tag for PowerEdge 1855. If used with the **-s** general option, the environment variable is set to the service tag.
		
		Example:
		
		`A:>syscfg --svctag`
		
		`svctag=113CD1S`
		
		NOTE: The asterisk is not part of the command syntax.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description
--syspwd	*\<string\>*	This option sets the system password for the BIOS. The system password is required when booting the system. The argument string supplied to this option is the password. Generally, passwords are limited to alphanumeric characters and cannot exceed 32 characters in length. If a current system password is set, it must be given through the **--oldsyspwd** option. This option is not replicated.
		Example 1:
		`A:>syscfg --syspwd=password`

		`The password has been set.`
		`Please use a warm reboot to apply`
		`the password to the system.`

		Example 2:
		`A:>syscfg --syspwd=password` `--oldsyspwd=password`

		`The password has been set. Please`
		`use a warm reboot to apply the`
		`password to the system.`

		NOTE: You cannot disable your password using DTK. To disable your password, you must use the system BIOS.
--sysrev	NA	This option reports the system revision. This is a read-only option.

tpm

NOTE: For details about the **tpm** suboptions and arguments, see Table 3-3. This option is available only on *xx*0*x* and *xx*1*x* systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration _(continued)_

Option	Valid Arguments	Description

--turbomode	enable, disable	This option enables or disables core-based turbo mode. Turbo mode is a feature on Intel processors that allows one processor core to increase it's frequency by one bin whenever the other core has gone into an idle state.
		
		Example:
		
		`A:>syscfg --turbomode=enable`
		
		`--turbomode=enable`
		
		NOTE: This option is available only on _xx_1_x_ systems running on Intel processors.

--usb	on, legacy, off	This option sets or reports the status of the USB port. When set to **on**, USB keyboards and mice function only for systems with operating systems that have native USB support. When set to **legacy**, USB keyboards and mice are supported through the BIOS to function in operating systems that do not natively support USB. This option can be replicated.
		
		Example:
		
		`A:>syscfg --usb=on`
		
		`usb=on`

--usbflash	auto, fdd, hdd	This option sets or reports the emulation for a USB flash device. The USB flash device can be set to emulate a hard drive (**hdd**) or a diskette drive (**fdd**). This option can be replicated.
		
		Example:
		
		`A:>syscfg --usbflash=auto`
		
		`usbflash=auto`
		
		NOTE: This option cannot be set on _x_9_xx_, _xx_0_x_, and _xx_1_x_ systems.

Table 3-2. SYSCFG Options and Arguments for BIOS Configuration *(continued)*

Option	Valid Arguments	Description

--usbports	enable, enablebackonly, disable	This option enables or disables USB ports. When set to **enable**, it enables all user accessible USB ports. When set to **enablebackonly**, the front user accessible ports are disabled. When set to **disable**, both front and back user accessible ports are disabled.
		
		This option can be replicated.
		
		Example:
		
		`A:>syscfg --usbports=enable`
		
		`usbports=enable`

--virtualization	enable, disable	This option enables or disables virtualization in the CPU. When set to **enable**, it enables the additional hardware capabilities provided by Virtualization Technology in applicable CPUs.
		
		When set to **disable**, it disables the additional hardware capabilities provided by Virtualization Technology.
		
		This option can be replicated.
		
		Example:
		
		`A:>syscfg --virtualization=enable`
		
		`virtualization=enable`

--virtualmedia	enable, disable	This option enables or disables virtual media in Dell Remote Access Controller (DRAC) 5.
		
		Example:
		
		`A:>syscfg --virtualmedia=enable`
		
		`virtualmedia=enable`

Table 3-3 lists the suboptions and arguments for the **tpm** option.

Table 3-3.   Suboptions and Arguments for the tpm Option

Option	Suboption	Arguments	Description
tpm	--tpmsecurity	off	Does not report the presence of TPM to the operating system.
		onwithpbm	Directs the BIOS to store the TCG compliant measurements to the TPM during a POST operation.
		onwithoutpbm	Directs the BIOS to bypass the pre-boot measurements.
			Example:
			```A:>syscfg tpm --tpmsecurity = onwithoutpbm -- setuppwdoverride```
	--tpmactivation	enabled	Enables and activates the TPM feature.
		disabled	Disables and deactivates the TPM feature.
		nochange	Does not alter the operational state of the TPM feature.
			Example:
			```A:>syscfg tpm -- tpmactivation=enabled -- setuppwdoverride```
			NOTE: You cannot set **tpmactivation** when **tpmsecurity** is set to **off**.
			NOTE: After setting **tpmactivation** to **enabled** or **disabled**, if you reboot your system, DTK displays the 'TPM Configuration Honoured system will reset and the system reboots again' message and reboots once again.
			NOTE: When you set **tpmactivation** to **enabled** or **disabled**, DTK displays the value of **tpmactivation** as **nochange**. However, the TPM feature is activated/deactivated when you reboot the system.

Table 3-3. Suboptions and Arguments for the tpm Option *(continued)*

Option	Suboption	Arguments	Description
	--tpmclear	NA	Clears the contents of the TPM chip without erasing the **tpmsecurity** and **tpmactivation** settings.
			Example:

			`A:>syscfg tpm --`
			`tpmactivation=enabled --`
			`tpmclear --setuppwdoverride`

	--undotpmclear	NA	Undoes the result of the **tpmclear** setting. If you specify this setting before specifying the **tpmclear** setting, the 'There is currently no pending TPM Clear request' message is displayed.
			Example:

			`A:>syscfg tpm --`
			`tpmactivation=enabled --`
			`undotpmclear --`
			`setuppwdoverride`

	--valsetuppwd	*<string>*	Validates the setup password for TPM authentication. If you try to change DTK settings, you will be prompted to enter this password to access the settings.
			Example:

			`A:>syscfg tpm --`
			`tpmactivation=enabled --`
			`tpmclear --valsetuppwd=`
			`<setup_password>`

	--setuppwdoverride	NA	On systems that do not have a setup password configured, if you set this option, you will not be prompted for a password to access DTK settings.

			`A:>syscfg tpm --`
			`tpmactivation=enabled --`
			`tpmclear --setuppwdoverride`

Table 3-4 lists the suboptions and arguments for the **power** option.

Table 3-4. Suboptions and Arguments for the power Option

Option	Suboption	Arguments	Description
power	--profile	*<powerprofile>* where *powerprofile* can be maxperformance, osctl, apc	Displays the settings similar to the BIOS setup screen for the respective profile. Reboot the system for the settings to take effect.
			If power profiles are not available on the platform, an error message is displayed.
			`A:>syscfg power --profile= maxperformance -- setuppwdoverride`
		custom	Creates the custom profile. Reboot the system for the settings to take effect.
			`A:>syscfg power --profile= custom --setuppwdoverride`
	--cpupowermode	min, max, osdbpm, systemdbpm	Allows you to set the CPU power and performance management to minimum power, maximum performance, operating system DBPM, or system DBPM mode.
			`A:>syscfg power --profile= custom --cpupowermode=min -- setuppwdoverride`
	--memorypowermode	min, 800, 1067, 1333, max	Allows you to set memory power and performance management to minimum power mode, maximum power mode, 800Mhz, 1067Mhz, or 1333Mhz.
			`A:>syscfg power --profile= custom --memorypowermode=min --setuppwdoverride`

Table 3-4.   Suboptions and Arguments for the power Option *(continued)*

Option	Suboption	Arguments	Description
	--fanpowermode	min, max	Allows you to set the fan algorithm to the minimum power optimized or maximum performance optimized mode. `A:>syscfg power --profile= custom --fanpowermode=min -- setuppwdoverride`
	NOTE: Set the value of **--profile** to **custom** to change the values of **cpupowermode**, **memorypowermode**, and **fanpowermode**.		
	--profile	NA	Displays the profile set and the respective profile parameters.
	--cap		Displays the values of budgetcap, and the maximum and minimum power thresholds in Watts.
	--cap *\<budgetcap>* --unit *\<unit>*	*\<budgetcap>* is the limit for power consumption in Watts, or btuphr, or percent. *\<unit>* is the unit of the *\<budgetcap>* value and can be watt, or btuphr, or percent.	The value of *\<budgetcap>* must be between the maximum and minimum threshold values, else an error is displayed. If the unit is btuphr, it is converted in to Watts using the formula "Watt = BTU/hr /3.413". If the unit is percent, the formula is "Power Cap (Watts) = [Power supply rating for input power (Watts) - Min potential power (Watts)] * Power Cap (%) + Min potential power (Watts)]" `A:>syscfg power --cap=<value> --unit=watt -- setuppwdoverride`
	--maxpowercap		Displays the value of the maximum power threshold.
	--minpowercap		Displays the value of the minimum power threshold.

Table 3-4. Suboptions and Arguments for the power Option *(continued)*

Option	Suboption	Arguments	Description
	--valsetuppwd	*<string>*	Validates the setup password for power authentication. If you try to change the DTK settings, you are prompted to enter this password to access the settings.
			```A:>syscfg power --profile= maxperformance --valsetuppwd= <setup_password>```
	--setuppwdoverride	NA	Does not prompt you for a password to access the DTK settings on systems that do not have a setup password configured.
			```A:>syscfg power --profile= maxperformance –setuppwdoverride```

SYSCFG for BMC and Remote Access Controller Configuration

SYSCFG configures BMC and Remote Access Controller settings.

NOTE: Some of the following options or arguments might not be available on all systems.

NOTE: For options that use text strings such as username, password, hostname, and community string, using some characters such as <space>, <, >, |, or = on the command line can be misinterpreted by the command line parser and cause errors.

NOTE: The following options or arguments are also applicable to DRAC 5.

The following tables document valid options, suboptions, and arguments along with a description of the expected behavior of each option and suboption. Options, suboptions, and arguments are case sensitive. All options, suboptions, and pre-defined arguments are lowercase unless explicitly stated otherwise.

The following section documents all the valid options, suboptions, and their arguments along with a description of the expected behavior using an example. Some features that need to be noted while reading this section are:

- Unless otherwise specified, all suboptions to options are optional.
- If a suboption is not specified for an option, all valid suboption values are displayed for the option. If suboptions are specified, then only those suboptions are reported.
- Wherever options or suboptions take empty strings as input, the string NULL should be input. For example, options such as **username** and suboptions such as **commstring** and **hostname** can take an empty string as input.

BMC and Remote Access Controller Configuration Options

Table 3-5 lists the options, suboptions, and pre-defined arguments for configuring your system BMC and remote access controller (RAC).

Table 3-5.   BMC and Remote Access Controller Configuration Options

Option	Suboption	Valid Arguments	Description
bmcversion			Displays the version information for the BMC and the BMC firmware. This option cannot be replicated.
	--devid	NA	Reports the BMC device ID.
	--devrevision	NA	Reports the BMC device revision.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--majorfwrevision	NA	Reports the BMC device major firmware revision.
	--minorfwrevision	NA	Reports the BMC device minor firmware revision.
			Example:
			`A:>syscfg bmcversion`
			`devid=32`
			`devrevision=0`
			`majorfwrevision= 0`
			`minorfwrevision= 40`
-- controlpanelacc ess	NA	viewandmodify, viewonly, disabled	This option sets or gets the access level for the Liquid Crystal Display (LCD).
			Example:
			`A:>syscfg -- controlpanelacce ss=viewandmodify`
			`controlpanelacce ss=viewandmodify`
			NOTE: This option is available only on *xx*1*x* systems.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description

--clearsel*	NA	NA	Clears the SEL. This option cannot be replicated.
			
			Example:
			
			`A:>syscfg -- clearsel`
			
			`Clearing SEL...`
			
			NOTE: The asterisk is not part of the command syntax.

--deviceguid*	NA	NA	Displays the GUID for the BMC. This option cannot be replicated.
			
			Example:
			
			`A:>syscfg -- deviceguid`
			
			`deviceguid= XXXXXXXXXX`
			
			NOTE: The asterisk is not part of the command syntax.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--encryptkey	NA	*<hexadecimal number>*	Encrypts the IPMI sessions.
			The hexadecimal number entered as an argument is not case sensitive although the value returned by the **encryptkey** option is always in uppercase.
			The value returned is appended with zeroes so that it is always 40 characters long.
			Example:
			`A:>syscfg --encryptkey=abcd`
			`encryptkey= ABCD000000000000 0000000000000000 00000000`
--identify	NA	0–254 **NOTE:** Use 0 to stop flashing the LED.	Flashes the identification LED for a specified number of seconds. **NOTE:** This option applies only to PowerEdge systems with a BMC.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--kvmstatusonlcd		active, inactive	This option configures the vKVM session status on the LCD.
			Example:
			`A:>syscfg --kvmstatusonlcd= active`
			`kvmstatusonlcd= active`
			NOTE: This option is available only on *xx*1*x* systems.
lanchannelaccess or lca			Sets or displays the LAN channel access settings such as alerting, IPMI over LAN, and user privilege. This option can be replicated.
	--pefalerting	enable, disable	Enables or disables PEF alerts. This suboption can be replicated.
	--ipmioverlan	disable, alwaysavail	Sets the LAN channel access mode. This suboption can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--channelprivlmt	user, operator, administrator	Sets the maximum privilege level accepted for the LAN channel. This suboption can be replicated.
			Example (to configure the LAN channel with alerts and IPMI over LAN enabled):

			`A:>syscfg`
			`lanchannelaccess`
			`--pefalerting=`
			`enable`
			`--ipmioverlan=`
			`alwaysavail`

			`lanchannelaccess`
			`pefalerting=`
			`enable`
			`ipmioverlan=`
			`alwaysavail`

lanchannelinfo or lci			Displays media and protocol information about the LAN channel. This option cannot be replicated.
lancfgparams or lcp			Configures and displays LAN configuration parameters. This option can be replicated.
	--ipaddrsrc	static, dhcp	Sets the IP address source for the LAN channel. This suboption can be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--ipaddress	*<ipaddress>*	Sets the IP address for the LAN channel. This suboption cannot be replicated.
	--subnetmask	*<subnetmask>*	Sets the subnet mask for the LAN channel. This suboption can be replicated.
	--gateway	*<gateway>*	Sets the gateway for the LAN channel. This suboption can be replicated.
	--commstring	*<string>*	Sets the community string (maximum of 16 printable ASCII characters) used in a platform event trap (PET). This suboption can be replicated.
	--destipaddr	*<ipaddress>*	Sets the destination IP address for the alert destination specified with the **alertdest** suboption. The **destipaddr** suboption is dependent on the **alertdest** suboption. If the **alertdest** suboption is not specified on the command line, the first alert destination (alertdest=1) is set with this IP address. This suboption can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options _(continued)_

Option	Suboption	Valid Arguments	Description
	--alertdest	1, 2, 3, 4	Sets the destination for the LAN alert. This suboption can be replicated.
	--vlantag	enable, disable	Enables or disables VLAN tagging. This suboption can be replicated.
	--vlanid	<string>	Sets the 12-bit VLAN ID. This suboption can be replicated.
	--vlanpriority	0–7	Sets the VLAN priority value. This suboption can be replicated.
	--macaddress	NA	Displays the BMC MAC address. This suboption cannot be replicated.
	--nicselection	shared, sharedfailover, dedicated, sharedreceiveonall	Sets the operating mode of the NIC to **shared/sharedfailover/dedicated/sharedreceiveonall**. Some of these options are not applicable on certain systems. **NOTE:** The **sharedreceiveonall** argument is available only on _xx1x_ systems.
	--fullduplex	enable, disable	Enables or disables full duplex on the RAC network interface.
	--autoneg	enable, disable	Enables or disables autonegotiation.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--speed	10,100	Sets the network interface speed to 10 or 100 Mbps.
	--dnsdhcp	enable, disable	Enables or disables obtaining the DNS server IP address through DHCP.
	--dnsserver1	<ipaddress>	Sets the IP address of the primary DNS server for domain name resolution.
	--dnsserver2	<ipaddress>	Sets the IP address of the secondary DNS server for domain name resolution.
	--dnsregisterrac	enable, disable	Enables or disables binding of the RAC name to the IP address.
	--dnsracname	<string>	Sets the name of the RAC.
	--domainnamefromdhcp	enable, disable	Enables or disables getting the RAC domain name through DHCP.
	--domainname	<string>	Sets the domain name of the RAC.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 1 (to display the current LAN configuration settings):
			A:>syscfg --lancfgparams
			lancfgparams
			destipaddr= 192.168.100.15
			vlantag=enable
			vlanid=1000
			vlanpriority=7
			macaddress= 0:6:5b:fb:c8:a7
			commstring= public
			ipaddrsrc=static
			ipaddress= 192.168.100.10
			subnetmask= 255.255.255.0
			gateway= 192.168.100.1

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 2 (to set the LAN configuration parameters):

```
A:>syscfg
lancfgparams
--destipaddr=
192.168.100.15
--vlantag=enable
--vlanid=1000
--vlanpriority=7
--commstring=
public
--ipaddrsrc=
static
--ipaddress=
192.168.100.10
--subnetmask=
255.255.255.0
--gateway=
192.168.100.1

lancfgparams
destipaddr=
192.168.100.15
vlantag=enable
vlanid=1000
vlanpriority=7
macaddress=
0:6:5b:fb:c8:a7
commstring=
public
ipaddrsrc=static
ipaddress=
192.168.100.10
subnetmask=
255.255.255.0
gateway=
192.168.100.1
```

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
lanuseraccess or lua			Configures the privilege level and channel accessibility associated with a specified User ID for the LAN channel.
	--userid	2–10 if your system has a DRAC 4 controller	Sets the User ID. This suboption can be replicated.
		2–16 if your system has a DRAC 5 controller	
	--usrprivlmt	user, operator, administrator, noaccess	Sets the maximum BMC user privilege level for the LAN channel for the userid specified using the **userid** suboption. This suboption can be replicated. This suboption is dependent on the **userid** suboption.
	--currentenableduserids	NA	Reports the number of currently enabled User IDs on the LAN channel.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	-- useridswithfixednames	NA	Reports the number of User IDs with fixed names on the LAN channel.

Example 1 (to enable User ID 2 on the LAN channel with administrator privileges):

```
A:>syscfg
lanuseraccess

--userid=2
--usrprivlmt=
administrator

userid=2
usrprivlmt=
administrator
```

Example 2 (to enable User ID 4 on the LAN channel with user privileges):

```
A:>syscfg
lanuseraccess

--userid=4
--usrprivlmt=
user

userid=4
usrprivlmt=user
```

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--loaddefaults*	NA	NA	Restores the BMC to the defaults that were originally loaded on the controller. This option is used to return the BMC to a known-good state. This option cannot be replicated.
			NOTE: The NMI, power button, and SOL defaults are not reset by using this option.
			Example:
			`A:>syscfg --loaddefaults`
			`Loading defaults...`
			NOTE: The asterisk is not part of the command syntax.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--nextboot	NA	valid device name (from the **--bootseq** option device list)	This option sets the specified device as the first device in the boot order for the next boot cycle only. The device must be a device from the **--bootseq** option device list. Run the **--bootseq** option to see a list of available device names. See --bootseq for more information. This option is not replicated.

Example 1:

```
A:>syscfg --
bootseq

Device 1:
floppy.emb.0 -
Diskette Drive
A:

Device 2:
cdrom.emb.0 -
CD-ROM device

Device 3:
hdd.emb.0 - Hard
Drive C:

Device 4:
nic.emb.1 -
Intel Boot Agent
Version 4.0.17
```

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description

			```Device 5:```
			```nic.emb.2 -```
			```Intel Boot Agent```
			```Version 4.0.17```

			Example 2:
			A:>syscfg --nextboot= nic.emb.1
			nextboot=nic.emb.1
--nmibutton	NA	enable, disable	This option enables or disables the NMI button.
			This option can be replicated.
			Example:

			```A:>syscfg --```
			```nmibutton=```
			```enable```

			```nmibutton=``` ```enable```

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
passwordaction			Configures and tests the password for the specified User ID. This option cannot be replicated. All three suboptions, **action**, **userid**, and **password**, must be included in the command line. **NOTE:** 20 byte passwords are not supported for this option.
	--userid	2–10 if your system has a DRAC 4 controller 2–16 if your system has a DRAC 5 controller	Specifies the BMC User ID. This suboption cannot be replicated.
	--action	setpassword, testpassword	Sets or tests the password for the specified User ID. This suboption cannot be replicated.
	--password	*<string>*	Sets the password (maximum of 16 printable ASCII characters) for the specified BMC User ID. This suboption cannot be replicated. Example (to set and test the password for User ID 3):

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description

			`A:>syscfg`
			`passwordaction`
			
			`--userid=3`
			
			`--action=`
			`setpassword`
			
			`--password=`
			`bmcmaster`
			
			`passwordaction`
			
			`userid=3`
			
			`action=`
			`setpassword`
			
			`password=`
			`********`
			
			`A:>syscfg`
			`passwordaction`
			
			`--userid=3`
			
			`--action=`
			`testpassword`
			
			`--password=`
			`bmcmastor`
			
			`Password test`
			`failed.`

pefcfgparams or pcp			Configures and displays PEF configuration parameters. This option can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--filter	fanfail, voltfail, discretevoltfail, tempwarn, tempfail, intrusion, redundegraded, redunlost, procwarn, procfail, powerwarn, powerfail, hardwarelogfail, autorecovery, batterywarn, batteryfail, powerabsent, procabsent, systempowerwarn, systempowerfail	Specifies a PEF value. This suboption can be replicated. See "BMC Platform Events Filter Alert Messages" for a complete list of all possible PEF messages along a description of each event. **NOTE:** The fanfail option is not supported on *x0xx* systems.
	--filteraction	powercycle, reset, powerdown, powerreduction, none	Sets the event filter action for the filter specified using the **filter** suboption. This suboption depends on the **filter** suboption. This suboption can be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--hostname	*<string>*	Sets the host name (maximum of 62 printable ASCII characters) for the BMC. This suboption can be replicated.
			The **--hostname** string must comprise only these characters: hyphen (-), underscore (_), and period (.).
			The length of the **--hostname** string must be 48 characters or less for *x8xx* systems and 62 characters or less for *x9xx* systems and later.
	--filteralert	enable, disable	Enables or disables alerts for the filter specified using the **filter** suboption. This suboption is dependent on the **filter** suboption. This suboption can be replicated.
	--alertpolnum	1, 2, 3, 4	Specifies the alert policy entry number. This suboption can be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--alertpolstatus	enable, disable	Enables or disables the alert policy specified using the **alertpolnum** suboption. This suboption can be replicated. This suboption is dependent on the **alertpolnum** suboption.
			Example (to set the PEF configuration parameters):
			Example 1 (To configure the PEF so that the system is powered down in response to a fan failure event):
			`A:>syscfg pefcfgparams --filter=fanfail --filteraction= powerdown`
			`pefcfgparams filter=fanfail filteraction= powerdown`

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 2 (To configure the PEF so that a PEF alert is not sent to the destination IP address in response to a chassis intrusion event):
| | | | ```
A:>syscfg
pefcfgparams
--filter=
intrusion
--filteralert=
disable
``` |
| | | | ```
pefcfgparams
filter=intrusion
filteralert=
disable
``` |
| --powerbutton | NA | enable, disable | This option enables or disables the power button. This option can be replicated. |
| | | | Example: |
| | | | ```
A:>syscfg --
powerbutton=
enable
``` |
| | | | ```
powerbutton=
enable
``` |

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--powerctl	NA	powerdown </argument>	This option performs a chassis powerdown and controls the reset of the system.
			Powerdown shuts off the system.
		powercycle </argument>	Powercycle shuts off the system and automatically turns on your system after a few seconds.
		reset </argument>	Resets the system.
		softshutdown </argument>	In Linux, the system shuts down immediately.
			In Windows PE, this option does not work.
			NOTE: This option applies only to PowerEdge systems that are configured with a BMC.
			This argument requires ACPI support to function properly.
--racreset	NA	NA	This option resets the RAC. It cannot be accompanied with any other option. This option cannot be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
--serialchannelaccess or sca			Sets or displays the channel access settings for the serial channel. This option can be replicated.
	--ipmioverserial	disable, alwaysavail	Sets the serial channel access mode. This suboption can be replicated.
	--channelprivlmt	user, operator, administrator	Sets the maximum privilege level accepted for the serial channel. This suboption can be replicated.
			Example (to configure the serial channel with IPMI over serial disabled and the maximum privilege level set to administrator):
			`A:>syscfg serialchannelacc ess`
			`-- ipmioverserial= disable`
			`-- channelprivlmt= administrator`
			`serialchannelacc ess`
			`ipmioverserial= disable`
			`channelprivlmt= administrator`

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
-- serialchannelinfo or sci			Displays media and protocol information about the serial channel. This option cannot be replicated.
	--mediumtype	NA	Displays the medium type for the serial channel. This suboption cannot be replicated.
	--prottype	NA	Displays the protocol type for the serial channel. This suboption cannot be replicated.
	--ssnsupport	NA	Displays the session support information for the serial channel. This suboption cannot be replicated.
	--activessncount	NA	Displays the number of sessions that are activated on the serial channel. This suboption cannot be replicated.
			Example:
| | | | ```
A:>syscfg
serialchannelinf
o

--mediumtype

mediumtype=
asynch
``` |

Table 3-5. **BMC and Remote Access Controller Configuration Options** *(continued)*

Option	Suboption	Valid Arguments	Description
serialcfgparams or scp			Configures and displays serial configuration parameters. This option can be replicated.
	--connectionmode	basic, terminal	Sets the connection mode used to perform IPMI messaging to the BMC. This suboption can be replicated.
	--msgcommflowctrl	noflowctrl, rtscts	Sets the IPMI message communication flow control. This suboption can be replicated.
	--msgcommdtrhangup	NA	Reports the IPMI message communication DTR hang-up. This suboption cannot be replicated.
	--msgcommbitrate	9600, 19200, 57600, 115200	Sets the IPMI message communication baud rate in bits per second (bps). This suboption can be replicated.
	--tmcfglineediting	enable, disable	Sets the line editing value for terminal mode configuration. This suboption can be replicated.
	--tmcfgdelctrl	del, bksp	Sets the delete control value for terminal mode configuration. This suboption can be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--tmcfgechoctrl	echo, noecho	Sets the echo control value for terminal mode configuration. This suboption can be replicated.
	--tmcfghandshakectrl	enable, disable	Sets the handshake control value for terminal mode configuration. This suboption can be replicated.
	--tmcfgnewlineseq	noterm, crlf, null, cr, lfcr,1f	Sets the new line sequence value for terminal mode configuration. This suboption can be replicated.
	--tmcfginputnewlineseq	cr, null	Sets the input new line sequence value for terminal mode configuration. This suboption can be replicated.

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example (to display the current serial configuration settings):
			`A:> syscfg serialcfgparams`
			`serialcfgparams`
			`tmcfgdelctrl=del`
			`tmcfgechoctrl= echo`
			`tmcfghandshakect rl=enable`
			`connectionmode= terminal`
			`tmcfgnewlineseq= crlf`
			`msgcommflowctrl= rtscts`
			`tmcfginputnewlin eseq=cr`
			`msgcommdtrhangup =disable`
			`msgcommbitrate= 19200`
			`tmcfglineediting =enable`
serialuseraccess or sua			Configures the privilege level and channel accessibility associated with a specified User ID for the serial channel. This option can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--userid	2–10 if your system has a DRAC 4 controller	Sets the User ID. This suboption can be replicated.
		2–16 if your system has a DRAC 5 controller	
	--usrprivlmt	user, operator, administrator, noaccess	Sets the maximum BMC user privilege level for the serial channel for the User ID specified using the **userid** suboption. This suboption can be replicated. This suboption is dependent on the **userid** suboption.
	--currentenableduserids	NA	Reports the number of currently enabled User IDs on the serial channel. This suboption can be replicated.
	--useridswithfixednames	NA	Reports the number of User IDs with fixed names on the serial channel. This suboption can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 1 (to enable User ID 2 on the serial channel with administrator privileges):
			`A:>syscfg serialuseraccess`
			`--userid=2`
			`--usrprivlmt= administrator`
			`--status=enable`
			`userid=2`
			`usrprivlmt= administrator`
			`status=enable`
			Example 2 (to enable User ID 4 on the serial channel with user privileges):
			`A:>syscfg serialuseraccess`
			`--userid=4`
			`--usrprivlmt= user`
			`--status=enable`
			`userid=4`
			`usrprivlmt=user`
			`status=enable`

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
solaction			This option enables or disables Serial-Over-LAN (SOL) access for a particular user. This option can be replicated.
			`A:>syscfg solaction -- userid=2 -- action=disable`
			`solaction userid=2 action= disable`
	--userid	2–10 if your system has a DRAC 4 controller	Specifies the BMC user ID. This suboption can be replicated.
		2–16 if your system has a DRAC 5 controller	
	--action	enable, disable	Enables or disables the user ID specified using the userid suboption. This suboption can be replicated and is dependent on the userid suboption.

Table 3-5.   BMC and Remote Access Controller Configuration Options _(continued)_

Option	Suboption	Valid Arguments	Description
solcfgparams			Configures and displays SOL configuration parameters. This option can be replicated.
	--solenable	enable, disable	Enables or disables whether the SOL payload type can be activated. This option can be replicated.
	--solprivlevel	user, operator, administrator	Sets the minimum user privilege level required to activate the SOL. This option can be replicated.
	--solcharaccuminterval	1–255	Sets the Character Accumulate Interval in 5-ms increments (1–255). This sets the typical amount of time that the BMC will wait before transmitting a partial SOL character data packet. This option can be replicated.

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
	--solcharsendthreshold	1–255	Specifies that the BMC will automatically send an SOL character data packet containing this number of characters in increments of 5 (1–255) as soon as this number of characters (or greater) has been accepted from the baseboard serial controller into the BMC. This option can be replicated. **NOTE:** On *x8xx* systems, the maximum limit for **--solcharsendthreshold** is 200. On *x9xx* systems, the maximum limit is 255. On the Dell PowerEdge SC1435 system, the maximum limit is 255.

Table 3-5. BMC and Remote Access Controller Configuration Options _(continued)_

Option	Suboption	Valid Arguments	Description
	--solbitrate	9600, 19200, 57600, 115200	Sets the serial channel communication bit rate (in bps) with the BMC when SOL is activated. This option can be replicated.
			NOTE: The arguments for **--solbitrate** vary with various generations of Dell systems. If an argument valid for a particular generation is entered for another generation, the 'Parameter out of range' error is displayed.
			Valid arguments are:
			19200 - for _x8xx_ systems
			57600 - for _x9xx_ systems that do not have DRAC 5 installaed
			115200 - for _x9xx_ systems that have DRAC 5 installaed

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 1 (to display the current SOL configuration):
			`A:> syscfg solcfgparams`
			`solcfgparams solenable=enable solprivlevel= administrator solcharaccuminte rval=25 solcharsendthres hold=25 solbitrate=9600`

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
solcfgparams			Example 2 (to set the SOL configuration parameters):

```
A:>syscfg
solcfgparams
--solenable=
disable
--solprivlevel=
administrator
--
solcharaccuminte
rval=25
--
solcharsendthres
hold=100
--solbitrate=
9600
```

```
solcfgparams
solenable=
disable
solprivlevel=
administrator
solcharaccuminte
rval=25
solcharsendthres
hold=100
solbitrate=9600
```

Table 3-5.   BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
ssninfo			Displays information about the number of possible active sessions and the number of currently active sessions on all channels on the BMC. This option cannot be replicated.
	--maxactivessns	NA	Displays the maximum possible active BMC sessions. This suboption cannot be replicated.
	--currentactivessns	NA	Displays the number of currently active sessions on all channels of the BMC. This suboption cannot be replicated.
			Example:
			`A:>syscfg ssninfo`
			`currentactivessns=1`
			`maxactivessns=4`

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
useraction			Enables and disables BMC, sua, and lua user IDs. This option can be replicated.
	--userid	2–10 if your system has a DRAC 4 controller	Specifies the BMC user ID. This suboption can be replicated.
		2–16 if your system has a DRAC 5 controller	
	--action	enable, disable	Enables or disables the user ID specified using the **userid** suboption. This suboption can be replicated. This suboption is dependent on the **userid** suboption.

Example (to disable User ID 3):

```
A:>syscfg
useraction
--userid=3 --
action=disable
```

*useraction
userid=3
action=disable*

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
username			Sets the BMC User ID and username. This option can be replicated.
	--userid	2–10 if your system has a DRAC 4 controller	Specifies the User ID. This suboption can be replicated.
		2–16 if your system has a DRAC 5 controller	
	--name	*<string>*	Sets the username (maximum of 16 printable ASCII characters) for the User ID specified using the **userid** suboption. This suboption can be replicated. This suboption is dependent on the **userid** suboption.
			Example 1 (to configure User ID 3 with a user name):
			``` A:>syscfg username --userid=3 --name=bmcmaster username userid=3 name=bmcmaster ```

Table 3-5. BMC and Remote Access Controller Configuration Options *(continued)*

Option	Suboption	Valid Arguments	Description
			Example 2 (to display the username for User ID 3):
			`A:>syscfg username -- userid=3 --name`
			`username`
			`userid=3`
			`name=`*`bmcmaster`*
--version*	NA	NA	Displays the version information for the SYSCFG utility.
			NOTE: The asterisk is not part of the command syntax.

SYSCFG for State Configuration

The SYSCFG utility allows the user to write a state data value on a system. This value is preserved across reboot or power-off operations. Users can use this state data value for storing important state information, such as the progress of a multi-reboot deployment process.

SYSCFG Options for State Configuration

Table 3-6 documents all valid options and arguments along with a description of the expected behavior of each option.

NOTE: Some of the following options or arguments might not be available on all systems.

Table 3-6. SYSCFG Options and Arguments for State Configuration

Option	Valid Arguments	Description

-b
or
--byte
	<string>	This option specifies a value to write to state data. The format of the argument must be in decimal format unless the **-x** option is given. If the **-x** option is given, the value is interpreted as hexadecimal format. The value can optionally contain 0x. The decimal range is 0–255, and the hexadecimal range is 0x00–0xFF.
		
		Example:
		
		`A:>syscfg -b 1`
		
		`The state byte has been set to 1.`
		
		`A:>syscfg -b 2 -x`
		
		`The state byte has been set to 0x02.`

-r
or
--read*
	NA	This option reads the value of state data. When used with the **-x** option, the value is reported in hexadecimal format (0xNN).
		
		Example:
		
		`A:>sysfg -r -x`
		
		`The state byte has been set to 0x02.`
		
		`A:>syscfg -r`
		
		`The state byte has been set to 2.`
		
		NOTE: The asterisk is not part of the command syntax.

-x
or
--hex
	None	This option specifies that a value should be in hexadecimal format.
		
		Example:
		
		`A:>sysfg -r -x`
		
		`The state byte has been set to 0x01.`
		
		`A:>sysfg -x -b 0x02`
		
		`The state byte has been set to 0x02.`

SYSCFG for System Configuration

SYSCFG enables system configuration and reporting. It reports system identification values, processor types and speeds, memory size, and detects device using PCI scan.

Options for System Configuration

Table 3-7 documents valid options and arguments along with a description of the expected behavior of each option. Options and arguments are case sensitive. All options and pre-defined arguments are lowercase unless stated otherwise.

NOTE: Some of the following options or arguments might not be available on all systems.

Table 3-7. SYSCFG Options and Arguments for System Configuration

Option	Valid Arguments	Description
--asset	None	This option reports the customer-programmable asset tag number for a system. This option displays the asset tag for a system. For modular systems, the **SYSCFG** utility reports the asset tag for both the server module and the asset tag for its chassis.
		Example:
		`A:>syscfg--asset`
		`asset=ASSET`
--biosver*	None	This option reports the BIOS version for a system. If used with the **-s** option, the environment variable is set to the BIOS version.
		Example:
		`A:>syscfg --biosver`
		`biosver=A08`
		NOTE: The asterisk is not part of the command syntax.

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description

--chassvctag*	None	This option reports the chassis service tag for modular systems.
		
		Example:
		
		`A:>syscfg --chassvctag`
		
		`chassvctag=SVCTAG1`

--cpucount*	None	This command reports the number of processors found on the system.
		
		Example 1:
		
		`A:>syscfg --cpucount`
		
		`cpucount=1`
		
		Example 2:
		
		`A:>syscfg --cpucount`
		
		`cpucount=2`
		
		NOTE: The asterisk is not part of the command syntax.

--cpuspeed*	None	This option reports the speed of all processors in a system.
		
		Example:
		
		`A:>syscfg --cpuspeed`
		
		`cpuspeed=1000MHz`
		
		NOTE: The asterisk is not part of the command syntax.

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description

--envfile	*\<filename\>*	This option reads the environment variable file (included in DTK as **sys.ini**) and sets environment variables to names in the file, based on the system's information. Primarily, this command performs a PCI scan and matches the vendor/device numbers of the devices to those specified in the environment variable file. For more information, see the "Environment Variable File" section.
		
		Example:
		
		`A:>syscfg --envfile sys.ini`
		
		`DELLNIC1=INTEL PRO100`
		
		`DELLNIC2=INTEL PRO100`
		
		`DVIDEO1=RAGEXL`
		
		`DIDE1=PEQUR/ROSS IDE`
		
		`DSCSI1=AIC-7899`

--mem*	None	This option reports the amount of system memory physically installed in the system, not the amount of memory available to an operating system. If used with the **-s** option, the environment variable is set to the amount of system memory. The last two characters of the memory value indicate the order of magnitude used (KB or MB).
		
		Example:
		
		`A:>syscfg --mem`
		
		`mem=256MB`
		
		NOTE: The asterisk is not part of the command syntax.

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description
-n	*<filename>*	This option specifies an input file to use for resolving PCI vendor and device numbers to strings. The file must be present (with read rights) and contain a properly formatted list. See "PCI Reporting" for more information. This option must be used with the **--pci** option.
		Example:
		`A:>syscfg -n pci.txt --pci`
		`PCI Bus: 2, Device: 4, Function: 0`
		` Vendor:    8086 - Intel Corp.`
		` Device:    1229 - 82557/8/9 [Ethernet Pro 100]`
		` Sub Vendor:8086 - Intel Corp.`
		` Sub Device:1017 - EtherExpress PRO/100+ Dual Port Server Adapter`
		` Slot:      01`
		` Class:     02 - Network`
		` SubClass:  00 - Ethernet`
--ovrwrt*	None	When used with the **--outfile** option, this option specifies that the output file should be overwritten if it exists.
		Example:
		`A:>syscfg -outfile=out.ini --ovrwrt`
		NOTE: The asterisk is not part of the command syntax.

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description
--pci*	None	This option performs a scan of all PCI buses and displays the results. The utility uses an open source **pci.ids** file for vendor/device name resolution. The utility looks for a file called **pci.ids** in the current working directory. If the file is not found in the current working directory, the directory containing the SYSCFG executable is searched. If the **-n** option is used to specify a filename, this filename is used for resolution. If a specific filename is not given and the **pci.ids** file cannot be found, Unknown will be printed for all vendor and device codes. For more information, see the "PCI Reporting" section. Example 1 (the **pci.ids** filename is specified in the command line instance):

```
A:>syscfg -n pci.ids --pci
PCI Bus: 0, Device: 0, Function: 0
  Vendor:    1166 - ServerWorks
  Device:    0012 - CMIC-LE
  Slot:      00
  Class:     06 - Bridge
  SubClass:  00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 1
  Vendor:    1166 - ServerWorks
  Device:    0012 - CMIC-LE
  Slot:      00
  Class:     06 - Bridge
  SubClass:  00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 2
  Vendor:    1166 - ServerWorks
  Device:    0000 - Unknown
```

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description
		``` Slot: 00 ```
		``` Class: 06 - Bridge ```
		``` SubClass: 00 - CPU/PCI ```
	None	Example 2 (the **pci.ids** file is located in the same directory as the utility so that names resolve):

```
A:>syscfg --pci
PCI Bus: 0, Device: 0, Function: 0
  Vendor:    1166 - ServerWorks
  Device:    0012 - CMIC-LE
  Slot:      00
  Class:     06 - Bridge
  SubClass:  00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 1
  Vendor:    1166 - ServerWorks
  Device:    0012 - CMIC-LE
  Slot:      00
  Class:     06 - Bridge
  SubClass:  00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 2
  Vendor:    1166 - ServerWorks
  Device:    0000 - Unknown
  Slot:      00
  Class:     06 - Bridge
  SubClass:  00 - CPU/PCI
```

Table 3-7.   SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description
	None	Example 3 (a **pci.ids** file does not exist):

```
A:>syscfg --pci
PCI Bus: 0, Device: 0, Function: 0
  Vendor:   1166 - Unknown
  Device:   0012 - Unknown
  Slot:     00
  Class:    06 - Bridge
  SubClass: 00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 1
  Vendor:   1166 - Unknown
  Device:   0012 - Unknown
  Slot:     00
  Class:    06 - Bridge
  SubClass: 00 - CPU/PCI
PCI Bus: 0, Device: 0, Function: 2
  Vendor:   1166 - Unknown
  Device:   0000 - Unknown
  Slot:     00
  Class:    06 - Bridge
  SubClass: 00 - CPU/PCI
```

NOTE: The asterisk is not part of the command syntax.

Option	Valid Arguments	Description
-s	*<string>*	This option sets an environment variable to the value of a function command option. The string argument must be alphanumeric without any spaces or symbols. The variable name is upper-cased before being set. This option must be used with at least one function command.

Example:

```
A:>syscfg -s ENVNAME --svctag
ENVNAME=SERVICE
```

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description
--slot*	None	This option reports the slot of a modular system. If the system is not modular, the slot is reported as 0. If used with the **-s** option, the environment variable is set to the slot.
		Example 1 (for a modular system):
		`A:>syscfg --slot`
		`slot=1`
		Example 2 (for a non-modular system):
		`A:>syscfg --slot`
		`slot=0`
		NOTE: This option is valid for PowerEdge 1855 servers only. The asterisk is not part of the command syntax.
--svctag*	None	This option reports the service tag for a system. If used with the **-s** option, the environment variable is set to the BIOS version.
		Example:
		`A:>syscfg --svctag`
		`svctag=113CD1S`
		NOTE: The asterisk is not part of the command syntax.
--sysasset	None	This option reports the system asset tag for modular systems.
		Example:
		`A:>syscfg --sysasset`
		`sysasset=ASSET01`

Table 3-7. SYSCFG Options and Arguments for System Configuration *(continued)*

Option	Valid Arguments	Description

--sysid*	None	This function command reports the unique system id bytes for a server. Servers contain a unique ID value based on their model. The ID value is reported as a hexadecimal value with a leading 0x, lowercase hexadecimal letters, and zero-padded to 2 bytes. If used with the **-s** general option, the environment variable is set to the system ID.
		
		Example:
		
		`A:>syscfg --sysid`
		
		`sysid=0x00df`
		
		NOTE: The asterisk is not part of the command syntax.

--sysname*	None	This function command reports the system identification string for a server, which is the string displayed under the Dell logo during POST. If used with the **-s** option, the environment variable is set to the system name.
		
		Example:
		
		`A:>syscfg --sysname`
		
		`sysname=PowerEdge 1550/1000`
		
		NOTE: The asterisk is not part of the command syntax.

--syssvctag*	None	This option reports the system service tag for a modular system.
		
		Example:
		
		`A:>syscfg --syssvctag`
		
		`syssvctag=BLADE01`
		
		NOTE: The asterisk is not part of the command syntax.

--uuid*	None	This option reports the UUID for a system. The UUID is a unique system identifier used in PXE requests.
		
		Example:
		
		`A:>syscfg --uuid`
		
		`uuid=44454C4C-5300-104C-8044-B1C04F423131`
		
		NOTE: The asterisk is not part of the command syntax.

SYSCFG for IPv6 Configuration

Table 3-8 lists all valid options and arguments for IPv6 configuration along with a description of each option. These options are applicable only if the DRAC in your system supports IPv6.

Table 3-8. SYSCFG Options and Arguments for IPv6 Configuration

Option	Suboption	Valid Argument	Description
lancfgparamsv6 or lcpv6	--ipv6	enable, disable	Loads or unloads the IPv6 stack. `A:> syscfg lcpv6 --ipv6= enable`
	--ipsrcv6=static --ipaddrv6= <*ipv6address*> --prefixlengthv6= < *prefixlengthv6*> --gatewayv6=< *ipv6gatewayaddress*>	NA	Allows you to manually configure IPv6 addresses. `A:>syscfg lcpv6 -- ipsrcv6=static -- ipaddrv6= 1234:1234:1234::1234 -- prefixlengthv6=32 -- gatewayv6= 1234:1234:1234::1`
	--ipsrcv6=auto	NA	Automatically configures the IPv6 addresses. `A:> syscfg lcpv6 -- ipsrcv6=auto`
	--dnssrcv6 =auto	NA	Automatically configures the DNS address. `A:> syscfg lcpv6 -- dnssrcv6=auto`
	--dnssrcv6=static --dnsserver1v6= <*ipv6dnsserver1address*>	NA	Allows you to manually set the DNS address.

Table 3-8.   SYSCFG Options and Arguments for IPv6 Configuration

Option	Suboption	Valid Argument	Description
	--linklocaladdripv6 =*<linklocaladdripv6>*		Allows you to view IPv6 addresses. `A:> syscfg lcpv6 -- linklocaladdripv6= 134.56.45.233`
	--gatewayv6= *<gatewayv6>*		Allows you to view IP gatewayv6 address.

PCI Reporting

The scan of the PCI bus will use a file to resolve PCI vendor and device codes to vendor information strings. The format of the PCI output is as follows:

```
PCI Bus: 2, Device: 4, Function: 0
  Vendor:    8086 - Intel Corp.
  Device:    1229 - 82557/8/9 [Ethernet Pro 100]
  Sub Vendor:8086 - Intel Corp.
  Sub Device:1017 - EtherExpress PRO/100+ Dual Port
Server Adapter
  Slot:      01
  Class:     02 - Network
  SubClass:  00 - Ethernet
```

If the file for vendor resolution is not present, the utility will print Unknown next to a vendor name. If the file for environment variable names is not present, the utility will fail the environment variable operation.

The **pci.ids** file is located at **\DELL\TOOLKIT\TOOLS** on Windows systems and **/opt/dell/toolkit/bin** on Linux systems. For more information and examples, see the --pci option in Table 3-7.

Environment Variable File

The environment variable file can be used for discovering and recording system information to environment variables. The file consists of several .ini-formatted sections that map PCI vendor/device numbers to environment variable values. The environment variable file is **sys.ini** in **\DELL\TOOLKIT\TOOLS** on Windows systems and on Linux systems, you can find it in **/opt/dell/toolkit/bin**. For example, the `[DELLNIC]` section header designates that an environment variable named `dellnic1` should be set to the value of the name/value pair whose name matches the NIC's vendor/device number. If multiple NICs are present on a system, the environment variables are numbered sequentially: `dellnic1`, `dellnic2`, and so on.

Environmental Variable File Excerpt (sys.ini)

```
[DELLNIC]
;environment variable will be set to INTELPRO100F for
vendor 8086, dev 1001

8086,1001=INTELPRO1000F

;environment variable will be set to INTELPRO100T for
vendor 8086, dev 1004

8086,1004=INTELPRO1000T

;environment variable will be set to INTELPRO100XT for
vendor 8086, dev 1008

8086,1008=INTELPRO1000XT
```

The names of the environment variables can be changed in the `Variable Names` section. If a name is changed, the section that corresponds to that name must be changed as well.

Also available in the **.ini** file is a section that maps the system ID number to a string. This string can be used to identify the system during the discovery phase of deployment. The section name is the environment variable that will be set to the value of the name/value pair whose name matches the system ID. To change the name of the environment variable, change the value of the `MACHINE` name in the `Variable Names` section, and change the corresponding section name.

4

RAIDCFG

This section documents the Deployment Toolkit (DTK) RAID configuration utility. The RAIDCFG utility provides a single command line tool that can configure all supported RAID controllers.

Features

The RAID configuration utility has the following general features:

- Displays help and usage information.
- Reads configuration options from the Command Line Interface (CLI) parameters.
- Enumerates RAID controllers, physical disks, and virtual disks.
- Creates and deletes virtual disks.
- Logs activity to a given filename.
- Returns specific error codes and messages.
- Assigns and unassigns global and dedicated hot spares.

NOTE: In Microsoft® Windows® Preinstallation Environment (Windows PE), you can find the RAIDCFG utility in **\DELL\TOOLKIT\TOOLS**. In Linux, you can find it in **/opt/dell/toolkit/bin**.

Supported RAID Controllers

The RAIDCFG utility supports the following RAID controllers:

- PERC 3/DC, PERC 3/QC, PERC 3/SC
- PERC 4/SC, PERC 4/DC, PERC 4/Di, PERC 4/IM
- PERC 4e/DC, PERC 4e/Di, PERC 4e/Si
- PERC 5/E Adapter, PERC 5/I Integrated, PERC 5/i Adapter
- CERC SATA 1.5/6-Channel (CH), CERC SATA 1.5/2S, and PERC 3/Di (These controllers are supported in Linux only.)
- SAS 5iR Integrated, SAS 5iR Adapter

- SAS 6iR Integrated, SAS 6iR Adapter
- PERC 6/E Adapter, PERC 6/i Integrated, PERC 6/i Adapter
- PERC 6.2 SSD

RAIDCFG Dependencies

For the RAIDCFG utility to run successfully in Windows PE, it requires that the mr2kserv utility is located in the same directory as RAIDCFG. The RAIDCFG utility also requires that **lsivil.dll** (for Windows) or **lsivil.so** (for Linux) and **sasvil.dll** (for Windows) or **sasvil.dll** (for Linux) be in the same directory as RAIDCFG.

The mr2kserv is a service that is automatically started by the DTK startup script. This service is required to configure all LSI RAID controllers in Windows PE. This will be automatically started by the DTK startup script. This service provides Plug and Play support.

RAIDCFG Options and Arguments

Table 4-1 lists all of the valid options, parameters, and arguments for the RAIDCGFG utility. For more information on valid RAIDCFG options and their specific uses, see "RAID Configuration Utility Options and Arguments."

Mandatory command line options must be present in the command. Optional command line options can be typed in any order after all mandatory options have been typed. Many options have both a short and long format. Short and long format options cannot be used in the same command line instance.

Table 4-1 shows some examples of valid and invalid short and long format command line instances. See "RAID Configuration Utility Options and Arguments" for an explanation of the specific order for each option. See Table 4-15 for a list of frequently used RAID commands.

NOTE: Some of the following options or arguments might not be available on all systems.

Table 4-1. RAIDCFG Short and Long Format Options

Option	Valid Arguments	Short Description	Mandatory or Optional
No option -h -? or /?	NA	Displays general usage information for the utility. The usage information consists of a comprehensive list of valid options, parameters, and arguments.	Optional. See Table 4-2 for specific usage information.
-ac or action	cvd or createvdisk	Creates a virtual disk. **NOTE:** When providing multiple physical disks for the createvdisk command, do not separate the disks with spaces. For example, `-ad= 1:4, 1:5` causes an error. The correct syntax for displaying multiple physical disks is `-ad= 1:4,1:5,1:6`.	See Table 4-4 for specific usage information.
-ac or action	dvd or deletevdisk	Deletes a virtual disk.	See Table 4-9 for specific usage information.
-ac or action	rghs or removeglobalhots pare	Unassigns all global hot spares to disks on the specified controller.	Optional. See Table 4-10 for specific usage information.
-ac or action	sghs or setglobalhotspare	Assigns the specified disks as global hot spares on the specified controller.	Optional. See Table 4-10 for specific usage information.
-ad or adisk	NA	Specifies an array disk command.	See Table 4-5 for specific usage information.

Table 4-1.   RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-ad or adisk	ch:targ, ch:targ, ... or ch:targ:lun,... or ch:targ:enc channel:target, or channel:target:lun, or channel:target:enclosure	Specifies an array disk. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure. **NOTE:** You can also use pdisk or -pd instead of adisk or -ad to specify an array disk.	Optional. See Table 4-5 for specific usage information.
-c or controllerid	*<valid controller ID number>*	Specifies a RAID controller.	See Table 4-3 for specific usage information.
-cp or cachepolicy	d, c	Specifies the virtual disk cache policy.	Optional. See Table 4-4 for specific usage information.
-ctrl or controller	NA	Displays a list of the supported RAID controllers in the system, along with select property information.	Mandatory, must be typed in the correct order. See Table 4-3 for specific usage information.
-envc or envcommand	*<string>*	Sets a user-defined environmental variable (*<string>*) to the value returned from a function call.	See Table 4-11 for specific usage information.

Table 4-1. RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-envn or envname	*\<string\>*	Sets the environment variable (*\<string\>*) that equates to the value returned from a function call.	See Table 4-11 for specific usage information.
-fd or failoverdrive	ch:targ, ch:targ, … or ch:targ:lun,… or ch:targ:enc channel:target, or channel:target:lun, or channel:target:enclosure	Specifies the location of the failover drive in an array. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure. **NOTE:** From DTK 2.4 onwards, the **-fd** option creates dedicated hot spares instead of global hot spares. To set global hot spares, see Table 4-10.	Optional. See Table 4-4 for specific usage information.
-i	*\<filename\>*	Reads the RAID configuration information from the given **.ini** filename and creates the RAID configurations on the specified controllers.	Mandatory. See Table 4-13 for specific usage information.
-l or logfile	*\<filename\>*	Logs command line output to a file.	Optional. See Table 4-14 for specific usage information.

Table 4-1. RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-o	*<filename>*	Reads the RAID configurations from all available controllers and write these configurations in the given **.ini** filename.	Mandatory. See Table 4-13 for specific usage information.
-r or raid	*<valid RAID level number>*	Sets the RAID level for the array. Valid RAID values are 0, 1, 5, 10, 50. If no value is specified for RAID, 0 is taken as the default level.	Optional. See Table 4-4 for specific usage information.
-rp or readpolicy	ra, ara, nra, rc, nrc	Sets the read policy for the virtual disk.	Optional. See Table 4-4 for specific usage information.
-se or setenvironment	NA	Sets a user-defined environment variable to the value returned from the function call. Function calls are: `getcontrollerslots`, `getfirmware`, `getcontrollertype`, `getadisks`, `getadiskcount`, `getfreeadisks`, `getfreeadiskcount`, `getfreeadisksize`, `gethotspares`.	Mandatory. See Table 4-11 for specific usage information.
-si or silent	NA	Does not display any information on the terminal console.	Optional. See Table 4-14 for specific usage information.

Table 4-1.   RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-sz or size	*\<number\>*	Sets the maximum size on the virtual disk in MB or GB if the size is not provided. The default size is in MB. If GB follows the number, the size is expressed in GB.	Optional. See Table 4-4 for specific usage information.
-sp or spanlength	*\<number\>*	The span size of RAID 5, which is a mandatory parameter for RAID 50. **NOTE:** Spanlength is applicable only for RAID 50. The minimum permissible spanlength value is 3. The number of array disks for creating virtual disks should not be a prime number and should be divisible by the specified spanlength.	Mandatory. See Table 4-4 for specific usage information.
-ssz or stripesize	*\<number\>*	Sets the stripe size on the virtual disk in KB. **NOTE:** When creating virtual disks, do not specify the units for chunk (stripe) size. The units are always listed in KB.	Optional. See Table 4-4 for specific usage information.
-vd or vdisk	NA	Displays the virtual disks under all of the controllers along with the physical array disks that make up the virtual disks.	See Table 4-6 for specific usage information.
-vd or vdisk	*\<valid virtual disk ID number\>*	Displays the specified virtual disk.	Optional. See Table 4-6 for specific usage information.

Table 4-1.   RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-ver or version	NA	Displays the version number of the utility.	Optional. See Table 4-14 for specific usage information.
-wp or writepolicy	wb, wt, wc, nwc	Sets the write policy for a virtual disk. The valid arguments are: **wb** (write-back caching), **wt** (write-through caching), **wc** (write-caching), and **nwc** (no-write-caching).	Optional. See Table 4-14 for specific usage information.

RAID Configuration Utility Options and Arguments

The following tables document valid options, parameters, and arguments along with a description of the expected behavior of each option. Options, parameters, and pre-defined arguments are case sensitive and entered in lowercase, unless stated otherwise. The information is grouped by task in the following sections:

- General Help
- Enumerating RAID Controllers
- Creating Virtual Disks
- Enumerating Array Disks
- Enumerating Virtual Disks
- Initializing Virtual Disks
- Importing and Clearing Foreign Configurations
- Deleting Virtual Disks
- Assigning and Unassigning Global Hot Spares

- Setting Environment Variables
- RAID Replication Options
- Miscellaneous Options

✐ **NOTE:** Some of the following options or arguments might not be available on all systems.

General Help

Table 4-2 lists the RAIDCFG general help options.

Table 4-2.   General Help

Options	Parameters	Valid Arguments	Description
No option -h -? or /?	NA	NA	Displays general usage information for the utility. The usage information consists of a comprehensive list of valid options, parameters, and arguments. This option is optional and can be added to the command line in any order.
			Example:
			`A:>raidcfg -h`
			`Provides users with general help options that may be used with this utility.`
			`[raidcfg]`
			`Version 2.4`
			`Help: options in <> are mandatory`
			`options in [] are optional and can be in any order after mandatory ones.`
			`raidcfg <controller>`
			`raidcfg <-ctrl>`
			`Lists all controllers on the host and select property information.`
			`...`
			—output continues, listing all possible option/parameter/argument combinations—

Enumerating RAID Controllers

Table 4-3 lists the RAIDCFG options, parameters, and pre-defined arguments for enumerating RAID controllers.

Table 4-3. Enumerating RAID Controllers

Mandatory Options and Arguments	Optional Paramet ers	Valid Parameters Arguments	Description

-ctrl
or
controller
	NA	NA	Lists all the RAID controllers on the host system, along with select property information. This option is mandatory.
			
			Example:
			
			`Controller_ID/Slot_ID: 0`
			`   Controller_PCI_ID: 2:14:0`
			`   Controller_Name: PERC 4e/Di`
			`              Channels: 2`
			`  No.of Virtual_Disks: 1`
			`          Array_Disks:`
			`0:0:0,1:2:0,1:3:0,1:4:0,1:5:0`
			`     Firmware Version: 513O`
			
			`Controller_ID/Slot_ID: 3`
			` Controller_PCI_ID: 3:11:0`
			` Controller_Name: PERC 4/DC`
			`              Channels: 2`
			`  No.of Virtual_Disks: 0`
			`     Firmware Version: 350O`
			
			`RAIDCFG Command successful!`

Table 4-3.   Enumerating RAID Controllers *(continued)*

Mandatory Options and Arguments	Optional Paramet ers	Valid Parameters Arguments	Description

	-c
	
	or
	
	controlle rid
		<valid controller ID number>	Displays the properties for the RAID controller with the specified controller ID. This option combination is mandatory.
			
			Example:
			
			`A:>raidcfg -ctrl -c=2`
			
			`Controller_ID/Slot_ID: 2`
			
			`Controller_PCI_ID: 8:14:0`
			
			`Controller_Name: PERC 4e/DC`
			
			`Channels: 2`
			
			`Virtual_Disks: 1`
			
			`Firmware Version: 521S`
			
			`RAIDCFG Command successful!`

Creating Virtual Disks

Table 4-4 lists the RAIDCFG options, parameters, and pre-defined arguments for creating virtual disks.

![NOTE icon] **NOTE:** If you create a virtual disk on Windows PE, you need to reboot your system.

![NOTE icon] **NOTE:** On CERC SATA 1.5/2S, CERC SATA 1.5/6CH, SAS 5/iR, and SAS 6/iR controllers, use the entire array disk to create a virtual disk.

Table 4-4.   Creating Virtual Disks

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description

-ctrl -ac=cvd -c=*id* -ad= *ch:targ,ch:targ,* ... [or *ch:targ:encl,...]* or controller action= createvdisk controllerid= *id* adisk= *channel:target: lun,...* *channel:target: lun,...* [or *channel:target: enclosure,...]*	NA	NA	Creates a virtual disk comprising the properties supplied. This option combination is mandatory.
			
			For SCSI controllers, the value of lun should always be 0.
			
			For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.
			
			Example:
			`A:>raidcfg -ctrl -ac=cvd -c=2`
			`-ad=1:4,1:8 -r=1 -ssz=32 -cp=d -rp=nra`
			`-wp=wt -fd=1:1`
			
			`RAIDCFG command successful!`

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
	-cp or cachepolicy	d, c	Sets the cache policy for the virtual disk. The valid arguments are: **d** — (Direct I/O) Reads are not buffered in cache memory. **c** — (Cache I/O) All reads are buffered in cache memory. **NOTE:** This option is not supported on the following controllers: CERC SATA 1.5/6 CH, CERC SATA 1.5/2S, and PERC 3/Di. **NOTE:** The PERC 4/IM controller has a fixed set of read, write, and cache policies. If you set any of these policies while creating a virtual disk, your settings will be ignored. The **-cp** option is optional and can be added to the command line in any order after the mandatory option combination. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
	-fd or failoverdrive	ch:targ, ch:targ, ... or ch:targ:lun,... or ch:targ:enc channel:target, or channel:target:lun, or channel:target:enclosure	Sets the failover drive for the virtual disk. The **-fd** option is optional and can be added to the command line in any order after the mandatory option combination. **NOTE:** From DTK 2.4 onwards, the **-fd** option creates dedicated hot spares instead of global hot spares. For information about setting global hot spares, see Table 4-10. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
	-r or -raid	0, 1, 5, 6, 10, 50, 60	Sets the RAID type or level for the virtual disk. **NOTE:** If this option is not specified for any RAID controller, RAID 0 is taken as the default. The valid arguments are: **0** — RAID 0 uses data striping, which is writing data in equal-sized segments across the array disks. RAID 0 does not provide data redundancy. **1** — RAID 1 is the simplest form of maintaining redundant data. In RAID 1, data is mirrored or duplicated on one or more drives. **5** — RAID 5 provides data redundancy by using data striping in combination with parity information. Rather than dedicating a drive to parity, the parity information is striped across all disks in the array. **6** — RAID 6 is an extension of RAID 5 and uses an additional parity block. It uses block-level striping with two parity blocks distributed across all member disks. RAID 6 provides protection against double disk failures and failures while a single disk is rebuilding. In case there is only one array, RAID 6 may be a better option than a hotspare disk. **10** — RAID 10 is a stripe of mirrors. Multiple RAID 1 mirrors are created, and a RAID 0 stripe is created over these.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
			50 — RAID 50 is a dual level array that uses multiple RAID 5 sets in a single array. A single hard drive failure can occur in each of the RAID 5 without any loss of data on the entire array. Although the RAID 50 has increased write performance, when a hard drive fails and reconstruction takes place, performance decreases, data/program access is slower, and transfer speeds on the array are affected.
			60 — RAID 60 is a combination of RAID 6 and RAID 0. A RAID 0 array is striped across RAID 6 elements. It requires at least 8 disks.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -ac=cvd -c=*id* -ad= *ch:targ,ch:targ,* ... [or *ch:targ:encl,...*] or controller action= createvdisk controllerid= *id* adisk= *channel:target: lun, channel:target: lun,...* [or *channel:target: enclosure,...*]	-rp or readpolicy	ra, ara, nra, rc, nrc	Sets the SCSI read policy for the virtual disk. Specify the SCSI read policy for the logical drive. The valid arguments are: **ra** — (read-ahead) The controller reads sequential sectors of the disk when seeking data. **ara** — (Adaptive Read-Ahead) 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 or not read requests are accessing sequential sectors of the disk and can initiate read-ahead if necessary. **nra** — (No-Read-Ahead) The controller does not read sequential sectors of the disk when seeking data. **NOTE:** The **ra**, **ara**, and **nra** options are supported on the following RAID controllers only: • PERC 3/DC, PERC 3/QC, PERC 3/Di, PERC 3/SC • PERC4/SC, PERC 4/DC, PERC 4/Di, PERC 4/IM, PERC4e/DC, PERC 4e/Di, PERC 4e/Si • PERC 5/E Adapter, PERC 5/I Integrated, PERC 5/i Adapter • PERC 6/i Integrated, PERC 6/i Adapter, PERC 6/E Adapter

Table 4-4. Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
			NOTE: The PERC 4/IM controller has a fixed set of read, write, and cache policies. If you set any of these policies while creating a virtual disk, your settings will be ignored.
			rc — (Read-Caching) Enables read caching.
			nrc — (No-Read-Caching) Disables read caching.
			NOTE: The rc and nrc options are supported on the following RAID controllers only: CERC SATA 1.5/CH and PERC 3/Di.
			The **-rp** option is optional and can be added to the command line in any order after the mandatory option combination.
			⚠ **CAUTION: If the controller is changed from SCSI to RAID mode, expect data loss to occur. Back up any data you want to save before changing the modes.**

Table 4-4.   Creating Virtual Disks _(continued)_

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -ac=cvd -c=_id_ -ad= _ch:targ,ch:targ, ..._ [or _ch:targ:encl,..._] or controller action= createvdisk controllerid= _id_ adisk= _channel:target: lun,... channel:target: lun,..._ [or _channel:target: enclosure,..._]	-sp or spanlength	_<number>_	Creates a virtual disk comprised of the properties supplied. The **-sp** option is optional and can be the added to the command line in any order after the mandatory option combination. **NOTE:** Spanlength is applicable only for RAID 50 and RAID 60. The minimum permissible spanlength value for RAID 50 is 3 and for RAID 60 is 4. The number of array disks for creating a virtual disk should not be a prime number and should be divisible by the specified spanlength. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Table 4-4. Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -ac=cvd -c=*id* -ad= *ch:targ,ch:targ,* ... [or *ch:targ:encl,...*] or controller action= createvdisk controllerid= *id* adisk= *channel:target: lun, channel:target: lun,...* [or *channel:target: enclosure,...*]	-ssz or stripesize	*<number>*	Sets the stripe size for the virtual disk. The stripe size is the amount of array disk space used on each array disk included in the stripe. A valid argument is a number that is less than the size of the virtual disk. The **-ssz** option is optional and can be added to the command line in any order after the mandatory option combination. However, do not specify a unit for stripe size when creating virtual disks. The unit is always displayed in KB. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -ac=cvd -c=*id* -ad= ch:targ,ch:targ, ... [or *ch:targ:encl,...*] or controller action= createvdisk controllerid= *id* adisk= *channel:target: lun, channel:target: lun,...* [or *channel:target: enclosure,...*]	-str or strict	<number>	Strict (-str parameter) is the percentage of expected array disk utilization. Example: `A:> raidcfg -ctrl -ac= cvd -c=0 -ad=0:0,0:1 -r= 1 -str=20` If the unused portion of an array disk is greater than the above percent, raidcfg will abort. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Table 4-4. Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -ac=cvd -c=*id* -ad= *ch:targ,ch:targ, …* [or *ch:targ:encl,…]* or controller action= createvdisk controllerid= *id* adisk= *channel:target: lun,… channel:target: lun,…* [or *channel:target: enclosure,…]*	-sz or -size	*<number>*	Sets the maximum size of the virtual disk in MB or GB. A valid argument is a number representing the maximum size for the virtual disk. The **-sz** option is optional and can be the added to the command line in any order after the mandatory option combination. The minimum virtual disk size that you can create for various controllers is given below. • For CERC-SATA 1.5/6ch controllers: RAID 0: 10MB RAID 1: 9MB RAID 5: 9MB • For PERC 3 controllers: RAID 0: 10MB RAID 1: 10MB RAID 5: 10MB • For PERC 4 (except PERC 4/IM) controllers: RAID 0: 10MB RAID 1: 10MB RAID 5: 10MB

Table 4-4. Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description

			• For PERC 5 controllers:
			
			  RAID 0: 100MB
			
			  RAID 1: 100MB
			
			  RAID 5: 100MB
			
			• For PERC 6 controllers:
			
			  RAID 0: 100MB
			
			  RAID 1: 100MB
			
			  RAID 5: 100MB
			
			  RAID 6: 100MB
			
			  RAID 60: 100MB
			
			NOTE: If this option is not provided, RAIDCFG will determine the maximum possible virtual disk size and create it.
			
			RAID 10, RAID 50, and RAID 60 do not accept this option.

Table 4-4. Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
	-wp or writepolicy	wb, wt, wc, nwc	Sets the write policy for the virtual disk. The valid arguments are: **wb** — (Write-Back Caching) sets the controller to send a write-request completion signal as soon as the data is in the controller cache but has not yet been written to disk. **wt** — (Write-Through Caching) sets the controller to send a write-request completion signal only after the data is written to the disk. **NOTE:** The **wb** and **wt** options are supported on the following RAID controllers only: • PERC 3/DC, PERC 3/QC, PERC 3/Di, PERC 3/SC • PERC 4/IM, PERC 4/SC, PERC 4/Di, PERC 4/DC, PERC 4e/DC, and PERC 4e/Di • PERC 5/E Adapter, PERC 5/I Integrated, PERC 5/i Adapter • PERC 6/i Integrated, PERC 6/i Adapter, PERC 6/E Adapter **NOTE:** The PERC 4/IM controller has a fixed set of read, write, and cache policies. If you set any of these policies while creating a virtual disk, your settings will be ignored. **wc** — (Write-Caching) sets the controller to send a write-request completion signal only after the data is written to the disk.

Table 4-4.   Creating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
			nwc — (No-Write-Caching) specifies that the controller does not send a write-request completion signal after the data is written to the disk.
			NOTE: The **wc** and **nwc** options are supported on the following RAID controllers only: CERC SATA 1.5/CH and PERC 3/Di.
			The **-wp** option is optional and can be added to the command line in any order after the mandatory option combination.
			For SCSI controllers, the value of lun should always be 0.
			For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure.

Enumerating Array Disks

Table 4-5 lists the RAIDCFG options, parameters, and pre-defined arguments for enumerating array disks (hard drives).

Table 4-5. Enumerating Array Disks (Hard Drives)

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-ad -c=*id*
 	
or
 	
adisk controllerid=*id*
	NA	NA	Lists all the array disks attached to the specified RAID controller. This option combination is mandatory.
			
			NOTE: You can also use pdisk or -pd instead of adisk or -ad to specify an array disk.
			
			Example:
			
			`A:>raidcfg -ad -c=2`
			`Controller: PERC 4e/DC`
			
			`****** Physical Drive ******`
			`Drive Vendor: FUJITSU`
			`Drive Model: MAP3367NC`
			`Drive Location: 0:0:0`
			`Drive Size: 34680 MB`
			`Drive Avail: 0 MB`
			`****** Physical Drive ******`
			`Drive Vendor: SEAGATE`
			`Drive Model: ST336607LC`
			`Drive Location: 0:1:0`
			`Drive Size: 34680 MB`
			`Drive Avail: 0 MB`

Table 4-5. Enumerating Array Disks (Hard Drives) *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description
			`****** Physical Drive ******`
			`Drive Vendor: FUJITSU`
			`Drive Model: MAP3367NC`
			`Drive Location: 0:2:0`
			`Drive Size: 34680 MB`
			`Drive Avail: 34680 MB`
			`****** Physical Drive ******`
			`Drive Vendor: SEAGATE`
			`Drive Model: ST336607LC`
			`Drive Location: 0:3:0`
			`Drive Size: 34680 MB`
			`Drive Avail: 34680 MB`
			`****** Physical Drive ******`
			`Drive Vendor: SEAGATE`
			`Drive Model: ST373405LC`
			`Drive Location: 0:4:0`
			`Drive Size: 69880 MB`
			`Drive Avail: 69880 MB`
			`****** Physical Drive ******`
			`Drive Vendor: SEAGATE`
			`Drive Model: ST318453LC`
			`Drive Location: 0:5:0`
			`Drive Size: 17280 MB`
			`Drive Avail: 17280 MB`

Table 4-5. Enumerating Array Disks (Hard Drives) *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description
			RAIDCFG Command successful!
			****** Physical Drive ******
			Drive Vendor: FUJITSU
			Drive Model: MAN3367MC
			Drive Location: 1:2:0
			Drive Size: 34678MB
			Drive Avail: 34678MB
			****** Physical Drive ******
			Drive Vendor: FUJITSU
			Drive Model: MAN3367MC
			Drive Location: 1:4:0
			Drive Size: 34678MB
			Drive Avail: 24438MB
			RAIDCFG command successful!

Table 4-5. Enumerating Array Disks (Hard Drives) *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description
-ad -c=*id* or adisk controllerid=*id*	-vd=*id* vdisk=*id*	*<valid virtual disk>*	Lists the array disks that make up the virtual disk on the specified RAID controller. This option combination is mandatory. Example: A:>raidcfg -ad -c=2 -vd=0 Controller: PERC 4e/DC Drive Vendor: FUJITSU Drive Model: MAP3367NC Drive Location: 0:0:0 Drive Size: 34680 MB Drive Avail: 0 MB ****** Physical Drive ****** Drive Vendor: SEAGATE Drive Model: ST336607LC Drive Location: 0:1:0 Drive Size: 34680 MB Drive Avail: 0 MB RAIDCFG Command successful!

Table 4-5.   Enumerating Array Disks (Hard Drives) *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-ad -c=*id*
 	
or
 	
adisk controllerid=*id* vdisk=*id*
	-ad= *ch:targ,ch:t arg,...*
	
	adisk= *channel:tar get, channel:tar get,...*
		<valid array disk>
		
		<valid array disk>
			Displays information about the specified array disk. This option combination is mandatory.
			
			Example:
			
			`A:>raidcfg -ad -c=2 -ad= 0:1,0:2`
			
			`Controller: PERC 4e/DC`
			
			`****** Physical Drive ******`
			
			`Drive Vendor: SEAGATE`
			
			`Drive Model: ST336607LC`
			
			`Drive Location: 0:1:0`
			
			`Drive Size: 34680 MB`
			
			`Drive Avail: 0 MB`
			
			`****** Physical Drive ******`
			
			`Drive Vendor: FUJITSU`
			
			`Drive Model: MAP3367NC`
			
			`Drive Location: 0:2:0`
			
			`Drive Size: 34680 MB`
			
			`Drive Avail: 34680 MB`
			
			`RAIDCFG Command successful!`

Enumerating Virtual Disks

Table 4-6 lists the RAIDCFG options, parameters, and pre-defined arguments for enumerating virtual disks.

Table 4-6. Enumerating Virtual Disks

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description
-vd or vdisk	NA	NA	Lists the virtual disks for each controller along with the array disks that make up each virtual disk. This option is mandatory.

Example:

```
A:>raidcfg -vd

Controller: PERC 4e/DC

Virtual disk not found

Controller: PERC 4e/DC

VDisk ID: 0

Size: 34680 MB

Type: RAID 1

Read Policy: Normal Read Ahead

Write Policy: Writeback

Cache Policy: Direct_IO

Drives: 0:0:0,0:1:0

Controller: PERC 4/SC

Virtual disk not found

Controller: PERC 4/SC

Virtual disk not found

RAIDCFG Command successful!
```

Table 4-6. Enumerating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-vd
 	
or
 	
vdisk
	-c
	
	or
	
	controller id
		<*valid controller ID number*>	Lists all the virtual disks under the indicated controllers. Each virtual disk is displayed with the physical disk that comprises it. The **-c** option is optional and can be added to the command line in any order after the mandatory option.
			
			Example:
			
			`A:>raidcfg -vd -c=2`
			
			`Controller: PERC 4e/DC`
			
			`VDisk ID: 0`
			
			`Size: 34680 MB`
			
			`Type: RAID 1`
			
			`Read Policy: Normal Read Ahead`
			
			`Write Policy: Writeback`
			
			`Cache Policy: Direct_IO`
			
			`Drives: 0:0:0,0:1:0`
			
			`RAIDCFG Command successful!`

Table 4-6. Enumerating Virtual Disks *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-vd -c=*id*
 	
or
 	
vdisk controllerid=*id*
	-vd
	
	or
	
	vdisk
		<valid virtual disk ID number>	Displays details about a single virtual disk under the indicated controller. The **-vd -c=***id* option combination is mandatory. The second **-vd** option is optional and can be added to the command line in any order after the mandatory option combination.
			
			Example:
			
			`A:>raidcfg -vd -c=2 -vd=0`
			
			`Controller: PERC 4e/DC`
			
			`VDisk ID: 0`
			
			`Size: 34680 MB`
			
			`Type: RAID 1`
			
			`Read Policy: Normal Read Ahead`
			
			`Write Policy: Writeback`
			
			`Cache Policy: Direct_IO`
			
			`Drives: 0:0:0,0:1:0`
			
			`Dedicated HS: 1:2:0`
			
			`RAIDCFG Command successful!`

Initializing Virtual Disks

Table 4-7 lists the RAIDCFG options, parameters, and pre-defined arguments for initializing selected virtual disks.

Table 4-7. Initializing Virtual Disks

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-vd -c=*id* -vd=*id* -ac=fi or vdisk controllerid=*id* vdisk=*id* action= fastinit	NA	*<valid virtual disk ID number>*	This option initializes the selected virtual disk in the selected controller with the **fastinit** command. This feature is supported on PERC 5 and later controllers and is not supported on SAS controllers. Using the **fastinit** command on unsupported controllers returns an error. Example: `A:>raidcfg -vd -c=2 -vd=2 -ac=fi`
-vd -c=*id* -vd=*id* -ac= sli or vdisk controllerid=*id* vdisk=*id* action= slowinit	NA	*<valid virtual disk ID number>*	This option initializes the selected virtual disk in the selected controller with the **slowinit** command. This feature is supported on PERC 5 and later controllers and is not supported on SAS controllers. Using the **slowinit** command on unsupported controllers returns an error. Example: `A:>raidcfg -vd -c=2 -vd=2 -ac=sli`

Importing and Clearing Foreign Configurations

Table 4-8 lists the RAIDCFG options, parameters, and pre-defined arguments for foreign configurations.

Table 4-8.   RAIDCFG Options for Foreign Configurations

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -c=*id* -ac= fgnimp or controller controllerid=*id* action= foreignimport	NA	<*valid virtual disk ID number*>	Imports the foreign configuration detected in the selected controller. This feature is supported on PERC 5 and later controllers and is not supported on SAS controllers. If you use this argument on a controller that does not have a foreign configuration, the "No Foreign configuration present in the controller" message is displayed. Example: `A:>raidcfg -ctrl -c=2 -ac=fgnimp`
-ctrl -c=*id* -ac= fgnclr or controller controllerid=*id* action= foreignclear	NA	<*valid virtual disk ID number*>	Clears the foreign configuration detected in the selected controller. This feature is supported on PERC 5 and later controllers and is not supported on SAS controllers. If you use this argument on a controller that does not have a foreign configuration, the "No Foreign configuration present in the controller" message is displayed. Example: `A:>raidcfg -ctrl -c=2 -ac=fgnclr`

Table 4-8.   RAIDCFG Options for Foreign Configurations *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-ctrl -c=*id* -ac= fgnrvr or controller controllerid=*id* action= foreignrecover	NA	<*valid virtual disk ID number*>	Recovers the foreign configuration detected in the selected controller. This feature is supported from the PERC 5 and later controllers and is not supported on SAS controllers. If you use this argument on a controller that has no foreign configuration, the "No Foreign configuration present in the controller" message is displayed. Example: `A:>raidcfg -ctrl -c=2 -ac=fgnrvr`

Deleting Virtual Disks

Table 4-9 lists the RAIDCFG options, parameters, and pre-defined arguments for deleting virtual disks.

NOTE: If you delete a virtual disk on PERC 4/IM on Windows PE, you need to reboot the system.

Table 4-9. Deleting Virtual Disks

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-vd -ac=dvd -c=*id*
 	
or
 	
vdisk action= deletevdisk controllerid= *id*
	NA	NA	Deletes all virtual disks on the indicated controller. This option combination is mandatory.
			
			Example:
			
			`A:>raidcfg -vd -ac=dvd -c=2`
			
			`RAIDCFG command successful!`

-vd -ac=dvd -c=*id*
 	
or
 	
vdisk action= deletevdisk controllerid= *id*
	-vd
	
	or
	
	vdisk
		<valid virtual disk ID number>	Deletes the indicated virtual disk on the indicated controller. The **-vd -ac=dvd -c=***id* option combination is mandatory.
			The second **-vd** option is optional and can be added to the command line in any order after the mandatory option.
			
			Example:
			
			`A:>raidcfg -vd -ac=dvd -c=2 -vd=0`
			
			`RAIDCFG command successful!`

NOTE: When virtual disks are being created, the RAID controller starts the background initialization operation. Virtual disks cannot be deleted until this operation completes. This limitation affects mostly PERC 3/Di and CERC SATA controllers.

NOTE: If the raid.ini file contains the [Reset] section, then the RAIDCFG utility removes all the hot spares (dedicated and global) and virtual disks on the specified RAID controllers in the system.

Assigning and Unassigning Global Hot Spares

Table 4-10 lists the RAIDCFG options, parameters, and pre-defined arguments for assigning and unassigning global hot spares.

Table 4-10. Assigning and Unassigning Global Hot Spares

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description
-ctrl -ac= sghs -c=*id* -ad|-pd= *ch:targ:encl,c h:targ:encl*	NA	NA	Assigns the specified disks as global hot spares on the specified controller. Example: `A:>raidcfg -ctrl -ac=sghs -c=2 -ad=0:1,0:2` `RAIDCFG command successful!`
-ctrl ac=rghs -c=*id* -ad|- pd= *ch:targ:encl,c h:targ:encl*	NA	NA	Unassigns all global hot spares to disks on the specified controller. Example: `A:>raidcfg -ctrl -ac=rghs -c=2` `RAIDCFG command successful!`

Setting Environment Variables

Table 4-11 lists the RAIDCFG options, parameters, and pre-defined arguments for setting the CLI environment.

Table 4-11.   Setting Environment

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-se -envn=*<string>* -envc=*<function>*
 	
or
 	
setenvironment envname=*<string>* envcommand=*<function>*
	NA	NA	Sets a user-defined environment variable to the value returned from the `getcontrollerslots` function call. This option combination is mandatory.
			
			Example:
			
			`A:>raidcfg -se -envn=CNTRL -envc=getcontrollerslots`
			
			`CNTRL=0 1 2`
			
			`RAIDCFG command successful!`

-se -envn=*<string>* -envc=*<function>* or setenvironment envname=*<string>* envcommand=*<function>*	-f or filename	*<filename>*	When used, this option captures the environment output to the given filename. This option either appends the information to an existing file or creates a new file.

Table 4-11. Setting Environment *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

-se -envn= *<string>* - envc= *<function>* - c=*id*
 	
or
 	
setenvironment envname= *<string>* envcommand =*<function>* controllerid= *id*
	NA	NA	Sets a user-defined environment variable to the value returned from the getfirmware, getcontrollertype, getadisks, getadiskcount, getfreeadisks, getfreeadiskcount, getfreeadisksize, or gethotspares function call. This option combination is mandatory.
			
			Example:
			
			`A:>raidcfg -se -envn=FIRMWARE -envc=getfirmware -c=2`
			
			`FIRMWARE=531T`
			
			`RAIDCFG command successful!`

Table 4-12 lists the function calls of the **setenvironment** option.

Table 4-12.   Function Calls of the setenvironment Option

Function Call	Description
getfirmware	Returns the firmware version of the specified controllers.
	Example:
	`A:>raidcfg -se -envn=FIRMWARE -envc=` `getfirmware -c=2`
	`FIRMWARE=531T`
	`RAIDCFG command successful!`
getcontrollertype	Returns `LSI` for LSI controllers and `ADAP` for Adaptec controllers.
	Example:
	`A:>raidcfg -se -envn=CONTROLLERTYPE -envc=` `getcontrollertype -c=2`
	`CONTROLLERTYPE=LSI`
	`RAIDCFG command successful!`
getadisks	Returns the array disks attached to the controller.
	Example:
	`A:>raidcfg -se -envn=ADISKS -envc=getadisks -` `c=2`
	`ADISKS=0:0:1,0:1:1,0:2:1`
	`RAIDCFG command successful!`

Table 4-12. Function Calls of the setenvironment Option *(continued)*

Function Call	Description
getfreediskcount	Returns the number of free array disks found in the specified controller.
	Example:
| | ```
A:>raidcfg -se -envn=FREEADISKCOUNT -envc=
getfreediskcount -c=2
``` |
| | ```
FREEADISKCOUNT=2
``` |
	RAIDCFG command successful!
getfreedisksize	Returns the total size of the free array disks in megabytes.
	Example:
| | ```
A:>raidcfg -se -envn=FREEADISKSIZE -envc=
getfreedisksize -c=2
``` |
| | ```
FREEADISKSIZE=15346
``` |
	RAIDCFG command successful!
gethotspares	Returns the global hot spares (global failover disks) found on the specified controller.
	Example:
| | ```
A:>raidcfg -se -envn=HOTSPARES -envc=
gethotspares -c=2
``` |
| | ```
HOTSPARES=1:8:1,1:9:1
``` |
| | RAIDCFG command successful! |

Table 4-12. Function Calls of the setenvironment Option *(continued)*

Function Call	Description
getfreeadisks	Returns the free array disks.
	`A:>raidcfg -se -envn=GETFREEADISKS -envc=` `getfreeadisks -c=2`
	`GETFREEADISKS=0:3:1,0:4:1`
	RAIDCFG command successful!
getadiskcount	Returns the total number of array disks.
	`A:>raidcfg -se -envn=GETADISKCOUNT -envc=` `getadiskcount -c=2`
	`GETADISKCOUNT=1`
	RAIDCFG command successful!

RAID Replication Options

Table 4-13 lists the RAID replication options.

Table 4-13. RAID Replication Options

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
-i	NA	*\<filename\>*	Reads the RAID configuration information from the given **.ini** filename and creates the RAID configurations on the specified controllers. This option is mandatory. Example: `A:> raidcfg -i=\tmp\raid.ini`

-o	NA	*\<filename\>*	Reads the RAID configurations from all available controllers and writes these configurations in the **raid.ini** file under the **/tmp** directory (in Linux systems). This option is mandatory.
			
			Example:
			
			`A:> raidcfg -o=\tmp\raid.ini`
			
			`The contents of the raid.ini file are:`
			
			`[vdisk0]`
			
			`controllerid=0`
			
			`size=123456`
			
			`raid=5`
			
			`readpolicy=ra`
			
			`writepolicy=wt`
			
			`stripesize=32`
			
			`cachepolicy=d`
			
			`adisk=0:0:1,0:1:1,0:2:1`
			
			`[vdisk1]`

Table 4-13. RAID Replication Options *(continued)*

Mandatory Options and Arguments	Optional Parameters	Valid Parameter Arguments	Description
			`controllerid=0`
			`size=65345`
			`raid=1`
			`readpolicy=ra`
			`writepolicy=wt`
			`stripesize=64`
			`cachepolicy=d`
			`adisk=0:3:1,0:4:1`
			If the controller uses global hot spares, the **raid.ini** file contains the following section:
			`[GlobalHotspare0]`
			`controllerid=0`
			`failoverdrive=0:8:0`

Miscellaneous Options

Table 4-14 lists all other RAIDCFG options, parameters, and pre-defined arguments.

Table 4-14. **Miscellaneous Optional Parameters**

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

any	-l
	or
	logfile
		\<filename\>	Logs command line output to a file. The utility either appends the information to an existing log file or creates a new file. The log file contains the same information as standard output. This option is optional and can be added to the command line in any order after the mandatory options have been added.
			
			Example:
			
			`A:>raidcfg -ctrl -l=log.txt`
			
			`Controller_ID/Slot_ID: 0`
			
			`Controller_PCI_ID:     4:2:1`
			
			`Controller_Name:      Dell PERC 3/Di`
			
			`Channels:             2`
			
			`Virtual_Disks:        0`
			
			`Firmware Version:     V2.8-0[6064]`
			
			`Controller_ID/Slot_ID: 2`
			
			`Controller_PCI_ID:     2:0:0`
			
			`Controller_Name:      PERC 3/DC`
			
			`Channels:             2`
			
			`Virtual_Disks:        0`
			
			`Firmware Version:     1.74`
			
			`RAIDCFG command successful!`

Table 4-14. Miscellaneous Optional Parameters *(continued)*

Mandatory Options and Arguments	Optional Parameter	Valid Parameter Arguments	Description

any	-si
	
	or
	
	silent
		NA	Does not display any information on the terminal console. This option is optional and can be added to the command line in any order after any mandatory options have been added.
			
			Example:
			
			`A:>raidcfg -ctrl -si`
			
			`RAIDCFG command successful!`

any	-ver
	
	or
	
	version
		NA	Displays the version number of the RAIDCFG utility. This option is optional and can be added to the command line in any order after any mandatory options have been added.
			
			Example:
			
			`A:>raidcfg -ver`
			
			`RAIDCFG V2.4`
			
			`Copyright (c) 2005-2007 Dell Inc.`
			
			`RAIDCFG Command successful!`

Quick Reference to RAIDCFG Commands

Table 4-15 lists the basic RAIDCFG commands.

Table 4-15. Basic RAIDCFG Commands

Purpose	Command	Description
To list all the RAID controllers in a system	`raidcfg -ctrl`	Lists all the RAID controllers in the system.
		Note the slot ID of the controllers. You will need it for all the other commands.
To list all the disks attached to a particular controller	`raidcfg adisk -c=slotid`	Lists all the disks attached to the controller. The slot ID is obtained from the first command.
		Note the drive location of the disks. You will need this information later.
To create a virtual disk with all the default settings	`raidcfg -ctrl -ac=cvd -c=slotid -ad=x:y,x:y,...`	Creates a virtual disk of maximum available size for type RAID 0. RAID 0 is the default.
		The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands.
To create a virtual disk of a certain size with all the default settings	`raidcfg -ctrl -ac=cvd -c=slotid -ad=x:y,x:y,... -sz=5GB`	Creates a virtual disk of 5GB size for type RAID 0. RAID 0 is the default.
		The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands.
To create a virtual disk of a certain size and make it RAID 1	`raidcfg -ctrl -ac=cvd -c=slotid -ad=x:y,x:y -sz=5GB -r=1`	Creates a virtual disk of 5GB size for type RAID 1.
		The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands.

Table 4-15.   Basic RAIDCFG Commands (continued)

Purpose	Command	Description
To create a virtual disk of a certain size and make it RAID 5	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y,x:y,... -sz=5GB -r=5`	Creates a virtual disk of 5GB size for type RAID 5. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands.
To create a virtual disk of a certain size and make it RAID 1 with a hot spare	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y -sz=5GB -r=1 -fd=x:y`	Creates a virtual disk of 5GB size for type RAID 1. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands. The option `<-fd>` stands for failover drive and requires the drive location of the drive you want the dedicated hot spare to be in. The drive location is obtained from the second command.
To create a virtual disk of RAID 10	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y,x:y,x:y -r=10`	Creates a virtual disk of max size for type RAID 10. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands. The drive location is obtained from the second command.
To create a virtual disk of RAID 50	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y,x:y,x:y ,x:y,x:y -r=50 -sp=x`	Creates a virtual disk of maximum size for type RAID 50. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands. The drive location is obtained from the second command.

Table 4-15.   Basic RAIDCFG Commands *(continued)*

Purpose	Command	Description
To create a virtual disk of RAID 6	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y,x:y,x:y ,x:y,x:y -r=6 -sp=x`	Creates a virtual disk of maximum size for type RAID 6. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands. The drive location is obtained from the second command. **NOTE:** The minimum number of drives required to create a virtual disk of RAID 6 is 4.
To create a virtual disk of RAID 60	`raidcfg -ctrl -ac=cvd -c= slotid -ad= x:y,x:y,x:y,x:y ,x:y,x:y -r=60 -sp=x`	Creates a virtual disk of maximum size for type RAID 60. The slot ID in `<-c=slotid>` and the array disks in `<-ad=...>` are obtained from the first two commands. The drive location is obtained from the second command. **NOTE:** The minimum number of drives required to create a virtual disk of RAID 60 is 8.
To view all the virtual disks in a system	`raidcfg vdisk`	Lists the virtual disks on a system for all RAID controllers.
To view all the virtual disks for a specific controller	`raidcfg vdisk -c=slotid`	Lists all the virtual disks on a specific controller. The slot ID in `<-c=slotid>` is obtained from the first command.
To delete a specific virtual disk on a controller	`raidcfg vdisk -ac=dvd -c= slotid -vd= vdiskid`	Deletes a specific virtual disk on a controller. The slot ID in `<-c=slotid>` is obtained from the first command and the vdiskid in `<-vd=vdiskid>` is obtained from command 10.

5

UPINIT

The UPINIT utility is used to make a utility partition (UP) on a hard drive, format the partition, and extract the partition contents onto the disk.

Features

The UPINIT utility has the following general features:

- Displays help and usage information.
- Returns specific error codes and messages.

NOTE: In Microsoft® Windows® Preinstallation Environment (Windows PE), you can find the UPINIT utility in **\DELL\TOOLKIT\TEMPLATES\SCRIPTS**. In Linux, you can find it in **/opt/dell/toolkit/templates/scripts**.

Creating a Partition Using UPINIT

The size of the virtual disk where a utility partition is to be created must be a minimum of 8 GB.

UPINIT performs the following steps:

- Ensures that the UP image file is present and readable.
- Ensures that no partitions are present on the target disk.
- Creates a utility partition of type Dell Utility (DE)

  If there is an existing UP, UPINIT does not create a new one. It only updates the existing UP. If no UP is found, UPINIT exits.

- Updates the boot sector with the UP boot sector image. If required, it updates the master boot record as well.
- Mounts the partition.

- Uncompresses the UP file onto the UP image.
- Unmounts the partition.

> ✎ **NOTE:** On Windows PE, UPINIT runs as a batch file. In Linux, it is a shell script that uses standard Linux commands to accomplish the same tasks done by the Windows PE counterpart. Both command lines are identical and the output of the two utilities will be identical if the same image is used.

UPINIT Dependencies

In Linux, UPINIT looks for the following files:

- **mbr** file in the **dell/drmk** directory
- **sysdrmk** in the **dell/toolkit/bin** directory

In Windows, UPINIT looks for the following files:

- **createup.cfg**, **mountup.cfg**, **umountup.cfg, listup.cfg** in the **DELL\TOOLKIT\TEMPLATE\SCRIPTS** directory
- **sysdrmk.exe** in the **DELL\TOOLKIT\TOOLS** directory

UPINIT Options and Arguments

Table 5-1 lists the valid options and arguments for the UPINIT utility.

Table 5-1. UPINIT Options and Arguments

Option	Valid Arguments	Description
none	none	If no options are given, the tool will output usage information. The usage information will be printed in the format shown below.

Example 1:

```
A:>upinit
upinit version 1.0
```

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```
upinit.sh --disk|-d=disk --size|-s=
size --file|-f=file
                    [--overwrite|-o] [--
help|-h]
  --help or -h prints help.
  --disk or -d disk device on which to
create the Dell Utility Partition.
  --size or -s Size in MB for the Dell
Utility Partition.
  --file or -f filename of Dell Utility
Partition Image File.
  --overwrite or -o Installs the Dell
Utility partition over an existing
one.
```

Example 2:

```
upinit --disk=/dev/sda --size=32 --
file=upimg.bin
```

```
In the example, upinit creates a Dell
Utility Partition of size 32 MB on
/dev/sda using upimg.bin file.
```

NOTE: The **--overwrite** option should be used for upgrading/downgrading purposes. The **--size** option is not required when using the **--overwrite** option because the **--overwrite** option does not resize an existing Dell™ Utility Partition. If any partitions exist, they will not be deleted.

Table 5-1. UPINIT Options and Arguments *(continued)*

Option	Valid Arguments	Description
-h	none	This function command requires an argument that matches a valid option. If the argument matches a valid option, that option's usage information is displayed. This option cannot be used with other options.

Windows PE Example:

```
upinit version 1.0
```

Copyright (c) 2002-2006 Dell Inc.

```
This utility creates a utility
partition for your system.
```

```
This utility requires a Utility
Partition image file (upimg.bin) which
can be found under
/opt/dell/toolkit/systems folder in
the Deployment Toolkit ISO. For more
information, please consult the
Deployment Toolkit Documentation.
```

Usage:

```
upinit.bat [--overwrite] --disk=ID or
-d=ID --size=size or -s=size

  --file=file or -f=file

  --help or -h prints usage.

  --disk or -d ID of the disk on which
to create the Dell Utility Partition.

  --size or -s Size in MB for the Dell
Utility Partition.

  --file or -f Filename of the Dell
Utility Partition Image File.

  --overwrite or -o Overwrites an
existing Dell Utility Partition.
```

Example:

```
upinit --disk=0 --size=32 --file=
upimg.bin
```

Table 5-1. UPINIT Options and Arguments *(continued)*

Option	Valid Arguments	Description
		In the example, upinit creates a Dell Utility Partition of size 32 MB using the **upimg.bin** image file.
		The **--overwrite** option should be used for upgrading/downgrading purposes. The **--size** option is not required when using the **--overwrite** option because the **--overwrite** option does not resize an existing Dell Utility Partition. If any partitions exist, they will not be deleted.

Linux Example:

```
upinit version 1.0
```

Copyright (c) 2002-2006 Dell Inc.

```
This utility creates a utility
partition for your system.
```

```
This utility requires a Utility
Partition image file (upimg.bin) which
can be found under
/opt/dell/toolkit/systems folder in
the Deployment Toolkit ISO. For more
information, please consult the
Deployment Toolkit Documentation.
```

Usage:

```
upinit.sh --disk|-d=disk --size|-s=
size --file|-f=file

               [--overwrite|-o] [--
help|-h]

  --help or -h prints help.

  --disk or -d disk device on which to
create the Dell Utility Partition.

  --size or -s Size in MB for the Dell
Utility Partition.

  --file or -f filename of Dell Utility
Partition Image File.
```

Table 5-1. UPINIT Options and Arguments *(continued)*

Option	Valid Arguments	Description
		`--overwrite or -o Installs the Dell Utility partition over an existing one.`
		Example:
		`upinit --disk=/dev/sda --size=32 --file=upimg.bin`
		In the example, upinit creates a Dell Utility Partition of size 32 MB on **/dev/sda** using the **upimg.bin** file.
		The **--overwrite** option should be used for upgrading/downgrading purposes. The **--size** option is not required when using the **--overwrite** option because the **--overwrite** option does not resize an existing Dell Utility Partition. If any partitions exist, they will not be deleted.
disk	integer, required (Windows) string, required (Linux)	Specifies the disk on which to create a utility partition. This disk will be checked to ensure that there are no existing partitions. Utility will exit with an error if the disk has partitions other than a utility partition.
		Use option --overwrite to overwrite an existing utility partition.
		Example:
		A:> upinit **--disk**=0 --size=32 --file=c:\upimage.bin (WinPE Example)
		# upinit --disk=/dev/hda --size=32 --file=/home/BIN/upimage.bin (Linux Example)
size	integer, required	The size of the utility partition to create. The created utility will be at least the size specified by size and be as close to actual size as drive geometry will allow.
		Example:
		`A:> upinit --disk=0 --size=32 --file=c:\upimage.bin`

Table 5-1. UPINIT Options and Arguments *(continued)*

Option	Valid Arguments	Description
file	string, required	Specifies a file that will be decompressed onto the utility partition. This file will be checked for existence and availability before any partitions are created on the disk. If the file is not specified, the utility will simply create the utility partition, format it, and exits. It will be up to the user to mount and populate the utility partition. It is very unlikely that the user will NOT specify the utility partition format.
		Example:
		`A:> upinit --disk=0 --size=32 --file=` `c:\upimage.bin`
--overwrite	string, optional	Overwrites an existing utility partition. It does not create a new partition or delete an existing partition.

6

RACADM

The RACADM utility provides a scriptable interface that allows you to locally or remotely configure your remote access controller (RAC).

Using the RACADM utility, you can enter command line options to configure RAC properties. When you enter command line options, the RACADM utility sets or retrieves object property values in the RAC properties database.

You can also use the RACADM utility to write scripts that will automatically configure multiple RACs. For example, when configuring in batch mode, a series of calls to the RACADM utility can perform actions such as upgrading RAC firmware, setting a property to a specific value, and reading the configuration of the RAC. All command switches are case sensitive. For more information about configuring multiple RACs, see "RAC Configuration File" in the *Dell Remote Access Controller Racadm User's Guide*.

⚠️ **CAUTION: Commands and code samples in this section are RAC-specific. Some commands or samples may not be applicable to your RAC. Also, the -r option for performing racadm commands remotely is not available for the RACADM utility.**

📝 **NOTE:** In Microsoft® Windows® Preinstallation Environment (Windows PE), you can find the RACADM utility in **\DELL\TOOLKIT\TOOLS.** In Linux, you can find it in **/opt/dell/toolkit/bin**. The RAC service must be started before issuing racadm commands. In Linux systems, the RAC service is started by the **racsvc3.sh** (for DRAC III, DRAC III/XT, ERA, ERA/O, and ERA/MC RACs) or the **racsvc4.sh** (for DRAC 4/P and DRAC 4/I RACs) script located at **/opt/dell/toolkit/bin**. In Windows systems, the RAC service is called racsvc and is located at **\DELL\DRIVERS\RAC 4**.

Features

The RAC configuration utility has the following general features:

- Displays help and usage information.
- Configures RAC information.
- Saves RAC configuration information to a configuration file.
- Logs activity to a given filename.
- Returns specific error codes and messages.

RACADM Options

Table 6-1 lists the options and arguments for the RACADM utility that apply to deployment. For more information about the valid RACADM options, see "RAC Configuration Utility Options, Subcommands, and Arguments."

Ø **NOTE:** Some of the following options or arguments might not be available on all systems.

Table 6-1. RACADM Options

RACADM Options and Arguments	RACADM Subcommands	Short Description
-i	NA	Tells the RACADM utility to interactively query the user for the user's user name and password.
-l*<integer>*	NA	Specifies the log level for debug. See "Log/Verbose Levels." **NOTE:** Ensure that you run this option from a writable folder.
-L*<filename>*	NA	Specifies the location for the debug log file.
-p*<password>*	NA	Specifies the password used to authenticate the command transaction. If the **-p** option is used, the **-i** option is not allowed.
-u*<username>*	NA	Specifies the user name that is used to authenticate the command transaction. If not specified, the default user name racadmusr is used. If the **-u** option is used, the **-p** option must be used, and the **-i** option (interactive) is not allowed.
-v*<integer>*	NA	Specifies the verbose level for screen output. See "Log/Verbose Levels."
NA	clearasrscreen	Clears the last automatic server restart (ASR) (crash) screen.
NA	clrraclog	Clears the RAC log.

Table 6-1. RACADM Options *(continued)*

RACADM Options and Arguments	RACADM Subcommands	Short Description
NA	clrsel	Clears RAC system event log (SEL).
NA	config	Configures the RAC. See "config/getconfig" for more information about the subcommand options and arguments.
NA	coredump	Displays the last RAC coredump.
NA	coredumpdelete	Deletes the last RAC coredump.
NA	fwupdate	Updates the firmware on the RAC. See "fwupdate" for more information about the subcommand options and arguments.
NA	getconfig	Gets the RAC configuration data. See "config/getconfig" for more information about the subcommand options and arguments.
NA	getniccfg	Displays the current network settings.
NA	getssninfo	Retrieves session information for one or more currently active or pending sessions from the Session Manager's session table. See "getssninfo" for more information about the subcommand options and arguments.
NA	getraclog	Displays the RAC log. See "getraclog" for more information about the subcommand options and arguments.
NA	getractime	Displays the current RAC time.
NA	getsel	Displays records from the SEL.
NA	getssninfo	Displays the session information. See "getssninfo" for more information about the subcommand options and arguments.
NA	getsvctag	Displays the service tag information.

Table 6-1. RACADM Options *(continued)*

RACADM Options and Arguments	RACADM Subcommands	Short Description
NA	getsysinfo	Retrieves session information for one or more currently active or pending sessions from the Session Manager's session table. See "getsysinfo" for more information about the subcommand options and arguments.
NA	gettracelog	Displays the RAC diagnostic trace log. See "gettracelog" for more information about the subcommand options and arguments.
NA	help	Lists all of the subcommands available to use with the RACADM utility and provides a short description for each. See "getraclog" for more information about the subcommand options and arguments.
NA	localauthenticate	Enables or disables the local operating system authentication.
NA	localConRedirDisable	Performs local vKVM disable from local system.
NA	racdump	Displays status and general RAC information. See "racdump" for more information about the subcommand options and arguments.
NA	racreset	Resets the RAC. See "racreset" for more information about the subcommand options and arguments.
NA	racresetcfg	Resets all database configuration parameters to default values; equivalent to a soft reset. See "racresetcfg" for more information about the subcommand options and arguments.

Table 6-1. RACADM Options *(continued)*

RACADM Options and Arguments	RACADM Subcommands	Short Description
NA	setrac	Sets RAC parameters from the managed system. See "setrac" for more information about the subcommand options and arguments.
NA	serveraction	Performs system power management operations.
NA	setniccfg	Modifies the network configuration properties.
NA	sslcertupload	Uploads an SSL (Secure Socket Layer) certificate to the RAC.
NA	sslcertdownload	Downloads an SSL certificate from the RAC.
NA	sslcertview	Displays the SSL certificate information.
NA	sslcsrgen	Generates a certificate CSR (certificate signing request) from the RAC.
NA	sslkeyupload	Uploads an SSL key to the RAC.
NA	testemail	Tests RAC e-mail notifications.
NA	testtrap	Tests RAC SNMP trap notifications.
NA	version	Displays the RACADM version information.
NA	vmdisconnect	Disconnects virtual media connections.
NA	vmkey	Performs virtual media key operations.
NA	usercertupload	Uploads a user certificate to the DRAC.
NA	usecertview	Displays the user certificate information.

Error Messages

When using RACADM utility commands and subcommands, you may encounter one or more of the following errors:

- Local error messages occur when problems occur with syntax, typographical errors, incorrect names, and so on.

  Example:

  ```
  racadm <subcmd> : ERROR : <message>
  ```

- Transport error messages occur when the RACADM utility communication paths to the RAC are not accessible.

  Example:

  ```
  racadm <subcmd> : Transport : ERROR : <message>
  ```

- RAC firmware errors occur when a fault exists in the RAC firmware operation.

  Example:

  ```
  racadm <subcmd> : Firmware : ERROR : <message>
  ```

RAC Configuration Utility Options, Subcommands, and Arguments

The following sections document all valid options, subcommands, and arguments along with a description of the expected behavior of many option-subcommand-argument combinations. Options, subcommands, and arguments are case sensitive. All options, subcommands, and pre-defined arguments are lowercase unless explicitly stated otherwise.

- racadm Command
- config/getconfig
- fwupdate
- getssninfo
- getsysinfo
- getraclog
- racdump

- racreset
- racresetcfg
- setrac

NOTE: Some of the following options or arguments might not be available on all systems.

racadm Command

Table 6-2. racadm Command Help Option

Command	Definition
racadm	Command line status and configuration utility for RACs.

Description

Without options, the RACADM utility executes the **help** command, which displays a list of available tests and a one-line description of each. The RACADM utility help *<subcommand>* displays any syntax and command line options.

racadm Syntax

racadm *<options>* *<subcommand>* *<subcommand_options>*

racadm Options

The base **racadm** command has the following options and arguments:

Table 6-3. Base racadm Command Options and Arguments

Option	Description
-l *<lvl>*	Specifies the log level for debug.
	NOTE: Ensure that you run this option from a writable folder.
-v *<lvl>*	Specifies the verbose level for screen output.
-L *<file>*	Specifies a debug log file.

Enabling and Disabling Remote Security

NOTE: It is recommended that you run these commands on your local system. You must reset the RAC controller to enable these commands.

Enter the following command to enable remote security:

```
racadm config -g cfgRacTuning -o
cfgRacTuneRemoteRacadmEnable 1
```

Enter the following command to disable remote security:

```
racadm config -g cfgRacTuning -o
cfgRacTuneRemoteRacadmEnable 0
```

Log/Verbose Levels

Table 6-4.   Log/Verbose Levels

Option	Description
0x1	Standard out messages
0x2	Standard error messages
0x4	Debug messages

Example:

```
racadm -l 0x3 -L log <subcommand [subcommand_options]>
```

The argument 0x3 for the log level is the OR of STDOUT and STDERR messages. Both of these message types are written to the filename **log**. The verbose, or **-v**, option defaults to 0x3, or STDOUT, STDERR.

racadm Subcommands/Arguments

Table 6-5.   racadm Subcommands and Arguments

Command	Description
config/getconfig	Configures the RAC and displays the RAC configuration.
fwupdate	Executes or gets status on RAC firmware updates.
getsysinfo	Displays general RAC and system information.
getraclog	Lists RAC subcommands.
getraclog <subcommand>	Lists usage statement for the specified subcommand.
racdump	Dumps RAC status and state information for debug.
racreset	Resets the RAC.

Table 6-5. racadm Subcommands and Arguments *(continued)*

Command	Description
racresetcfg	Resets the RAC to the default configuration.
setrac	Sets time, managed system name, operating system name, and type from the managed system to the RAC.

config/getconfig

Table 6-6. config/getconfig Subcommands

Command	Definition
config	Configures the RAC.
getconfig	Gets the RAC configuration data.

Synopsis

```
racadm config [-p -c] -f <filename>

racadm config -g <groupName> -o <objectName> [-i
<index>] <Value>
```

📖 **NOTE:** Option **-f** excludes the use of the **g**, **o**, and **i** options.

```
racadm getconfig [-p] -f <filename>

racadm getconfig -g <groupName> [-i <index>]

racadm getconfig -u <username>

racadm getconfig -h
```

config Subcommand Description

The configuration subcommand allows the user to set RAC configuration parameters individually or to batch them as part of a configuration file. After the **.cfg** file has been correctly parsed, each object is read. If the content is the same, a write to the RAC does not occur. If the data is different, that RAC object is written with the new value.

Input

Table 6-7.   config Subcommand Options

Option	Description
-f	The **-f** *<filename>* option causes config to read the contents of the file specified by *<filename>* and configure the RAC. The file must contain data in the format specified in "Parsing Rules."
-p	The **-p**, or password option, directs **config** to delete the password entries contained in the config file **-f** *<filename>* after the configuration is complete.
-g	The **-g** *<groupName>*, or group option, must be used with the **-o** option. The *<groupName>* specifies the group containing the object that is to be set.
-o	The **-o** *<objectName>* *<Value>*, or object option, must be used with the **-g** option. This option specifies the object name that is written with the string *<Value>*.
-i	The **-i** *<index>*, or index option, is only valid for indexed groups and can be used to specify a unique group. The *<index>* is a decimal integer from 1–16. The index is specified here by the index value, not a named value.
-c	The **-c**, or check option, is used with the **config** subcommand and allows the user to parse the **.cfg** file to find syntax errors. If errors are found, the line number and a short description of what is incorrect are displayed. Writes do not occur to the RAC. This option is a check only.

Output

This subcommand generates error output upon encountering either of the following:

- Invalid syntax, group name, object name, index, or other invalid database members
- RACADM utility transport failures

If errors are not encountered, this subcommand returns an indication of how many configuration objects that were written out of how many total objects were in the **.cfg** file.

getconfig Subcommand Description

The **getconfig** subcommand allows the user to retrieve RAC configuration parameters on an individual basis, or all the configuration groups may be retrieved and saved into a file.

Input

Table 6-8.   getconfig Subcommand Options

Option	Description
-f	The **-f** *<filename>*, or **filename** option, causes **getconfig** to create the file *<filename>*. It then reads all the configuration data from the RAC and places it into the file *<filename>*. The created file is a format that can be used with the **racadm config -f** *<filename>* command.
-p	The **-p**, or **password** option, causes **getconfig** to include password information in the file for all passwords except for the user passwords (which are stored encrypted and cannot be decrypted). A **# cfgUserAdmPassword** line is displayed as an indication that the password is present, but password text is not displayed.
-g	The **-g** *<groupName>*, or **group** option, can be used to display the configuration for a single group. The **groupName** is the name for the group used in the **racadm.cfg** files. If the group is an indexed group, use the **-i** option.
-h	The **-h**, or **help** option, displays a list of all available configuration groups so the user may enter the desired group. This option is useful when you do not remember exact group names.
-i	The **-i** *<index>*, or **index** option, is valid only for indexed groups and can be used to specify a unique group. The *<index>* is a decimal integer from 1 through 16. If **-i** *<index>* is not specified, a value of 1 is assumed for groups, which are tables that have multiple entries. The index is specified by the index value, not a "named" value.
-u	The **-u** *<username>*, or **user name** option, can be used to display the configuration for the specified user. The *<username>* option is the log in user name for the user.

Output

This subcommand generates error output upon encountering either of the following:

- Invalid syntax, group name, object name, index, or other invalid database members
- RACADM utility transport failures

If errors are not encountered, this subcommand displays the contents of the specified configuration.

Examples

- `racadm getconfig -g cfgLanNetworking`

  Displays all of the configuration parameters (objects) that are contained in the group **cfgLanNetworking**.

- `racadm config -g cfgLanNetworking -o cfgNicIpAddress 10.35.10.100`

  Sets the **cfgNicIpAddress** configuration parameter (object) to the value 10.35.10.110. This IP address object is contained in the group **cfgLanNetworking**.

- `racadm getconfig -f myrac.cfg`

  Reads *all* of the configuration objects, from all of the RAC group configuration parameters and place them in a file called **myrac.cfg**.

- `racadm config -f myrac.cfg`

  Configures or reconfigures the RAC. The **myrac.cfg** file may be created from the command specified in the previous example if the RAC has a desired configuration to be replicated. The **myrac.cfg** file may also be edited manually as long as the parsing rules are followed.

  ✍ **NOTE:** The **myrac.cfg** file does not contain password information. To include this information in the file, it must be input manually. If you want to remove password information from the **myrac.cfg** file, use the **-p** option.

- `racadm getconfig -h`

  Displays a list of the available configuration groups on the RAC.

- `racadm getconfig -u root`

  Displays the configuration parameters for the user named root.

fwupdate

NOTE: To use this command, you must have **Configure DRAC 4** permission.

Table 6-9 describes the **fwupdate** subcommand.

Table 6-9. fwupdate

Subcommand	Definition
fwupdate	Updates the firmware on the Dell Remote Access Controller (DRAC 4).

Synopsis

```
racadm fwupdate -u [-w] [-D]

racadm fwupdate -s

racadm fwupdate -g [-u ] [-w][-D] [-a <IP address>]
[-f <path/file>]

racadm fwupdate -c

racadm fwupdate -p -f <update filename> [-u] [-w] [-D]
```

Description

The **fwupdate** subcommand allows the caller to update the firmware on the DRAC 4. The user may:

- Start updating a firmware update file that has previously been loaded into the RAM disk update area.

- Check the status of the firmware update process.

- Instruct the DRAC 4 firmware to get the firmware update file from a TFTP server and load it into the RAM disk area.

  The user may specify the IP address and path/filename or IP address and directory, or use the default values found in the database. The user may also specify that the update be started after loading, or to terminate and make a separate call to start the update process.

- Load the update file into the DRAC 4 RAM disk area.

Input

Table 6-10 describes the **fwupdate** subcommand options.

![note icon] **NOTE:** The **-p** and **-u** options are not supported for the serial/telnet console.

Table 6-10.   fwupdate Subcommand Options

Option	Description
-u	The **update** option performs a checksum of the firmware update file and starts the actual update process. If this option is typed by itself, it is assumed that a firmware update file has already been loaded into the RAM disk using the **-g** or **-p** options. This option may also be used along with the **-g** or **-p** options. After the firmware update file has been loaded, the update process is started within the same call. At the end of the update, the DRAC 4 performs a soft reset.
-w	The **wait** option represents a delay in seconds to wait before proceeding with the update. The **-w** option is only valid with the **-u** option.
-s	The **status** option returns the current status of where you are in the update process. This option is always typed by itself. Do not type the **-s** options with other options. If you do, the status will display as if it was the only option typed.
-g	The **get** option instructs the firmware to get the firmware update file from the TFTP server and place it in the RAM disk area. The user may also specify the **-a** and/or the **-f** or **-d** options that are described next. In the absence of the **-a** or **-f** options the defaults are read from properties contained in the group **cfgRemoteHosts**, using properties **cfgRhostsFwUpdateIpAddr** and **cfgRhostsFwUpdatePath**.
-a	The **IP Address** option specifies the IP address of the TFTP server.
-d	The **-d,** or **directory**, option specifies the directory on the TFTP server or on the DRAC 4's host server where the firmware update file resides. Do not use the **-f** option with the **-d** option.
-c	The **-c**, or **checksum**, option allows the user to verify an update file that has been loaded into the RAM disk area. The update file can be loaded by one of the two loading mechanisms (racadm CLI or TFTP). This option essentially gets the size of the firmware update file and calculates the checksum, and verifies the file token. The TFTP interface verifies the checksum after loading automatically. This option is used mainly when using FTP. The **-c** option is not used with other options. (The **-u** option will *always* checksum before programming. It can be used along with the **-u** option).

Table 6-10. fwupdate Subcommand Options *(continued)*

Option	Description
-D	After the update is complete, the DRAC 4 is reset. Upon boot, a call is made to reset all firmware configuration parameters to the default values. For more information, see "racresetcfg."
-p	The **-p**, or **put**, option is used when you want to FTP the firmware update file from the managed system to the DRAC 4. If the **-f** option is used, the name of the update image must be **firming.dm1**. The update file is sent by way of FTP into the DRAC 4. Checksum runs on the newly loaded image. If the checksum is not correct, an error message is displayed. The user is not required to use **fwupdate** **-s** option to do this. If you type the **-u** option on the same command line, the update process starts.

Output

Displays a message indicating which operation is being performed.

Examples

- **racadm fwupdate -g - a 143.166.154.143 -f firmimg.dm1**

  In this example, the **-g** option tells the firmware to download the firmware update file from a location (specified by the **-f** option) on the TFTP server at a specific IP address (specified by the **-a** option). The update file is then loaded into RAM disk. Since the **-u** option is not present, an update does *not* occur.

- **racadm fwupdate -s**

  This option reads the current status of the firmware update.

- **racadm fwupdate -u**

  The **-u** option starts the update process. This command assumes that a valid firmware update file has been previously loaded using the **-g** or **-p** option. The update file checksum is verified for correctness before proceeding.

- **racadm fwupdate -g -u -a 143.166.154.143 -f firmimg.dm1**

  In this example, the **-g** option tells the firmware to download the firmware update file from a location (specified by the **-f** option) on the TFTP server at a specific IP address (specified by the **-a** option). The update file is then loaded into RAM disk. The **-u** option tells the firmware to proceed with the update after the firmware is loaded.

Updating the Firmware

If you use the **-f** option, specify the **firmimg.dm1** file.

If you are updating your firmware *locally,* use one of the following commands to update your firmware:

```
racadm fwupdate -p -u -d <directory>
racadm fwupdate -p -u -f <filename>
```

Example:

```
racadm fwupdate -p -u -d \my\updatefiles\path
racadm fwupdate -p -u -f
\my\updatefiles\path\<filename>
```

If you are updating your firmware *remotely,* use the following command to update your firmware:

```
racadm <RAC_IP> -u <user> -p <password> fwupdate -g -
u -a <TFTP_IP> -d <TFTP_dir_path>
```

✎ **NOTE:** The **-p** option does not support remote firmware updates.

getssninfo

Table 6-11.   getssninfo Subcommand

Command	Definition
getssninfo	Retrieves session information for one or more currently active or pending sessions from the Session Manager's session table.

Synopsis

```
racadm getssninfo [-A] [-u <username> | *]
```

Description

The **getssninfo** command returns a list of currently active or pending users and optionally includes summary session table information. The summary information provides the total number of sessions in each of the following defined Session Manager states:

- Free
- Preliminary
- Unvalidated
- Valid
- Invalid

Input

Table 6-12.   getssninfo Subcommand Options

Option	Description
-A	The **-A** option eliminates the printing of data headers.
-u	The **-u** <*username*> user name option limits the printed output to only the detail session records for the given user name. If an * symbol is given as the user name, all users are listed. Summary information is not printed when this option is specified.

Output

None

Examples

- `racadm getssninfo`

  Session table summary status:

  `1  VALID`

  `15 AVAILABLE`

Type	User	IP Address	Login Date/Time	Consoles
Web	RAC	root 192.168.1.23	Thu, 06 Mar 2003 10:32:39 GMT-06:00	NONE

- `racadm getssninfo  -A`

  `1 15`

  `"Web" "RAC\root" 192.168.1.23 "Thu, 06 Mar 2003 10:32:39 GMT-06:00" "NONE"`

- `racadm getssninfo -A -u *`

  `"Web" "RAC\root" 192.168.1.23 "Thu, 06 Mar 2003 10:32:39 GMT-06:00" "NONE"`

getsysinfo

Table 6-13.   getsysinfo Subcommand

Command	Definition
getsysinfo	Displays RAC information, system information, and watchdog status information.

Synopsis

```
racadm getsysinfo [-d] [-s] [-w] [-A][-c]
```

Description

The **getsysinfo** command returns information about the RAC, system, or watchdog status, depending on the command options. The order of data on output is always the same: RAC information, system information, and watchdog information.

Input

Table 6-14.   getsysinfo Subcommand Options

Option	Description
-d	Displays RAC information.
-s	Displays system information.
-w	Displays watchdog information.
-A	Eliminates the printing of headers/labels.
-c	Displays chassis information.

If a **-d**, **-s**, or **-w** option is not specified, then these three options are used as defaults.

Output

Every data element is output as a string with the exception of the following:

- System information/operating system type
- Watchdog information/recovery action

Enumeration values or bitmaps are defined for these elements. When the **-A** (API) option is included on the command, the enumeration/bit value of the element is listed in the output. Otherwise, the enumeration or bit value is mapped to a string before being output.

The following bullet items define the mapping of values to strings:

Table 6-15. Mapping of Values to Strings

Value	Description
System information/operating system type	A bitmap defines three subfields for this value, as follows: • IA type - Bit position 0 (least significant bit): 0 = 32 bit, 1 = 64 bit • Major operating system - Bit positions 1–7: 000000 = Microsoft Windows 000001 = Red Hat® Enterprise Linux®, 000010 = Novell® NetWare® • Minor operating system - Bit positions 8–15: 0 = Red Hat Linux, 00000000 = Windows NT®, 00000001 = Windows 2000, 0 = NetWare
Watchdog recovery action	An enumeration defines the meaning of this value: • 0 = no-action • 1 = hard-reset • 2 = power-down • 3 = power-cycle

Examples

- racadm getsysinfo -A -w -s

  "123456" "PowerEdge 1650" "A08" "EF23VQ-0023" ""
  0x100 "Server1"

  "Microsoft Windows 2000 version 5.0, Build Number
  2195, Service Pack 2" "1.60"

  "Watchdog Info:" 2 39 40

- racadm getsysinfo -w -s

  System Information:

  System ID   = 123456

  System Model   = PowerEdge 1650

  BIOS Version   = A08

  Asset Tag   = EF23VQ-0023

  Service Tag   = 2MP9Z01

  Hostname   = Server1

  OS name   = Microsoft Windows 2000 version
  5.0,

                    Build 2195 Service Pack 2

  ESM Version   = 1.60

  Watchdog Information:

  Recovery Action   = Power Down

  Present countdown value = 36

  Initial countdown value = 40

getraclog

⚠️ **CAUTION: The system may hang if this command is run. You may have to powercycle the system if it hangs.**

✍️ **NOTE:** To use this command, you must have **Log In DRAC 4** permission.

Table 6-16 describes the **getraclog** command.

Table 6-16. getraclog

Command	Definition
getraclog -i	Displays the number of entries in the DRAC 4 log.
getraclog	Displays the DRAC 4 log entries.

Synopsis

```
racadm getraclog -i
racadm getraclog [-A] [-c count] \[-s start-record]
[-v] [-V] [-m]
```

Description

✍️ **NOTE:** The command name and the **racadm** subcommand names may be different. This behavior is normal.

The **getraclog -i** command displays the number of entries in the DRAC 4 log.

The following options allow the **getraclog** command to read entries:

- **-A** — Provides API-formatted output (no header).
- **-c** — Provides the maximum count of entries to be returned.
- **<blank>** — Displays the entire log; racadm and serial only (default).
- **-s** — Provides the associated number of the first displayed entry (default = 0 [list begins with the first DRAC 4 log entry]).
- **-v** — Provides *verbose* output.
- **-V** — Provides *Very verbose* output.
- **-m** — Displays 24 rows at a time, and queries for more (such as the UNIX® **more** command).

Output

One line of output is displayed for each DRAC 4 log entry.

Restrictions

The output buffer size is too big for execution across IPMI transport.

gettracelog

⚠️ **CAUTION: The system may hang if this command is run. You may have to powercycle the server if it hangs.**

✎ **NOTE:** To use this command, you must have **Log In DRAC 4** permission.

Table 6-17 describes the **gettracelog** command.

Table 6-17. gettracelog

Command	Definition
gettracelog -i	Displays the number of entries in the DRAC 4 trace log.
gettracelog	Displays the DRAC 4 trace log entries.

Synopsis

```
racadm gettracelog -i
racadm gettracelog -m
```

Description

The **gettracelog -i** command displays the number of entries in the DRAC 4 trace log. The **gettracelog** command (without the **-i** option) reads entries.

The **-m** option displays 24 rows at a time, and queries for more (such as the UNIX more command).

Output

One line of output is displayed for each trace log entry.

help

Table 6-18. help Subcommand

Command	Definition
help	Lists all of the subcommands available to use with the RACADM utility and provides a short description for each.

Synopsis

```
racadm help
```

```
racadm help <subcommand>
```

Description

The **help** subcommand lists all of the subcommands that are available under the **racadm** command along with a one-line description. You may also enter a subcommand after **help** to get the syntax for a specific subcommand.

Input

None

Output

racadm help displays a complete list of subcommands.

racadm help <*subcommand*> displays usage information for the specified subcommand only.

racdump

Table 6-19. racdump Subcommand

Command	Definition
racdump	Displays status and general RAC information.

Synopsis

```
racadm racdump
```

Description

The **racdump** subcommand provides a single command to get a dump, status, and general RAC board information with a single command.

The following commands are executed as a result of the single **racdump** subcommand:

- getsysinfo
- coredump
- memmap
- netstat
- getssninfo
- getsensors

Input

None

Output

The output of the individual commands are displayed.

racreset

Table 6-20.   racreset Subcommand

Command	Definition
racreset	Resets the RAC.

Synopsis

```
racadm racreset [hard | soft | graceful] [delay]
```

Description

The **racreset** subcommand issues a reset to the RAC. The user is allowed to select how many seconds of delay occur before the reset sequence is started. The reset event is written into the RAC log.

The default option is **soft**. If you do not enter an option, the RACADM utility waits three seconds and then runs the **soft** option with the **racreset** subcommand.

> ✐ **NOTE:** A reboot is not necessary to apply configuration settings to the RAC. When the configuration settings affect other system components, on the other hand, a reboot is necessary for the affected components to detect the changes. For example, if remote floppy boot is enabled by the **RACADM** utility, the remote floppy image will not be accessible by the system until the next reboot.

Input

> ⚠ **CAUTION: You must reboot your system after performing a hard reset of the RAC as described in the following table.**

Table 6-21.   racreset Subcommand Options

Option	Description
hard	A *hard* reset resets the entire RAC and is as close to a power-on reset as can be achieved using software. The RAC log, database, and selected daemons are shutdown gracefully prior to the reset. A hard reset should be considered as a final effort. PCI configuration is lost.
soft	A *soft* reset is a microprocessor and microprocessor subsystem reset that resets the processor core to restart the software. PCI configurations are preserved. The RAC log, database, and selected daemons are shutdown gracefully prior to the reset.
graceful	A *graceful* reset is the same as a soft reset.
<delay>	The user is allowed to select how many seconds of delay occur before the reset sequence is started. A valid delay entry is between 1–60 seconds. The default is 3 seconds.

Output

None

Examples

- `racadcm racreset soft 1`

  Start the RAC soft reset sequence in 1 second.

- `racadm racreset soft 20`

  Start the RAC soft reset sequence after 20 seconds.

racresetcfg

Table 6-22.   racresetcfg Subcommand

Command	Definition
racadm racresetcfg	Resets all database configuration parameters to default values; equivalent to a soft reset.

Synopsis

```
racadm racresetcfg
```

Description

The **racresetcfg** command removes all database property entries that have been configured by the user. The database has default properties for all entries that are used to restore the card back to its original default settings. After resetting the database properties, the RAC resets automatically.

⚠ **CAUTION: Before using this command, ensure that you want to restore your database to its original default state with default user `root` and default password `calvin`.**

📝 **NOTE:** After issuing a **racresetcfg** subcommand, stop and then restart the following services: Server Agent, Server Agent Event Monitor, and SNMP. See the *Dell OpenManage Server Administrator's User's Guide* for information on stopping and restarting the services in your operating system.

Input

None

Output

None

setrac

Table 6-23. setrac Subcommand

Command	Definition
setrac	Sets RAC parameters from the managed system.

Synopsis

```
racadm setrac [-h -o -T -d]
```

Description

This command sets time, managed system name, operating system name, or operating system type from the managed system to the RAC. If no options are entered, all four parameters are set. The **-d** option allows the user to display the parameters only without actually writing them to the RAC firmware. Any combination of options, or no options, may be entered.

Input

Table 6-24. setrac Subcommand Options

Option	Description
-h	Gets the Hostname from the managed system and writes it to the RAC. This parameter is available for viewing using the **getsysinfo** command, and under the object ID interface using **config/getconfig** as [**ifcRacManagedNodeOs**] **ifcRacMnOsHostname**.
-o	Gets the OS Name from the managed system and writes it to the RAC. This parameter is available for viewing under the object ID interface using **config/getconfig** as [**ifcRacManagedNodeOs**] **ifcRacMnOsName**.
-T	Gets the OS Type from the managed system and writes it to the RAC. This parameter is available for viewing using the **getsysinfo** command and under the object ID interface using **config/getconfig** as [**ifcRacManagedNodeOs**] **ifcRacMnOsOsType**.
-d	The **-d**, or **display** option, allows the user to get the UTC time, Hostname, OS Name, and OS Type from the managed system and display these items only. Parameters are not written to the RAC. If the **-d** option is entered along with other options, then those parameters are displayed only.

Output

A message is displayed indicating the values obtained from the managed system, and if they are being written to the RAC or only displayed.

Examples

- `racadm setrac –d`

    Only the parameter values are displayed.

- `racadm setrac –h`

    The UTC time and managed system name are taken from the managed system and written to the RAC.

DRAC Property Database Group and Object Definitions

The Dell Remote Access Controller (DRAC) III, DRAC 4, DRAC 5, iDRAC, and iDRAC6 property database contain the configuration information for the DRAC III, DRAC 4, DRAC 5, iDRAC, and iDRAC6 controllers respectively.

For the property database group and object definitions of DRAC and iDRAC, see the following guides on the Dell Support site at **support.dell.com**:

- *Integrated Dell Remote Access Controller User Guide*
- *Dell Remote Access Controller 5 User's Guide*
- *Dell Remote Access Controller 4 User's Guide*
- *Dell Remote Access Card III User's Guide*

A

Messages and Codes

This section documents the error messages and codes used in Dell™ OpenManage™ Deployment Toolkit (DTK).

SYSCFG Error Codes and Messages

The SYSCFG utility checks your commands for correct syntax and valid input. When you enter a command, a message is displayed stating the results of the command.

Failure Messages

The SYSCFG utility failure messages provide error codes to help diagnose why some commands do not succeed.

Table A-1 lists SYSCFG error codes and messages.

Table A-1.   SYSCFG Error Codes and Messages

Error Code	Message
0	Success
1	Attempt to read write-only parameter.
2	Password cannot exceed 16 characters.
3	A BMC was either not detected or is not supported.
4	This username is already in use. Enter a unique username.
5	Access mode not supported.
6	Cannot return number of requested data bytes.
7	User ID 1 cannot be assigned a username.
8	Cannot execute duplicated request.
9	There was an error clearing the SEL.

Table A-1. **SYSCFG Error Codes and Messages** *(continued)*

Error Code	Message
10	Clear SEL cannot be accompanied with any other option.
11	racreset cannot be accompanied with any other option.
12	Cannot execute command. Command, or request parameter(s), not supported in present state.
13	Command not supported on given channel.
14	The community string may only contain printable ASCII characters.
15	Destination unavailable. Cannot deliver request to selected destination.
16	Cannot execute command. Insufficient privilege level.
17	Command illegal for specified sensor or record type.
18	Invalid commstring value.
19	Hardware subsystem error. Invalid data field in request.
20	Invalid destination IP address.
21	The GUID is invalid.
22	Invalid gateway.
23	Invalid hostname.
24	Invalid IP address.
25	Invalid DNS IP address.
26	Invalid sub net mask.
27	Invalid value for PEF. PEF value should be between 1 and 16.
28	Reservation Canceled or Invalid Reservation ID.
29	Invalid Time to live value.

Table A-1. SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
30	Invalid VLANID value.
31	Invalid Command. Used to indicate an unrecognized or unsupported command.
32	Command invalid for given LUN.
33	Load defaults cannot be accompanied with any other option.
34	There was an error loading the defaults.
35	Node Busy. Command could not be processed because command processing resources are temporarily unavailable.
36	Out of space. Command could not be completed because of a lack of storage space required to execute the given command operation.
37	This parameter is not supported.
38	Parameter out of range. One or more parameters in the data field of the Request are out of range.
39	The password may only contain printable ASCII characters.
40	Password test failed.
41	Request data length invalid.
42	Request data field length limit exceeded.
43	Requested Sensor, data, or record not present.
44	Request data truncated.
45	Command response could not be provided.
46	Command response could not be provided. BMC initialization or initialization agent in progress.
47	Command response could not be provided. Device in firmware update mode.

Table A-1. SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
48	Command response could not be provided. SDR Repository in update mode.
49	Cannot execute command, SEL erase in progress.
50	Attempt to set the 'set in progress' value when not in the 'set in complete' state.
51	The SOL character accumulate interval is invalid.
52	The SOL character send threshold is invalid.
53	The SOL retry interval is invalid.
54	Command completed successfully.
55	Time-out while processing command. Response unavailable.
56	Unspecified error.
57	The password may only contain printable ASCII characters.
58	Username cannot exceed 16 characters.
59	Invalid VLANID value. Enter in dddd format.
60	Attempt to write read-only parameter.
61	BMC is busy.
62	Response data did not return successfully.
63	BMC time out error.
64	Option '%s' requires an argument.
65	The asset tag for this system is not available.
66	The asset tag cannot be more than 10 characters long.
67	The required BIOS interfaces cannot be found on this system.
68	The BIOS version information is not available.

Table A-1.   SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
69	There is not enough free system memory to complete the BIOS update.
70	The BIOS update file version is a different version class (A00, X00) than the current system BIOS. Use the --force option to use this BIOS image.
71	The BIOS update file version is older than the current system bios. Use the --force option to use this BIOS image.
72	The BIOS update file version is identical to the current system bios. Use the --force option to use this BIOS image.
73	The sequence list must be a comma-separated numerical list of valid unique boot device numbers (ex: 2, 1, 3).
74	The sequence list must be a comma-separated list of valid unique device names (ex: nic.emb.1, hdd.emb.1) or a comma-separated numerical list of valid unique boot device numbers (ex: 2, 1, 3).
75	There was an error setting the sequence.
76	The list is not formatted correctly. See the help for more details.
77	The size of returned buffer is larger than the size of allocated buffer.
78	There was a problem getting the state byte.
79	The state byte is not available on this system.
80	There was a problem setting the state byte.
81	The state byte must be a value between 0 and 255 decimal.
82	The CPU information is not available.

Table A-1.   SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
83	The dependent option '%s' required for this subcommand is missing in the command line.
84	Duplicate sub command '%s' has been entered.
85	The script file does contain not a valid DTK environment script signature.
86	The format of the environment variable is incorrect.
87	The --envar option can only be used for a single option.
88	The --envar option can only be used for report operations.
89	The individual sub commands should be specified for the -s option.
90	Getting external serial connector settings failed.
91	Setting external serial connector settings failed.
92	There was an error opening the file.
93	File does not have write permission.
94	The file contains invalid options.
95	The replication information does not match for this system.
96	There can only be one section in the input file.
97	Bad ini file, the section cannot be found.
98	The format of the bios image file is incorrect.
99	Report operations and set operations must be separate.
100	Help is not available for the option.
101	The -x (--hex) option can only be used with -b or -r.
102	Input file '%s' not found.

Table A-1. SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
103	Input file '%s' cannot be read.
104	Invalid argument for option '%s'.
105	Function table lookup error.
106	The machine ID was not found in the file '%s'.
107	The system memory information is not available.
108	Mode can only be used with the --pci option.
109	The device name or index must be present in the boot order.
110	The output file '%s' could not be opened. Please make sure the path exists and the media is not write protected.
111	Could not write to output file, disk may be full.
112	The current password must be supplied with a new password using --oldsyspwd.
113	The current password must be supplied with a new password using --oldsetuppwd.
114	The current password can only be supplied when setting a new password.
115	Actions are not allowed for this filter. Only alerts are allowed.
116	There was an error getting the option '%s'.
117	The option '%s' is not available or cannot be configured through software.
118	There was an error setting the option '%s'.
119	The -n (--namefile) option can only be used with --pci.
120	The password may only contain alphanumeric characters.
121	The BIOS passwords have been disabled via jumper.

Table A-1. SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
122	The password length must be between 1 and 32.
123	This password is locked and can only be unlocked by the admin user.
124	There was an error setting the password.
125	The LCD string length must be between 1 and %s.
126	The LCD string may only contain alphanumeric characters.
127	There was an error setting the LCD string.
128	The second channel can only be set if the RAID controller is set to RAID.
129	The set operation '%s' requires sub commands.
130	The service tag for this system is not available.
131	The system ID value is not available.
132	The system information string is not available.
133	A system error has occurred.
134	Usage error.
135	The uuid information is not present on this system
136	Version cannot be accompanied with any other option.
137	The self-identify blinker timer should be set to 0..255 second(s).
138	Encrypt key is too long.
139	Encrypt key is invalid, accepted characters are 0 to 9 or A to F.
140	Parameter has been temporarily disabled due to a dependency on other settings.
141	The old password supplied is incorrect. The new password will not be set. Please try again.

Table A-1.   SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
142	Cannot stat /etc/omreg.cfg file. Please ensure /etc/omreg.cfg file is present and is valid for your environment. You can copy this file from the DTK iso.
143	Getting nicselection settings failed.
144	HAPI Driver Load Error.
145	Filter action power reduction is only supported for the system power warn/fail filters.
146	TPM Clear settings requires setup password.
147	There is currently no TPM Clear request pending.
148	Password is not required for retrieving the '%s' options.
149	Setup password is required for setting the '%s' options.
150	Invalid Password override.
151	Invalid TPM set option.
152	There was an error setting the TPM option.
153	There is no setup password installed on this system.
154	The setup password supplied is incorrect. Please try again.
155	Profile should be custom for setting cpupowermode, memorypowermode and fanmode.
156	There was an error setting the Power Option.
157	The power cap value entered is out of range. Please try again.
158	The power cap value entered must be between 0 to 100 if unit is percent.
159	Invalid IPv6 address. The IPv6 address cannot be link-local or multicast.

Table A-1.   SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
160	Invalid IPv6 address. The IPv6 address specified has incorrect address format.
161	Invalid IPv6 address. The gateway address specified has incorrect address format.
162	Invalid IPv6 address. The Primary DNS server address specified has incorrect address format.
163	Invalid IPv6 address. The Secondary DNS server address specified has incorrect address format.
164	Invalid IPv6 address. The gateway address specified is invalid.
165	Invalid configuration. Attempting to apply IPv6 configuration on a non supported platform.
166	Invalid IPv6 configuration. Attempt to set DNS server address manually while DNS address source is set to auto.
167	Invalid IPv6 configuration. Attempt to set IPv6 address manually while IPv6 address source is set to auto.
168	Invalid IPv6 configuration. Attempting to apply IPv6 configuration without loading IPv6 stack.
169	Invalid IPv4 configuration. Attempting to apply IPv4 configuration with IPv4 disabled.
170	Invalid IPv6 configuration. Ipv6 address cannot be specified without specifying prefix-length.
171	Invalid IPv6 configuration. dnssrcv6 cannot be set to auto when ipsrcv6 is set to manual.
172	Error while executing IPMI Set command.
173	Error while executing IPMI Get command.
174	Error during Trap Alert.
175	Unspecified error.

Table A-1. SYSCFG Error Codes and Messages *(continued)*

Error Code	Message
176	`Getting LCD settings failed.`
177	`Invalid configuration. Attempting to set cap when capenable is set to disable.`
178	`Invalid configuration. Attempting to set cap when hardware does not support setting.`
179	`Invalid Configuration Option.`
180	`Cannot execute command. Parameter is illegal because command sub-function has been disabled or is unavailable.`

UPINIT Common Error Codes and Messages

The UPINIT utility checks your commands for correct syntax. When you enter a command, a message is displayed stating the results of the command.

Failure Messages

The UPINIT utility failure messages provide error codes to help diagnose why some commands do not succeed.

Table A-2 lists error codes and messages common to Linux and Microsoft®Windows® PE environments.

Table A-2. UPINIT Common Error Codes and Messages

Error Code	Message
0	Dell Utility Partition created successfully.
1	Error: Disk ID not specified.
2	Error: SIZE not specified.
3	Error: Utility Partition Image file not specified.
4	Error: DRMK Path not specified.

Table A-2. UPINIT Common Error Codes and Messages *(continued)*

Error Code	Message
5	Error: Dell Utility Partition already exits. Please use --overwrite option to upgrade or overwrite.
6	Error: Partitions exists. Please clear all the partitions before running upinit.sh.
7	Error: DOS file(s) not found at the specified path.
8	Error: UP IMAGE not found at the specified location.
9	Error: format failed.
10	Error: Invalid size. Size should be a number between 32 and 2000.
11	Error: sysdrmk failed.
12	System Error.
13	Error: Invalid Argument: <argument>.
14	Error: Unzip failed.

UPINIT Linux-Specific Error Codes and Messages

Table A-3 lists error codes and messages specific to the Linux environment.

Table A-3. UPINIT Linux-Specific Error Codes and Messages

Error Code	Message
31	Error: Invalid disk specified.
32	Error: Mount failed.
33	Cannot create mount point <mount point>. File exists.
34	Error: fdisk failed.

UPINIT Windows PE-Specific Error Codes and Messages

Table A-4 lists error codes and messages specific to the Windows PE environment.

Table A-4. UPINIT Windows PE-Specific Error Codes and Messages

Error Code	Message
31	Error: DISKPART failed.
32	Error: DISKPART command file not found.

RAIDCFG Error Codes and Messages

The RAIDCFG utility checks your commands for correct syntax when you enter them. When you enter a command, a message displays stating the results of the command.

Failure Messages

The RAIDCFG utility failure messages provide error codes to help diagnose why some commands do not succeed. See Table A-5 for a list of the error codes and the associated messages.

Table A-5 lists RAIDCFG error codes and messages.

Table A-5. RAIDCFG Error Codes and Messages

Error Code	Message
0	RAIDCFG Command successful!
1	Error! Incorrect Syntax.
2	Failure!
3	Illegal operation
4	Unsupported operation
5	Device not found.
6	Format boot drive illegal

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
7	Buffer too small.
8	Virtual Disk contains boot partition. Use force option to delete.
9	Init boot drive failed.
10	Format boot drive failed.
11	Cannot write boot drive.
12	Unsupported RAID value.
13	Invalid RAID configuration.
14	Span depth not in range.
15	RAID 1 failed.
16	Exactly 2 array disks are required to create a RAID 1 virtual disk.
17	Unsupported stripe size value.
18	RAID 5 only.
19	RAID 5 error.
20	A minimum of 3 array disks are required to create a RAID 5 virtual disk.
21	RAID 0 failed.
22	RAID 10 failed.
23	RAID 50 failed.
24	RAID 5 not supported.
25	RAID 50 not supported.
26	Size too small for given RAID type.
27	Wrong number of disks for RAID 1-concatenated.
28	Insufficient space to mirror disks.

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
29	Create Mirror not supported.
30	Disk in use.
31	Disk Lock operation failed.
32	Disk locked.
33	Disk Unlock operation failed.
34	Disk Unlocked.
35	Disk failed on rebuild.
36	Hot Spare not free.
37	Disk Diagnostic failed.
38	Disk Rebuild failed.
39	Disk Format failed.
40	Cancel of Disk Diagnostic failed.
41	Cancel of Disk Rebuild failed.
42	Cancel of Disk Format failed
43	Assign Hot Spare failed
44	Disk too Small for Hot Spare.
45	Unassign Hot Spare failed.
46	Prepare Disk for Removal failed.
47	Disk Online failed.
48	Disk Offline failed.
49	UnMount Operation failed.
50	Mount Operation failed.
51	Cannot Format Array Disk.
52	Bad chunk size.
53	Invalid disk.

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
54	Virtual disk not found.
55	Virtual disk locked.
56	Drive in use.
57	Reached maximum physical size.
58	Reached maximum count of virtual disks.
59	There is not enough free space on the array disk(s) to allow the operation to complete; the size of the virtual disk is too large; or communication to the array disk(s) has been lost.
60	Limit your array disk selection to those disks already included in another single virtual disk or to those array disks that are not used at all by another virtual disk.
61	Invalid Parameter
62	Failed drive cannot be added.
63	The controller cannot support the number of array disks that you have selected. Choose a smaller number.
64	Delete virtual disk failed. Controller busy.
65	Delete virtual disk failed.
66	Create virtual disk failed.
67	Create virtual disk failed. Controller busy.
68	Create virtual disk failed. Failed to map virtual disk to operating system disk.
69	Create virtual disk failed. Failed to map virtual disk to operating system disk.
70	Virtual disk initialization failed.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
71	Virtual disk initialization failed. Controller busy.
72	Virtual disk reconstruction failed. Controller busy.
73	Virtual disk resynching failed. Controller busy.
74	Flush Virtual disk's cache failed on controller.
75	Virtual disk partition specified not found.
76	Unsupported cache policy value.
77	Unsupported write policy value.
78	Unsupported read policy value.
79	Cancel initialization on virtual disk failed.
80	Cancel reconstruction on virtual disk failed.
81	Cancel resynchronization on virtual disk failed.
82	The maximum number of virtual disks that can be created has been reached.
83	The new virtual disk must use only the remaining free space on the array disks used in the last virtual disk you created. Select all array disks that are used in the last virtual disk you created.
84	You have selected an array disk that is in a degraded or failed state. Choose another array disk.
85	Delete the last created virtual disk first.

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
86	Virtual disk initialized for use and no override requested.
87	Virtual disk type requested is invalid for the attempted operation.
88	Virtual disk Move operation failed. Cannot rename, virtual disk is already in use.
89	Failover invalid.
90	Virtual disk resynching.
91	Virtual disk resynch failed.
92	Virtual disk reconstruct failed.
93	Cannot format a virtual disk that contains a boot or system partition.
94	Cannot initialize a virtual disk that contains a boot or system partition.
95	Virtual disk Copy failed.
96	Virtual disk mirror set required.
97	Virtual disk Create - Read-only failed.
98	Virtual disk Create - Read-write failed.
99	Virtual disk - Clear-to-zero failed.
100	Virtual Disk Requires Non Multilevel.
101	Virtual Disk Promote Operation failed.
102	Specified virtual disk has no drive letter assigned to it.
103	Cannot expose virtual disk.
104	Cannot reconfigure virtual disk.
105	Cannot stop the reconfiguration of the virtual disk.

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
106	SMART report count not supported.
107	Operations on hidden virtual disks are not allowed.
108	Virtual disk is in use.
109	The virtual disk is in use. It cannot be reconfigured at this time.
110	Virtual disk operation is temporarily unavailable. Initialization in progress.
111	Virtual disk operation is temporarily unavailable. Reconstruction in progress.
112	Virtual disk operation is temporarily unavailable. Rebuild in progress.
113	Virtual disk operation is temporarily unavailable. Check consistency in progress.
114	Specified virtual disk too small.
115	Virtual disk operation not supported. Size too small.
116	Operation is temporarily unavailable. Space in use.
117	Cannot reconfigure to the given RAID level.
118	Cannot reconfigure from current RAID level to the given RAID level.
119	One of the array disks selected for the virtual disk is already in use.
120	Virtual disk operation not supported. Cannot use non-RAID disk.
121	Controller Read Configuration failed.
122	Controller Write Configuration failed.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
123	Controller cache flush failed.
124	Enable alarm on controller failed.
125	Disable alarm on controller failed.
126	Quiet alarm on controller failed.
127	Controller failed to perform the task.
128	Specified bus not found for controller.
129	Call to set cache mode on the controller failed.
130	Unexpected controller error.
131	Controller out of memory.
132	Invalid controller state.
133	Controller failed.
134	Controller busy.
135	Controller does not exist.
136	Controller name is invalid.
137	Controller is iterated.
138	Rename of virtual disk was not successful.
139	The controller was not able to erase the file system from the specified virtual disk.
140	The controller was not able to add space to the specified concatenation set.
141	The controller was not able to get the status of the specified mirror set.
142	The controller was not able to set the requested failover space.
143	The controller cannot get the failover space information.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
144	Controller cannot unmirror the specified virtual disk.
145	The controller could not split the specified virtual disk.
146	The controller could not lock the specified virtual disk.
147	Controller IO paused.
148	No controller parameter support.
149	Controller does not recognize parameter symbol.
150	Controller Battery Recondition failed.
151	Controller Get disk signature failed.
152	Controller Read Flags failed.
153	Controller Set Flags failed.
154	Controller Remove Snap Shot failed.
155	Controller not supported.
156	Controller device initialization failure.
157	Partner controller already opened read-write.
158	No partner controller found.
159	The virtual disk is not valid for requested operation.
160	Cannot communicate with controller.
161	Set operation failed.
162	Operation to update error count of SMART device has failed.
163	Operation to clear error count of SMART device has failed.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
164	Driver could not execute.
165	Cannot delete virtual disk.
166	Cannot set temperature probe. Invalid value entered.
167	Cannot set enclosure tag. Invalid value entered.
168	Cannot set enclosure alarm.
169	Temperature probe value out of range.
170	Cannot set cache mode.
172	Data will be lost on the secondary disk and a reboot will be forced.
173	Cluster Services (MSCS) is running. Deleting a virtual disk that contains a cluster resource can result in unpredictable errors or system hangs (quorum disk). You should shut down cluster services before deleting cluster resources. Are you sure you want to proceed?
174	Cannot perform Create Virtual Disk or Delete Virtual Disk while the other server in a cluster is online. Please shut one of the servers down and retry the operation.
176	Invalid array disks or failover drives selected for reconfigure/create operation. Please make sure that all array disks and failover drives associated with the virtual disk are selected.

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
177	The maximum number of partitions have already been created on one of the selected array disk(s). Each array disk can hold portions (partitions) of up to 10 virtual disks. This virtual disk cannot be created because one or more array disk(s) have reached the partition limit.
178	The virtual disk is in use. Please close any applications that use the virtual disk and unmount any file systems that reside on the virtual disk.
179	The firmware version is not supported. Please update the firmware from http://support.dell.com.
180	The specified device does not have enough free space to be used as failover space for the specified virtual disk.
181	The operation failed. Please rescan the controller and retry the operation.
182	The operation cannot be performed while a task is running on the specified virtual disk.
183	The specified virtual disk has no dead disk segments.
184	The operation cannot be performed at this time. The firmware can recondition a battery that has a Degraded or Power Low state. The firmware will not recondition a battery that is functioning normally or that has a Ready, Failed or Missing state.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
185	The version of the controller firmware installed on your system does not support this operation.
186	There are no disks of the correct type available to be assigned as a hot spare.
187	There are no disks of sufficient size available to be assigned as a hot spare.
188	There are no disks of the correct type and sufficient size available to be assigned as a hot spare.
189	The Create Virtual Disk task was successful but the operating system may not be aware of the new virtual disk.
191	The import of foreign configurations is complete. Some configurations could not be imported.
192	Enable alarm command failed. The enclosure processor is busy or a firmware download is in progress.
193	Disable alarm command failed. The enclosure processor is busy or a firmware download is in progress.
194	Quiet alarm command failed. The enclosure processor is busy or a firmware download is in progress.
195	An error occurred while resetting a temperature probe.
200	No array disks found!
201	Invalid Virtual Disk ID!

Table A-5.   RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
202	RAID Type & Size are required to create a virtual disk. Ensure that the RAID type and the size are correct.
203	Invalid Environment command!
204	File is not writable!
205	Setting Environment Variable Command failed!
206	Filename is not provided!
207	Invalid Strict option! Please provide a valid number between 1 and 100.
208	Span depth is not needed for this RAID type.
209	Array disk(s) cannot be part of virtual disk(s) and also be hotspares.
210	Cannot have silent and logfile switch with the same command.
211	Invalid array disk(s)!
212	Invalid failover disk(s)!
213	Creation of a virtual disk on this RAID controller requires the use of the entire disk space of the array disks. The size or -sz parameter is not needed.
214	Invalid size given! size=max or -sz=max is not supported for this RAID controller.
215	The value given for envname or -envn is null or too long.
216	Invalid virtual disk size!
217	The strict option provided failed! Virtual disk is not created.

Table A-5. RAIDCFG Error Codes and Messages *(continued)*

Error Code	Message
218	Unable to determine optimum size for Virtual disk. Ensure that the array disks are of the same protocol (i.e. SAS, SATA, SCSI). If there is a mismatch of the array disks then the RAIDCFG will not be able to determine the optimum size. In addition, also ensure that there is drive size available for the specified virtual disk.
219	One or more array disks selected to create virtual disk or hotspare doesn't have enough disk space. Please make sure that all the array disks and failover drives selected have enough free space.
220	The number of array disks provided is incorrect for the requested RAID Type! RAID 1 requires exactly 2 array disks, RAID 5 requires at least 3 array disks, RAID 10 requires at least 4 array disks and RAID 50 requires at least 6 array disks.
221	Input file cannot be read.
222	Input file not found.
223	Error in opening the file.

RACADM Firmware Error Codes and Messages

Table A-6 lists RACADM firmware error codes and messages.

Table A-6. RACADM Firmware Error Codes and Messages

Error Code	Message
1	UNKNOWN COMMAND.
2	OUTPUT ERROR
3	TOO FEW ARGUMENTS
4	UNKNOWN PARAMETER
5	CAN'T LOCK RESOURCE
6	RESOURCE LOCKED
7	USER NOT IN DATABASE
8	WRONG PASSWORD
9	LOGIN INCORRECT
10	NOT ACCESSIBLE VIA TELNET CONNECTION
11	ACCESS DENIED
12	INVALID ARGUMENT
13	INVALID GROUP NAME
14	USER DATABASE FULL
15	CAN'T CHANGE FACTORY DEFAULT
16	USER ALREADY IN DATABASE
17	CLOSING TELNET CONNECTION
18	USER DATABASE NOT INITIALIZED
19	INVALID COMMAND SHELL CALL
20	INVALID INPUT FILE
21	TFTP ERROR
22	PCI ERROR

Table A-6.   RACADM Firmware Error Codes and Messages *(continued)*

Error Code	Message
23	SERVER IS IN GRAPHICS MODE
24	SYSTEM DATE AND TIME NOT SET
25	OUT OF MEMORY
26	ACCESS LOCKED
27	PAGING ERROR
28	PAGING ALREADY IN PROGRESS
29	ERROR ACCESSING DEVICE
30	WRONG NUMBER OF ARGUMENTS
31	NO SCREEN FOR ASR STORED
32	CAN'T ADD HISTORY MONITOR
33	INVALID IDENTIFIER
34	CANNOT WRITE TO FLASH
35	FIRMWARE FILE INVALID
36	CANNOT READ REGISTER
37	CANNOT UNLOCK RESOURCE
38	TIME OUT
39	SERVER IN TEXT MODE
40	WRONG GRAPHICS MODE
41	CONFIG SPACE LOCKED
42	MASTER LOCKED
43	ASB BUS LOCKED
44	HISTORY MONITORS NOT YET AVAILABLE
45	NO VALID VALUE FOR THIS FIELD
46	DIAGNOSTIC TASK ERROR
47	DIAGNOSTIC TASK IS ALREADY RUNNING

Table A-6. RACADM Firmware Error Codes and Messages *(continued)*

Error Code	Message
48	NO DIAGNOSTIC TASK RUNNING
49	READ ONLY
50	SNARFING IS NOT AVAILABLE
51	TEXT RESOLUTION OF SERVER CHANGED
52	MODULE NOT LOADED
53	IPMI ERROR
54	ERROR IN DIAGNOSTIC FUNCTION

RACADM Utility Error Codes and Messages

Table A-7 lists RACADM utility error codes and messages.

Table A-7. RACADM Error Codes and Messages

Error Code	Message
513	An unknown failure occurred.
514	Librac library not initialized.
515	An invalid parameter was passed into function.
516	Invalid DRSTYPE specified.
517	Librac library already initialized.
518	Invalid transport type specified.
519	Invalid library user.
520	A connection to the RAC controller could not be established.
521	Failed to perform read operation with RAC controller.
522	Failed to perform write operation with RAC controller.

Table A-7. RACADM Error Codes and Messages *(continued)*

Error Code	Message
523	Invalid message ID.
524	Invalid message type.
525	Invalid response message.
526	Specified user buffer is too small to hold data.
527	Authentication failed - Invalid user name or password.
528	Invalid CHAP protocol response encountered.
529	CHAP buffer too small.
530	Timeout occurred.
531	Insufficient user privileges to perform operation.
532	TFTP write error encountered.
533	TFTP read error encountered.
534	TFTP local file write error encountered.
535	TFTP local file read error encountered.
536	TFTP write request failed.
537	TFTP read request failed.
538	Failed to open file.
539	Failed to load socket library.
540	Invalid socket library.
541	Unable to resolve HostName.
542	Failed to create socket.
543	Socket read operation failed.
544	Socket write operation failed.
545	Failed to create SSL context object.

Table A-7. RACADM Error Codes and Messages *(continued)*

Error Code	Message
546	Failed to create SSL BIO object.
547	Unable to create SSL socket connection.
548	Failed to initialize socket.
549	Failed to login to RAC successfully.
550	Invalid session ID specified.
551	Failed to logout from RAC successfully.
552	Command execution failed.
553	FTP Get operation failed.
554	FTP Put operation failed.
555	Failed to initialize FTP interface.
556	Failed to load SSL library.
557	Failed to initialize librac library.
558	Invalid session ID.
559	SpcmpObjectName failed.
560	SpcmpObjectIdGet failed.
561	SpcmpObjectIdSet failed.
562	Failed to send SPCMP message to RAC.
563	Invalid transport session info.

Table A-7. RACADM Error Codes and Messages *(continued)*

Error Code	Message
564	LAN Proxy error - please make sure your proxy settings are configured correctly.
565	RAC service not currently installed.
566	RAC service is not started.
567	RAC service is starting.
568	RAC controller not present.
569	RAC controller is currently resetting.

B

BMC Platform Events Filter Alert Messages

All possible Platform Event Filter (PEF) Alert Messages along with a description of each event are listed in Table B-1.

Table B-1.   BMC PEF Alert Events

Event	Description
Fan Probe Failure	The fan is running too slow or not at all.
Voltage Probe Failure	The voltage is too low for proper operation.
Discrete Voltage Probe Failure	The voltage is too low for proper operation.
Temperature Probe Warning	The temperature is approaching excessively high or low limits.
Temperature Probe Failure	The temperature is either too high or too low for proper operation.
Chassis Intrusion Detected	The system chassis has been opened.
Redundancy (PS or Fan) Degraded	Redundancy for the fans and/or power supplies has been reduced.
Redundancy (PS or Fan) Lost	No redundancy remains for the system's fans and/or power supplies.
Processor Warning	A processor is running at less than peak performance or speed.
Processor Failure	A processor has failed.
PPS/VRM/DCtoDC Warning	The power supply, voltage regulator module, or DC-to-DC converter is pending a failure condition.
Power Supply/VRM/D2D Failure	The power supply, voltage regulator module, or DC-to-DC converter has failed.
Hardware log is full or emptied	Either an empty or a full hardware log requires administrator attention.

Table B-1. BMC PEF Alert Events *(continued)*

Event	Description
Automatic System Recovery	The system is hung or is not responding and is taking an action configured by Automatic System Recovery.
System Power Probe Warning	The system is setting actions when a power consumption probe detects a warning value.
System Power Probe Failure	The system is setting actions when a power consumption probe detects a failure value.

C

Sample File Formats

This appendix lists the sample SYSCFG utility .**ini**, RAIDCFG utility .**ini**, and the RACADM utility .**ini** files.

Sample SYSCFG Utility .ini File Format

```
[syscfg]
sysname=PowerEdge R805
sysid=0221
biosver=0.2.6
;svctag=VSPT067
;do not edit information above this line
acpower=last
asset=
bootseq=
nic.emb.1,nic.emb.2,nic.emb.3,satacdrom.emb.0,nic.emb
.4
bootseqretry=enable
conboot=enable
conterm=vt100
dbpm=disable
embhypervisor=on
embnic1=on
embnic2=onwithiscsi
embnic3=onwithiscsi
embnic4=onwithiscsi
```

```
extserial=com1
fsbr=115200
integratedsas=enable
internalusb=on
lancfgparams
alertdest=1
destipaddr=0.0.0.0
lancfgparams
alertdest=2
destipaddr=0.0.0.0
lancfgparams
alertdest=3
destipaddr=0.0.0.0
lancfgparams
alertdest=4
destipaddr=0.0.0.0
commstring=public
gateway=192.168.0.1
;ipaddress=192.168.0.120
ipaddrsrc=static
nicselection=dedicated
autoneg=enable
dnsserver1=0.0.0.0
dnsserver2=0.0.0.0
dnsdhcp=disable
dnsracname=megh
```

```
dnsregisterrac=disable

domainname=

domainnamednsdhcp=disable

fullduplex=enable

speed=100Mbps

subnetmask=255.255.255.0

vlanid=1

vlanpriority=0

vlantag=disable

lanchannelaccess

ipmioverlan=alwaysavail

channelprivlmt=administrator

pefalerting=disable

lanuseraccess

userid=2

usrprivlmt=administrator

lanuseraccess

userid=3

usrprivlmt=noaccess

lanuseraccess

userid=4

usrprivlmt=noaccess

lanuseraccess

userid=5

usrprivlmt=noaccess

lanuseraccess
```

```
userid=6

usrprivlmt=noaccess

lanuseraccess

userid=7

usrprivlmt=noaccess

lanuseraccess

userid=8

usrprivlmt=noaccess

lanuseraccess

userid=9

usrprivlmt=noaccess

lanuseraccess

userid=10

usrprivlmt=noaccess

lanuseraccess

userid=11

usrprivlmt=noaccess

lanuseraccess

userid=12

usrprivlmt=noaccess

lanuseraccess

userid=13

usrprivlmt=noaccess

lanuseraccess

userid=14

usrprivlmt=noaccess
```

```
lanuseraccess
userid=15
usrprivlmt=noaccess
lanuseraccess
userid=16
usrprivlmt=noaccess
lcd=default
lcd1=jagan!
memtest=enable
nmibutton=disable
numlock=on
opticaldrivectrl=enable
oswatchdogtimer=enable
pefcfgparams
alertpolnum=1
alertpolstatus=enable
pefcfgparams
alertpolnum=2
alertpolstatus=enable
pefcfgparams
alertpolnum=3
alertpolstatus=enable
pefcfgparams
alertpolnum=4
alertpolstatus=enable
pefcfgparams
```

```
filter=fanfail

filteralert=enable

filteraction=none

pefcfgparams

filter=discretevoltfail

filteralert=enable

filteraction=none

pefcfgparams

filter=tempwarn

filteralert=enable

filteraction=none

pefcfgparams

filter=tempfail

filteralert=enable

filteraction=none

pefcfgparams

filter=intrusion

filteralert=enable

filteraction=none

pefcfgparams

filter=redundegraded

filteralert=enable

filteraction=none

pefcfgparams

filter=redunlost

filteralert=enable
```

```
filteraction=none

pefcfgparams

filter=procwarn

filteralert=enable

filteraction=none

pefcfgparams

filter=procfail

filteralert=enable

filteraction=none

pefcfgparams

filter=powerwarn

filteralert=enable

filteraction=none

pefcfgparams

filter=powerfail

filteralert=enable

filteraction=none

pefcfgparams

filter=hardwarelogfail

filteralert=enable

pefcfgparams

filter=autorecovery

filteralert=enable

pefcfgparams

filter=procabsent

filteralert=enable
```

```
filteraction=none
pefcfgparams
filter=powerabsent
filteralert=enable
filteraction=none
pefcfgparams
filter=batterywarn
filteralert=enable
filteraction=none
pefcfgparams
filter=batteryfail
filteralert=enable
filteraction=none
pefcfgparams
filter=systempowerwarn
filteralert=enable
filteraction=none
pefcfgparams
filter=systempowerfail
filteralert=enable
filteraction=none
hostname=DTK2.4-host
powerbutton=enable
pwdlock=unlock
rptkeyerr=enable
serialcfgparams
```

```
connectionmode=basic

msgcommbitrate=57600

msgcommflowctrl=rtscts

tmcfgdelctrl=bksp

tmcfgechoctrl=echo

tmcfghandshakectrl=enable

tmcfginputnewlineseq=cr

tmcfglineediting=enable

tmcfgnewlineseq=crlf

serialchannelaccess

ipmioverserial=alwaysavail

channelprivlmt=administrator

serialcomm=on

serialuseraccess

userid=2

usrprivlmt=administrator

serialuseraccess

userid=3

usrprivlmt=noaccess

serialuseraccess

userid=4

usrprivlmt=noaccess

serialuseraccess

userid=5

usrprivlmt=noaccess

serialuseraccess
```

```
userid=6

usrprivlmt=noaccess

serialuseraccess

userid=7

usrprivlmt=noaccess

serialuseraccess

userid=8

usrprivlmt=noaccess

serialuseraccess

userid=9

usrprivlmt=noaccess

serialuseraccess

userid=10

usrprivlmt=noaccess

serialuseraccess

userid=11

usrprivlmt=noaccess

serialuseraccess

userid=12

usrprivlmt=noaccess

serialuseraccess

userid=13

usrprivlmt=noaccess

serialuseraccess

userid=14

usrprivlmt=noaccess
```

```
serialuseraccess
userid=15
usrprivlmt=noaccess
serialuseraccess
userid=16
usrprivlmt=noaccess
solaction
userid=2
action=enable
solaction
userid=3
action=disable
solaction
userid=4
action=disable
solaction
userid=5
action=disable
solaction
userid=6
action=disable
solaction
userid=7
action=disable
solaction
userid=8
```

```
action=disable

solaction

userid=9

action=disable

solaction

userid=10

action=disable

solaction

userid=11

action=disable

solaction

userid=12

action=disable

solaction

userid=13

action=disable

solaction

userid=14

action=disable

solaction

userid=15

action=disable

solaction

userid=16

action=disable

solcfgparams
```

```
solbitrate=57600

solcharaccuminterval=10

solcharsendthreshold=220

solenable=enable

solprivlevel=administrator

sysid=0221

sysname=PowerEdge R805

tpm

tpmactivation=nochange

tpmsecurity=onwithoutpbm

usbports=enable

useraction

userid=2

action=enable

useraction

userid=3

action=disable

useraction

userid=4

action=disable

useraction

userid=5

action=disable

useraction

userid=6

action=disable
```

```
useraction

userid=7

action=disable

useraction

userid=8

action=disable

useraction

userid=9

action=disable

useraction

userid=10

action=disable

useraction

userid=11

action=disable

useraction

userid=12

action=disable

useraction

userid=13

action=disable

useraction

userid=14

action=disable

useraction

userid=15
```

```
action=disable

useraction

userid=16

action=disable

username

userid=2

name=root

username

userid=3

name=NULL

username

userid=4

name=NULL

username

userid=5

name=NULL

username

userid=6

name=NULL

username

userid=7

name=NULL

username

userid=8

name=NULL

username
```

```
userid=9

name=NULL

username

userid=10

name=NULL

username

userid=11

name=NULL

username

userid=12

name=NULL

username

userid=13

name=NULL

username

userid=14

name=NULL

username

userid=15

name=NULL

username

userid=16

name=NULL

;uuid=44454C4C530010508054D6C04F303637

virtualization=disable

virtualmedia=enable
```

Sample RAIDCFG Utility .ini File Format

```
[Reset]
controllerid=1,2,3,6
[vdisk0]
controllerid=4
size=139392
raid=1
readpolicy=ra
writepolicy=wb
stripesize=64
cachepolicy=d
adisk=0:1:1,0:0:1
[vdisk1]
controllerid=4
size=139392
raid=1
readpolicy=ra
writepolicy=wb
stripesize=64
cachepolicy=c
adisk=0:3:1,0:2:1
[vdisk2]
controllerid=2
size=278784
raid=0
readpolicy=ra
```

```
writepolicy=wb

stripesize=64

cachepolicy=d

adisk=0:5:1,0:4:1

failoverdrive=0:9:1

[vdisk3]

controllerid=4

size=278784

raid=5

readpolicy=ra

writepolicy=wb

stripesize=64

cachepolicy=c

adisk=0:8:1,0:7:1,0:6:1

[GlobalHotspare0]

controllerid=0

failoverdrive=0:8:0
```

Sample RACADM Utility .ini File Format

```
[idRacInfo]

#idRacType=0x05

#idRacProductInfo=Dell Remote Access Controller 4/I

#idRacDescriptionInfo=This system component provides
a complete set of #remote management functions for
Dell PowerEdge servers.

#idRacVersionInfo=1.20 (Build 01.17)

idRacName=DRAC 4/I
```

```
idRacMisc=

[cfgLanNetworking]
cfgNicEnable=1
cfgNicIpAddress=10.98.8.121
cfgNicNetmask=255.255.255.0
cfgNicGateway=192.168.0.1
cfgNicUseDhcp=0
#cfgNicMacAddress=00:11:43:34:5f:4a
cfgDNSServersFromDHCP=0
cfgDNSServer1=192.168.0.5
cfgDNSServer2=192.168.0.6
cfgDNSRegisterRac=0
cfgDNSRacName=RAC-HHS7C1S
cfgDNSDomainNameFromDHCP=0
cfgDNSDomainName=MYDOMAIN

[cfgCurrentLanNetworking]
#cfgNicCurrentIpAddress=10.98.8.121
#cfgNicCurrentNetmask=255.255.255.0
#cfgNicCurrentGateway=192.168.0.1
#cfgNicCurrentDhcpWasUsed=0
#cfgDNSCurrentDhcpWasUsed=0
#cfgDNSCurrentServer1=192.168.0.5
#cfgDNSCurrentServer2=192.168.0.6
#cfgDNSCurrentDomainName=MYDOMAIN
```

```
[cfgRemoteHosts]
cfgRhostsSmtpEmailEnable=1
cfgRhostsFwUpdateTftpEnable=1
cfgRhostsSmtpServerIpAddr=127.0.0.1
cfgRhostsFwUpdateIpAddr=192.168.0.4
cfgRhostsFwUpdatePath=

[cfgUserAdmin]
#cfgUserAdminIndex=1
cfgUserAdminUserName=root
#cfgUserAdminPassword=
cfgUserAdminPrivilege=0
cfgUserAdminAlertFilterRacEventMask=0x300000
cfgUserAdminAlertFilterSysEventMask=0x77777
cfgUserAdminEmailEnable=0
cfgUserAdminEmailAddress=
cfgUserAdminEmailCustomMsg=

[cfgSessionManagement]
cfgSsnMgtMaxSessions=0x4
cfgSsnMgtMaxSessionsPerUser=0x4

[cfgSerial]
cfgSerialBaudRate=115200
cfgSerialConsoleEnable=0
```

```
cfgSerialConsoleQuitKey=<CR>~.

cfgSerialConsoleIdleTimeout=0x12c

cfgSerialConsoleShellType=0x2

cfgSerialConsoleNoAuth=0

cfgSerialConsoleCommand=

cfgSerialTelnetEnable=0

cfgSerialCom2RedirEnable=1

cfgSerialTelnet7fIsBackspace=0


[cfgNetTuning]

cfgNetTuningNicMtu=0x5dc

cfgNetTuningIpTtl=0x40

cfgNetTuningTcpSrttBase=0x0

cfgNetTuningTcpSrttDflt=0x6

cfgNetTuningTcpReXmtMin=0x2

cfgNetTuningTcpReXmtMax=0x80

cfgNetTuningIpSubnetsAreLocal=0x1

cfgNetTuningIpReassTtl=0x3c

cfgNetTuningTcpMsl=0x3c

cfgNetTuningNicAutoneg=1

cfgNetTuningNic100MB=1

cfgNetTuningNicFullDuplex=1


[cfgOobSnmp]

cfgOobSnmpTrapsEnable=1

cfgOobSnmpAgentEnable=1
```

```
cfgOobSnmpAgentCommunity=public


[cfgRacTuning]

cfgRacTuneFwUpdateResetDelay=0x46

cfgRacTuneD3debugEnable=1

cfgRacTuneRemoteRacadmEnable=1

cfgRacTuneHostCom2BaudRate=57600

cfgRacTuneHttpPort=0x50

cfgRacTuneHttpsPort=0x1bb

cfgRacTuneTelnetPort=0x17

cfgRacTuneConRedirPort=0x170c


[ifcRacManagedNodeOs]

ifcRacMnOsHostname=(none)

ifcRacMnOsOsName=Linux 2.4.21-20.ELIhugemem

ifcRacMnOsOsType=0x2


[cfgRacSecurity]

cfgRacSecCsrKeySize=0x400

cfgRacSecCsrCommonName=

cfgRacSecCsrOrganizationName=

cfgRacSecCsrOrganizationUnit=

cfgRacSecCsrLocalityName=

cfgRacSecCsrStateName=

cfgRacSecCsrCountryCode=

cfgRacSecCsrEmailAddr=
```

```
[cfgRacVirtual]
cfgVirAtapiSvrPort=0xe54
cfgVirMediaDisable=0
cfgFloppyEmulation=0

[cfgActiveDirectory]
cfgADRacDomain=
cfgADRacName=
cfgADEnable=0
cfgADAuthTimeout=0x78
cfgADRootDomain=
```

D

Summary of SYSCFG and RAIDCFG Options

This appendix contains a summary of all the SYSCFG and RAIDCFG options.

SYSCFG Options

Table D-1 lists all the SYSCFG options and gives a brief description of these options. For details on these options, see the section, "SYSCFG".

Table D-1.   SYSCFG Options

Options	Suboptions	Valid Arguments	Description	Replicated
--envar	NA	*<filename>* *<pathname>* media should be writable	When used with the **–s** option, this option stores the environment variable data to a file so that this file can be called from other scripts.	
-h or --help	NA	none or *<valid option name>*	Without an argument, this option displays general usage information for the utility.	No
-i or --infile	NA	*<filename>*	Directs the SYSCFG utility to take input from a **.ini** file.	Yes
-l or --logfile	NA	*<filename>*	Logs the command line output to a time-stamped file.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
-o or --outfile	NA	*<filename>*	Outputs all replicable options to the specified filename. The format of the output is in a **.ini** format, with the utility name as the section header.	
-s	NA	*<string>*	Prints the variable name and the value assigned to it to the console.	
--version*	NA		Displays the version information, current time, and date for the utility.	No
--acpower	NA	on, off, last	Specifies the behavior of the system after AC power is lost.	Yes
--adjcacheprefetch	NA	enable, disable	Enables the processor to fetch the cache line containing the currently requested data and prefetch the following cache line or fetch only the cache line containing the currently requested data.	Yes
--assignintr	NA	standard, distributed	Controls the interrupt assignment of PCI devices in the system.	
--asset	NA	*<string>*	Sets the asset tag value.	Yes
--bezelir	NA	enable, disable	Enables or disables the ESM to monitor and log front bezel intrusion conditions.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--bootseq	NA	numerical list, separated by commas or list of device names, separated by commas	Sets the boot order.	Yes (for systems that support a list of device names only)
--bootseqretry	NA	enable, disable	Enables or disables the boot sequence retry feature.	Yes
--cmosdefaults	NA	enable, disable	Enables or disables the CMOS defaults to be on or off in the next boot.	Yes
--conboot	NA	enable, disable	Enables or disables console redirection after boot.	Yes
--conred	NA	off, serial1, serial2, bmcsol, mmb	Sets console redirection to a particular port.	Yes
--conterm	NA	vt100, ansi	Sets console redirection terminal type.	Yes
--cpucore	NA	1, 2, 4	Allows the user to control the number of enabled cores in each processor. The maximum number of cores per processor is enabled by default.	Yes
--cpuxdsupport	NA	enable, disable	Enables or disables the execute disable (XD) feature of the CPU.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--cstates	NA	enable, disable	Enables or disables the power c states of the processor. Available only on *xx*1*x* systems.	Yes
--dbpm	NA	enable, disable	Enables or disables demand-based power management.	Yes
--devseq	NA	numerical list, separated by commas or list of device names, separated by commas	Sets the boot order for hard drives. **NOTE:** This option appears only if your system is configured with two or more bootable storage controllers. If your system is not configured with bootable storage controllers and this option is included in the configuration file, the utility generates a usage error.	Yes (for systems that support a list of device names only)
--embhypervisor	NA	enable, disable	Enables or disables the embedded hypervisor port.	Yes
--embideraid	NA	on, off	Enables or disables the embedded IDE RAID controller.	Yes
--embnic1	NA	on, off, onnopxe, onwithiscsi	Enables or disables the first embedded network interface controller (NIC).	Yes
--embnic2	NA	on, off, onnopxe, onwithiscsi	Enables or disables the second embedded NIC.	Yes
--embnic3	NA	on, off, onnopxe, onwithiscsi	Enables or disables the third embedded NIC.	Yes

Table D-1. SYSCFG Options (continued)

Options	Suboptions	Valid Arguments	Description	Replicated
--embnic4	NA	on, off, onnopxe, onwithiscsi	Enables or disables the fourth embedded NIC.	Yes
--embnic1nic2	NA	enable, disable	Enables or disables the operating system interface of the first and second embedded NIC controllers. Available only on Dell™ PowerEdge™ 1855, PowerEdge 6850, and *xx1x* systems.	Yes
--embnic3nic4	NA	enable, disable	Enables or disables the operating system interface of the third and fourth embedded NIC controllers. Available only on *xx1x* systems.	Yes
--embnics	NA	on, off	Enables or disables the embedded NICs.	Yes
--embnic1pxe	NA	enable, disable	Enables or disables Pre-boot eXecution Environment (PXE) on the first embedded NIC.	Yes
--embnic2pxe	NA	enable, disable	Enables or disables PXE on the second embedded NIC.	Yes
--embsataraid	NA	off, combined, ata, raid, qdma	Configures the embedded SATA (Serial Advanced Technology Attachment) RAID controller.	Yes
--embscsi1	NA	on, off	Enables or disables the first SCSI controller.	Yes
--embscsi2	NA	on, off	Enables or disables the second SCSI controller.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--embscsiraid	NA	raid, off, scsi or raid, off	Enables or disables the embedded SCSI RAID controller.	Yes
--embscsiraidchb	NA	raid, scsi	Sets the second channel of the embedded SCSI RAID controller to operate in RAID or SCSI mode.	Yes
--embvideoctrl	NA	enable, disable	Enables or disables the embedded video controller.	Yes
--extserial	NA	com1, com2, rad	Sets the behavior of the external serial connector.	Yes
--fiberchannel	NA	enable, disable	Enables or disables embedded fiber channel.	Yes
--floppy	NA	auto, off, readonly	Enables or disables the diskette drive controller.	Yes
--fsbr	NA	115200, 57600, 19200, 9600	Sets the console redirection fail safe baud rate.	Yes
--hwprefetcher	NA	enable, disable	Enables or disables hardware prefetching by the processor.	Yes
--hddfailover	NA	off, on	Specifies which device in the hard disk drive sequence menu is attempted in the boot sequence.	Yes
-i or --infile	NA	*<filename>*	Reads BIOS configuration options from a file. A file can be generated with the **-o** option.	No
--idecdrom	NA	auto, off	Enables or disables the CD drive controller.	Yes
--idectrl	NA	auto, off	Enables or disables the IDE controller.	Yes

Table D-1.   SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--idracgui	NA	enable, disable	Enables or disables iDRAC GUI.	Yes
--integratedraid	NA	enable, disable	Enables or disables the integrated RAID controller.	Yes
--integratedsas	NA	enable, disable	Sets the behavior for the integrated SAS controller.	Yes
--internalusb	NA	off, on	Enables or disables the internal USB.	Yes
--ioat	NA	enable, disable	Enables or disables the I/O Acceleration Technology (I/OAT)\nDMA Engine option.	Yes
--lcd	NA	default, none, user, idracipv4address, idracmacaddress, ossystemname, servicetag, ipv6address, ambienttemp, systemwatts	Selects whether to display the default string (model name and number) or a user-defined string in the front-panel LCD (Liquid Crystal Display). The idracipv4address, idracmacaddress, ossystemname, servicetag, ipv6address, ambienttemp, and systemwatts arguments are available only on *xx1x* systems.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--lcd1	NA	*<string>*	Sets the first line of user-defined LCD strings. **NOTE:** Before setting user strings for this option, ensure that `--lcd` is set to **user**. **NOTE:** If you have a Dell™ PowerEdge™ *x6xx, x7xx,* or *x8xx* system, you need to reboot your system for the settings to take effect.	Yes
--lcd2	NA	*<string>*	Sets the second line of user-defined LCD strings. **NOTE:** Before setting user strings for this option, ensure that `--lcd` is set to **user**. **NOTE:** If you have a Dell™ PowerEdge™ *x6xx, x7xx,* or *x8xx* system, you need to reboot your system for the settings to take effect.	Yes
--logicproc	NA	enable, disable	Enables or disables the logical processor (Hyperthreading).	Yes
--lpt	NA	disable, lpt1, lpt2, lpt3	Disables or sets the parallel port address.	Yes
--lptmode	NA	at, ps2	Sets the parallel port mode.	Yes
--mem*	NA	none	Reports the size of system memory. **NOTE:** The asterisk is not part of the command syntax.	Yes
--memintleave	NA	enable, disable	Enables or disables the memory interleave mode.	Yes

Table D-1. SYSCFG Options _(continued)_

Options	Suboptions	Valid Arguments	Description	Replicated
--memoperating mode	NA	optimizer, mirror, advancedecc	Selects the memory operating mode. This feature is active only if a valid memory configuration is detected. This option is available only on _xx1x_ systems.	Yes
--memremap	NA	off, auto	Enables or disables memory remapping.	Yes
--memtest	NA	enable, disable	Enables or disables the power-on self-test (POST) extended memory test.	Yes
--mouse	NA	on, off	Turns the mouse controller on or off.	Yes
--noraidprompt*	NA	none	Disables the POST prompt message when the SCSI controller type is changed. **NOTE:** The asterisk is not part of the command syntax.	No
--numlock	NA	on, off	Enables or disables the keyboard number lock.	Yes
--oldsetuppwd	NA	_<string>_	Confirms the existing setup password when setting a new setup password.	No
--oldsyspwd	NA	_<string>_	Confirms the existing system password when setting a new system password.	No
--opticaldrivectrl	NA	enable, disable	Enables or disables the optical CD-ROM controller.	Yes
--osmode	NA	enable, disable	Enables or disables the operating system installation mode.	Yes

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--oswatchdogtimer	NA	enable, disable	If your system stops responding, this option aids in the recovery of your operating system. When set to **enabled**, the operating system is allowed to initialize the timer. When set to **disabled** (the default), the timer will have no effect on the system.	Yes
--ovrwrt*	NA	none	Overwrites the file contents when used with the **-o** option. **NOTE:** The asterisk is not part of the command syntax.	No
power	--profile	maxperformance, osctl, apc	Displays the settings similar to the BIOS setup screen for the respective profile.	Yes
		custom	Creates the custom profile.	
	--cpupowermode	min, max, osdbpm, systemdbpm	Allows you to set the CPU power and performance management to minimum power, maximum performance, operating system DBPM, orsystem DBPM mode.	
	--memorypowermode	min, 800, 1067, 1333, max	Allows you to set memory power and performance management to minimum power or maximum power mode, or 800Mhz, 1067Mhz, or 1333Mhz.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
	--fanpowermode	min, max	Allows you to set the fan algorithm to the minimum power optimized or maximum performance optimized mode.	
	--cap		Displays the values of budgetcap, and the maximum and minimum power thresholds in Watts.	
	--cap --unit	$<budgetcap>$ watt, or btuphr, or percent where $<budgetcap>$ is the limit for power consumption in Watts, or btuphr, or percent.	The value of $<budgetcap>$ must be between the maximum and minimum threshold values, else an error is displayed.	
	--maxpowercap		Displays the value of the maximum power threshold.	
	--minpowercap		Displays the value of the minimum power threshold.	
	--valsetuppwd	$<string>$	Validates the setup password for power authentication. If you try to change DTK settings, you will be prompted to enter this password to access the settings.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
	--setuppwdoverride		Does not prompt you for a password to access DTK settings on systems that do not have a setup password configured.	
--powerbutton	NA	enable, disable	Enables or disables the front bezel power button.	Yes
--pwdlock	NA	lock, unlock	Enables or disables the ability to set the system password.	No
--redmem	NA	off, spare, mirror, raid	Sets the redundant memory mode. If you perform operations that change the **--redmem** option, you must immediately reboot the system. This applies to command line usage as well as **--infile** usage. Additionally, the **--redmem** option should not be issued with any other command and should be immediately followed by a system reboot. This is important when you develop scripts that can alter the **--redmem** setting. Not available on *xx*1*x* systems.	Yes
--rptkeyerr	NA	enable, disable	Enables or disables the reporting of keyboard errors during POST.	Yes

Table D-1.   SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--sata0	NA	auto, off	Enables or disables SATA port 0. **NOTE:** This option maps to **--sata_a** for PowerEdge *x9xx* systems.	Yes
--sata1	NA	auto, off	Enables or disables SATA port 1. **NOTE:** This option maps to **--sata_b** for PowerEdge *x9xx* systems.	Yes
--sata2	NA	auto, off	Enables or disables SATA port 2. **NOTE:** This option maps to **--sata_c** for PowerEdge *x9xx* systems.	Yes
--sata3	NA	auto, off	Enables or disables SATA port 3. **NOTE:** This option maps to **--sata_d** for PowerEdge *x9xx* systems.	Yes
--sata4	NA	auto, off	Enables or disables SATA port 4. **NOTE:** This option maps to **--sata_e** for PowerEdge *x9xx* systems.	Yes
--sata5	NA	auto, off	Enables or disables SATA port 5. **NOTE:** This option maps to **--sata_f** for PowerEdge *x9xx* systems.	Yes

Table D-1. SYSCFG Options _(continued)_

Options	Suboptions	Valid Arguments	Description	Replicated
--sata6	NA	auto, off	Enables or disables SATA port 6. **NOTE:** This option maps to **--sata_g** for PowerEdge _x9xx_ systems.	Yes
--sata7	NA	auto, off	Enables or disables SATA port 7. **NOTE:** This option maps to **--sata_h** for PowerEdge _x9xx_ systems.	Yes
--serial1	NA	disable, com1, com3, com1_bmc, bmcserial, bmclan, rac	Sets the behavior for serial port 1.	Yes
--serial2	NA	auto, disable, com2, com4	Sets the behavior for serial port 2.	Yes
--serialcomm	NA	on, com1cr, com2cr, off	Sets the behavior of serial port communication.	Yes
--setuppwd	NA	_<string>_	Sets the setup password for the system BIOS.	No
--sma	NA	enable, disable	Enables or disables processor sequential memory access.	Yes
--slot*	NA	none	Reports the slot number for a modular system. **NOTE:** This option is valid for PowerEdge 1855 systems only. The asterisk is not part of the command syntax.	Yes
--snoopfilter	NA	enable, disable	Enables or disables the snoop filter option from the system BIOS.	Yes

Table D-1. SYSCFG Options (continued)

Options	Suboptions	Valid Arguments	Description	Replicated
--speaker	NA	on, off	Turns the built-in speaker on or off.	Yes
--svctag*	NA	none	Reports the service tag for the system. **NOTE:** The asterisk is not part of the command syntax.	No
--syspwd	NA	*<string>*	Sets the system password for the system BIOS.	No
tpm	--tpmsecurity	off, onwithpbm, onwithoutpbm	Configures the TPM security feature.	Yes
	--tpmactivation	enabled, disabled, nochange	Enables or disables the TPM activation feature.	Yes
	--tpmclear	NA	Clears the contents of the TPM chip without erasing the **tpmsecurity** and **tpmactivation** settings.	No
	--undotpmclear	NA	Undoes the result of the **tpmclear** setting. If you specify this setting before specifying the **tpmclear** setting, the '**There is currently no pending TPM Clear request**' message is displayed.	No
	--valsetuppwd	*<string>*	Validates the setup password for TPM authentication. If you try to change DTK settings, you will be prompted to enter this password to access the settings.	No

Table D-1. SYSCFG Options (continued)

Options	Suboptions	Valid Arguments	Description	Replicated
	-- setuppwdove rride	NA	On systems that do not have a setup password configured, if you set this option, you will not be prompted for a password to access DTK settings.	No
--turbomode	NA	enable, disable	Enables or disables core-based turbo mode.	Yes
--usb	NA	on, off, legacy	Enables or disables the USB port.	Yes
--usbflash	NA	auto, fdd, hdd	Sets the emulation of a USB flash device to **auto**, diskette (**fdd**), or hard drive (**hdd**).	Yes
--usbports	NA	enable, enablebacko nly, disable	Enables or disables USB ports.	Yes
--virtualization	NA	enable, disable	Enables or disables virtualization in the CPU.	Yes
--virtualmedia	NA	enable, disable	Enables or disables virtual media in Dell Remote Access Controllers 5 (DRAC 5).	Yes
bmcversion	--devid --devrevision -- majorfwrevis ion -- minorfwrevis ion	NA	Displays revision information for the BMC and the firmware.	
-- controlpanelacc ess	NA	viewandmod ify, viewonly, disabled	Sets or gets the access level for the Liquid Crystal Display (LCD).	Yes

Table D-1. SYSCFG Options (continued)

Options	Suboptions	Valid Arguments	Description	Replicated
--clearsel	NA	NA	Clears the SEL.	
--deviceguid	NA	NA	Displays the GUID for the BMC.	
--encryptkey	NA	<*hexadecimal number*>	Encrypts the Intelligent Platform Management Interface (IPMI) sessions.	Yes
--identify	NA	0–254	Flashes the identification LED for a specified number of seconds.	
lanchannelaccess or lca	--pefalerting --ipmioverlan --channelprivlmt	enable, disable disable, alwaysavail user, operator, administrator	Sets or displays the LAN channel access settings such as alerting and user privilege limits.	
lanchannelinfo or lci	--mediumtype --prottype --ssnsupport --activessncount	NA NA NA NA	Displays media and protocol information about the LAN channel.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
lancfgparams or lcp	--ipaddrsrc	static, dhcp	Configures and displays LAN configuration parameters.	
	--ipaddress	*<ipaddress>*		
	--subnetmask	*<subnetmask>*		
	--gateway	*<gateway>*		
	--commstring	*<string>*		
	--destipaddr	*<destipaddress>*		
	--alertdest	1, 2, 3, 4		
	--vlantag	enable, disable		
	--vlanid	0–4095		
	--vlanpriority	0–7		
	--macaddress	NA		
	--nicselection	shared, sharedfailover, dedicated		

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
	--fullduplex	enable, disable		
	--autoneg	enable, disable		
	--speed	10,100		
	--dnsdhcp	enable, disable		
	--dnsserver1	*<ipaddress>*		
	--dnsserver2	*<ipaddress>*		
	--dnsregisterrac	enable, disable		
	--dnsracname	*<string>*		
	--domainnamefromdhcp	enable, disable		
	--domainname	*<string>*		
lanuseraccess or lua	--usrprivlmt	user, operator, administrator, noaccess	Configures and displays user access parameters for the LAN channel.	
	--userid	2–10	Returns the number of User IDs with fixed names.	
	--currentenableduserids	NA		
	--useridswithfixednames	NA		

Table D-1.   SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--loaddefaults	NA	NA	Restores the BMC to the defaults that were originally loaded on the controller. This option is used to return the BMC to a known-good state.	
--nextboot	NA	*<device name>*	Sets the device for the next boot operation only.	
--nmibutton	NA	enable, disable	Enables or disables the NMI button.	
passwordaction	--action	setpassword, testpassword	Configures and displays passwords associated with User IDs.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
pefcfgparams or pcp	--filter	fanfail, voltfail, discretevoltfail, tempwarn, tempfail, intrusion, redundegraded, redunlost, procwarn, procfail, powerwarn, powerfail, hardwarelogfail, autorecovery, batterywarn, batteryfail, powerabsent, procabsent, systempowerwarn, systempowerfail	Configures and displays PEF configuration parameters. See "BMC Platform Events Filter Alert Messages" for a complete list of all possible PEF messages along a description of each event.	
	--filteraction	powercycle, reset, powerdown, powerreduction, none		
	--hostname	*<string>*		
	--filteralert	enable, disable		

Table D-1. SYSCFG Options _(continued)_

Options	Suboptions	Valid Arguments	Description	Replicated
	--alertpolnum	1, 2, 3, 4		
	--alertpolstatus	enable, disable		
--powerbutton	NA	enable, disable	Enables or disables the power button.	
--powerctl	NA	powerdown </argument>	Performs a chassis powerdown and controls the reset of the system.	
		powercycle</argument>		
		reset</argument>		
		softshutdown </argument>		
--racreset	NA	NA	Resets the RAC. It cannot be accompanied with any other option.	No

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
serialchannelaccess or sca	-- ipmioverserial	disable, alwaysavail	Sets or displays the channel access settings for the serial channel.	
	-- channelprivlmt	user, operator, administrator		
serialchannelinfo or sci	-- mediumtype	NA	Displays serial channel information.	
	--prottype	NA		
	--ssnsupport	NA		
	-- activessncount	NA		

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
serialcfgparams or scp	--connection mode	basic, terminal	Configures and displays serial configuration parameters.	
	--msgcommflowctrl	noflowctrl, rtscts	**NOTE:** The BMC firmware does not support serial port Point-to-Point Protocol (PPP) configurations.	
	--msgcommdtrhangup	NA		
	--msgcommbitrate	9600, 19200, 57600, 115200		
	--tmcfglineediting	enable, disable		
	--tmcfgdelctrl	del, bksp		
	--tmcfgechoctrl	echo, noecho		
	--tmcfghandshakectrl	enable, disable		
	--tmcfgnewlineseq	noterm, crlf, null, cr, lfcr, lf		
	--tmcfginputnewlineseq	cr, null		

Table D-1.   SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
serialuseraccess or sua	--usrprivlmt	user, operator, administrato r, noaccess	Configures and displays user access parameters for the serial channel.	
	--userid	2–10		
	-- currentenabl eduserids	NA		
	-- useridswithfi xednames	NA		
--solaction			Enables or disables Serial-Over-LAN (SOL) access for a particular user.	
	--userid	2–10 if your system has a DRAC 4 controller		
		2–16 if your system has a DRAC 5 controller		
	--action	enable, disable		

Table D-1. SYSCFG Options _(continued)_

Options	Suboptions	Valid Arguments	Description	Replicated
solcfgparams	--solenable	enable, disable	Configures and displays SOL configuration parameters.	
	--solprivlevel	user, operator, administrator		
	--solcharaccuminterval	1–255		
	--solcharsendthreshold	1–255		
	--solbitrate	9600, 19200, 57600, 115200		
ssninfo	--maxactivessns	NA	Displays information about the number of possible active sessions and the number of currently active sessions on all channels on the controller.	
	--currentactivessns	NA		
useraction	--userid	2–10	Enables and disables User IDs for the **serialchannelaccess** and **lanchannelaccess** options.	
	--action	enable, disable		
username	--name	_<string>_	Assigns user names to a given User ID and displays user names associated with a given User ID.	
	--userid	2–10		
--version	NA	NA	Displays the version information for the SYSCFG utility.	

Table D-1. SYSCFG Options (continued)

Options	Suboptions	Valid Arguments	Description	Replicated
-b	NA	*<string>*	Specifies the value to write to state data.	
-r or --read	NA	NA	Reads the value of state data.	
-x	NA	NA	Specifies that the state data value should be in hexadecimal format.	
--asset	NA	NA	Reports the asset tag for a system.	
--biosver	NA	NA	Reports the BIOS version for a system.	
--chassvctag	NA	NA	Reports the chassis service tag for modular systems.	
--cpucount	NA	NA	Reports the number of processors in a system.	
--cpuspeed	NA	NA	Reports the speed of all processors in a system.	
--envfile	NA	*<string>*	Specifies the input file to use for resolving PCI vendor, device, and class codes to environment variables and names.	
--mem	NA	NA	Reports the amount of system memory in a system.	
--n	NA	*<string>*	Specifies an input file to use for resolving PCI vendor and device numbers to strings.	
--ovrwrt	NA	NA	Overwrites the specified file contents when used with the **-o** option.	
--pci	NA	NA	Scans all PCI buses and reports the results.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
--slot	NA	NA	Reports the slot of a modular system.	
--svctag	NA	NA	Reports the service tag for a system.	
--sysasset	NA	NA	Reports the asset tag for a server module in a modular system chassis.	
--sysid	NA	NA	Reports the unique system ID bytes for a system.	
--sysname	NA	NA	Reports the system identification string for a system.	
--syssvctag	NA	NA	Reports the service tag for a server module in a modular system chassis.	
--uuid	NA	NA	Reports the unique universal identifier (UUID) for a system.	
lancfgparamsv6	--ipv6	enable, disable	Loads or unloads the IPv6 stack.	Yes
	--ipsrcv6= static --ipaddrv6= *<ipv6addres s>* --prefixlength v6= *<prefixlengt hv6>* -- gatewayv6= *<ipv6gatewa yaddress>*		Allows you to manually configure IPv6 addresses.	

Table D-1. SYSCFG Options *(continued)*

Options	Suboptions	Valid Arguments	Description	Replicated
	--ipsrcv6= auto		Automatically configures the IPv6 addresses.	
	--dnssrcv6 = auto		Automatically configures the DNS address.	
	--dnssrcv6= static --dnsserver1v6 = <ipv6dnsser ver1address >		Allows you to manually set the DNS address.	
	-- linklocaladdr ipv6= <linklocalad dripv6>		Allows you to view IPv6 addresses.	
	-- gatewayv6= <gatewayv6 >		Allows you to view IP gatewayv6 address.	

RAIDCFG Options

Table D-2 lists all the RAIDCFG options and gives a brief description of these options. For details on these options, see the section, "RAIDCFG".

Table D-2.   RAIDCFG Short and Long Format Options

Option	Valid Arguments	Short Description	Mandatory or Optional
No option -h -? or /?	NA	Displays general usage information for the utility. The usage information consists of a comprehensive list of valid options, parameters, and arguments.	Optional. See Table 4-1 for specific usage information.
-ac or action	cvd or createvdisk	Creates a virtual disk. **NOTE:** When providing multiple physical disks for the createvdisk command, do not separate the disks with spaces. For example, `-ad=1:4,1:5` causes an error. The correct syntax for displaying multiple physical disks is `-ad=1:4,1:5,1:6`.	See Table 4-4 for specific usage information.
-ac or action	dvd or deletevdisk	Deletes a virtual disk.	See Table 4-9 for specific usage information.
-ad or adisk	NA	Specifies an array disk command.	See Table 4-5 for specific usage information.

Table D-2. RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-ad or adisk	ch:targ, ch:targ, ... or ch:targ:lun,... or ch:targ:enc channel:target, or channel:target:lun, or channel:target:enclosure	Specifies an array disk. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure. **NOTE:** You can also use pdisk or -pd instead of adisk or -ad to specify an array disk.	Optional. See Table 4-5 for specific usage information.
-c or controllerid	*<valid controller ID number>*	Specifies a RAID controller.	See Table 4-3 for specific usage information.
-cp or cachepolicy	d, c	Specifies the virtual disk cache policy.	Optional. See Table 4-4 for specific usage information.
-ctrl or controller	NA	Displays a list of the supported RAID controllers in the system, along with select property information.	Mandatory, must be typed in the correct order. See Table 4-3 for specific usage information.
-envc or envcommand	*<string>*	Sets a user-defined environmental variable (*<string>*) to the value returned from a function call.	See Table 4-11 for specific usage information.
-envn or envname	*<string>*	Sets the environment variable (*<string>*) that equates to the value returned from a function call.	See Table 4-11 for specific usage information.

Table D-2.   RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-fd or failoverd rive	ch:targ, ch:targ, ... or ch:targ:lun,... or ch:targ:enc channel:target, or channel:target:lu n, or channel:target:en closure	Specifies the location of the failover drive in an array. For SCSI controllers, the value of lun should always be 0. For SAS controllers, the value of enclosure can be non-zero, in which case you need to specify values for channel, target, and enclosure. **NOTE:** From DTK 2.4 onwards, the -fd option creates dedicated hot spares instead of global hot spares. To set global hot spares, see Table 4-10.	Optional. See Table 4-4 for specific usage information.
-i	*<filename>*	Reads the RAID configuration information from the given **.ini** filename and creates the RAID configurations on the specified controllers.	Mandatory. See Table 4-13 for specific usage information.
-l or logfile	*<filename>*	Logs command line output to a file.	Optional. See Table 4-14 for specific usage information.
-o	*<filename>*	Reads the RAID configurations from all available controllers and write these configurations in the given **.ini** filename.	Mandatory. See Table 4-13 for specific usage information.
-r or raid	*<valid RAID level number>*	Sets the RAID level for the array. Valid RAID values are 0, 1, 5, 10, 50. If no value is specified for RAID, 0 is taken as the default level.	Optional. See Table 4-4 for specific usage information.

Table D-2. RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-rp or readpolicy	ra, ara, nra, rc, nrc	Sets the read policy for the virtual disk.	Optional. See Table 4-4 for specific usage information.
-se or setenvironment	NA	Sets a user-defined environment variable to the value returned from the function call. Function calls are: `getcontrollerslots`, `getfirmware`, `getcontrollertype`, `getadisks`, `getadiskcount`, `getfreeadisks`, `getfreeadiskcount`, `getfreeadisksize`, `gethotspares`.	Mandatory. See Table 4-11 for specific usage information.
-si or silent	NA	Does not display any information on the terminal console.	Optional. See Table 4-14 for specific usage information.
-sz or size	*<number>*	Sets the maximum size on the virtual disk in MB or GB if the size is not provided. The default size is in MB. If GB follows the number, the size is expressed in GB.	Optional. See Table 4-4 for specific usage information.
-sp or spanlength	*<number>*	The span size of RAID 5, which is a mandatory parameter for RAID 50. **NOTE:** Spanlength is applicable only for RAID 50. The minimum permissible spanlength value is 3. The number of array disks for creating virtual disks should not be a prime number and should be divisible by the specified spanlength.	Mandatory. See Table 4-4 for specific usage information.

Table D-2. RAIDCFG Short and Long Format Options *(continued)*

Option	Valid Arguments	Short Description	Mandatory or Optional
-ssz or stripesize	*\<number\>*	Sets the stripe size on the virtual disk in KB. **NOTE:** When creating virtual disks, do not specify the units for chunk (stripe) size. The units are always listed in KB.	Optional. See Table 4-4 for specific usage information.
-vd or vdisk	NA	Displays the virtual disks under all of the controllers along with the physical array disks that make up the virtual disks.	See Table 4-6 for specific usage information.
-vd or vdisk	*\<valid virtual disk ID number\>*	Displays the specified virtual disk.	Optional. See Table 4-6 for specific usage information.
-ver or version	NA	Displays the version number of the utility.	Optional. See Table 4-14 for specific usage information.
-wp or writepolicy	wb, wt, wc, nwc	Sets the write policy for a virtual disk. The valid arguments are: **wb** (write-back caching), **wt** (write-through caching), **wc** (write-caching), and **nwc** (no-write-caching).	Optional. See Table 4-14 for specific usage information.

Glossary

The following list defines or identifies technical terms, abbreviations, and acronyms used in your system 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.

ACL
Abbreviation for access control list. ACL files are text files that contain lists that define who can access resources stored on a Novell® Web server.

adapter card
An expansion card that plugs into an expansion-card connector on the system's system board. An adapter card adds some specialized function to the system 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.

ANSI
Abbreviation for American National Standards Institute.

API

Abbreviation for application program interface, which is a set of routines, protocols, and tools for building software applications that act as an interface between the operating system and application programs.

argument

The value supplied with an option, such as in the following command line instance:

```
utilname --option=argument
```

ARP

Acronym for Address Resolution Protocol, which is a method for finding a host's Ethernet address from its Internet address.

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 Microsoft® Windows®), is called an ASCII file.

ASIC

Acronym for application-specific integrated circuit.

ASPI

Acronym for advanced SCSI programming interface.

asset tag code

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

attribute

As it relates to DMI, 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 system (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 system, 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 system's hard drive on a regular basis. Before making a change to the configuration of your system, 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 system.

beep code

A diagnostic message in the form of a pattern of beeps from your system'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 integrated circuit (IC) package that uses an array of solder balls, instead of pins, to connect to a system board.

binary

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

BIOS

Acronym for basic input/output system. Your system'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 system.

BMC

Abbreviation for baseboard management controller, which is the controller interface between the RAC and the managed system's ESM.

boot routine

When you start your system, 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 system by pressing <Ctrl><Alt><Del>; otherwise, you must perform a cold boot by pressing the reset button or by turning the system off and then back on.

bootable diskette

You can start your system from a diskette. To make a bootable diskette on a system running Windows, insert a diskette in the diskette drive, type sys a: at the command line prompt, and press <Enter>. Use this bootable diskette if your system does 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 system. Your system contains an expansion bus that allows the microprocessor to communicate with controllers for all the various peripheral devices connected to the system. Your system also contains an address bus and a data bus for communication between the microprocessor and RAM.

byte

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

C

Abbreviation for Celsius.

CA

Abbreviation for certification authority.

cache
A fast storage area that keeps a copy of data or instructions for quicker data retrieval. For example, your system'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 system'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.

CHAP
Acronym for Challenge-Handshake Authentication Protocol, an authentication scheme used by PPP servers to validate the identity of the originator of the connection upon connection or any time later.

m for Challenge-Handshake Authentication chip

chip
A set of microminiaturized, electronic circuits that are designed for use as processors and memory in systems. 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 inch square by 1/30 inch 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.

CIMOM

Acronym for common information model object manager.

CI/O

Abbreviation for comprehensive input/output.

CLI

Abbreviation for command line interface.

CMOS

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

command

The combination of an option and argument or just an option if no argument is required, such as in the following command line instances:

```
utilname --option

utilname --option=argument
```

command line example

A series of valid commands, options, and arguments typed in the command line. For example, the DTK utility name and all necessary options and arguments as they are entered through the operating system shell:

```
A:>utilname --option --option=argument
```

COM*n*

The device names for the first through fourth serial ports on your system 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.

config.sys file

The **config.sys** file is executed when you boot your system (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.

ConsoleOne

Novell ConsoleOne is a Java-based foundation for graphical utilities that manage and administer network resources from different locations and platforms. ConsoleOne provides a single point of control for all Novell and external products.

console redirection

Console redirection is a function that directs a managed system's display screen, mouse functions, and keyboard functions to the corresponding devices on a management station. You may then use the management station's system console to control the managed system.

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 system 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 systems. Unless they are specially designed, MS-DOS® programs are limited to running in conventional memory.

COO

Abbreviation for cost of ownership.

cooling unit

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

coprocessor

A chip that relieves the system'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.

CSR

Abbreviation for certificate signing request.

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.

DHCP

Abbreviation for Dynamic Host Configuration Protocol, a protocol that provides a means to dynamically allocate IP addresses to computers on a LAN.

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 one 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 personal computers 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 and an off position.

directory

Directories help keep related files organized on a disk in an 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.

DKS

Abbreviation for dynamic kernel support.

DMA

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

DMTF

Abbreviation for Distributed Management Task Force, a consortium of companies representing hardware and software providers.

dpi

Abbreviation for dots per inch.

DRAM

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

drive-type number

Your system 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 system's System Setup program must match the actual drive(s) installed in the system. 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.

DSU

Abbreviation for disk storage unit.

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 communication line. The DTE is connected to the cable or communication line through a data communication 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 microprocessor.

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 system 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.

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.

ESM

Abbreviation for embedded systems management, which is a set of instruction coding in system software and firmware that notifies a user about potential hardware problems on a system.

expanded memory

A technique for accessing RAM above 1 MB. To enable expanded memory on your system, 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 system 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 system'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.

FAT

Acronym for file allocation table. FAT and FAT32 are file systems that are defined as follows:

- FAT — A file system used by MS-DOS, Windows 3.*x*, Windows 95, and Windows 98. Windows NT® and Windows 2000 also can use the FAT file system. The operating system maintains a table to keep track of the status of various segments of disk space used for file storage.

- FAT32 — A derivative of the FAT file system. FAT32 supports smaller cluster sizes than FAT, thus providing more efficient space allocation on FAT32 drives.

- FAT16 — A derivative of the FAT file system. A volume using FAT16 can hold a maximum of 65,526 clusters. FAT16 is used for hard disk volumes ranging in size from 16 MB to 2,048 MB.

FEPROM

Acronym for flash erasable programmable read-only memory. Flash memory is a kind of nonvolatile storage device similar to EEPROM, but the erasing is done only in blocks or the entire chip.

Fibre Channel

A data transfer interface technology that allows for high-speed I/O and networking functionality in a single connectivity technology. The Fibre Channel Standard supports several topologies, including Fibre Channel Point-to-Point, Fibre Channel Fabric (generic switching topology), and Fibre Channel Arbitrated Loop (FC_AL).

firmware

Software (programs or data) that has been written onto read-only memory (ROM). Firmware can boot and operate a device. Each controller contains firmware which helps provide the controller's functionality.

flash BIOS

A BIOS that is stored in flash memory rather than in 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 system; 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

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

FRU

Abbreviation for field replaceable unit.

ft

Abbreviation for feet.

FTP

Abbreviation for file transfer protocol.

FQDN

Abbreviation for fully qualified domain name. It consists of a host and domain name, including top-level domain.

Example: *www.webopedia.com.*

www is the host, *webopedia* is the second-level domain, and *.com* is the top-level domain.

function commands

Commands that specify an action to be performed.

G

Abbreviation for gravities.

GB

Abbreviation for gigabyte(s). A gigabyte equals 1024 megabytes or 1,073,741,824 bytes.

gcc

Abbreviation for gnu C complier.

GMT

Abbreviation for Greenwich Mean Time, which is the standard time common to every place in the world. GMT nominally reflects the mean solar time along the prime meridian (0 longitude) that runs through the Greenwich Observatory outside of London, UK.

graphics coprocessor

See coprocessor.

graphics mode

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

GUI

Acronym for graphical user interface.

GUID

Globally unique identifier. A 16-byte identifier based on the host's network interface card (NIC) address and time stamp.

h

Abbreviation for hexadecimal. A base-16 numbering system, often used in programming to identify addresses in the system'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.

HBA

Abbreviation for host bus adapter. A PCI adapter card that resides in the system whose only function is to convert data commands from PCI-bus format to storage interconnect format (examples: SCSI, Fibre Channel) and communicate directly with hard drives, tape drives, CD drives, or other storage devices.

heat sink

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

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. *Also see* XMM.

host adapter

A host adapter implements communication between the system'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 still running. Also called a *hot spare*.

HPFS

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

HTTP

Abbreviation for Hypertext Transfer Protocol. HTTP is the client-server TCP/IP protocol used on the World Wide Web for the exchange of HTML documents.

HTTPS

Abbreviation for HyperText Transmission Protocol, Secure. HTTPS is a variant of HTTP used by Web browsers for handling secure transactions. HTTPS is a unique protocol that is simply SSL underneath HTTP. You need to use https:// for HTTP URLs with SSL, whereas you continue to use http:// for HTTP URLs without SSL.

Hz

Abbreviation for hertz.

ICES

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

ICMB

Abbreviation for Intelligent Chassis Management Bus.

ICMP

Abbreviation for Internet Control Message Protocol. ICMP is a TCP/IP protocol used to send error and control messages.

ICU

Abbreviation for ISA Configuration Utility.

ID

Abbreviation for identifier, commonly used when referring to a user identifier (user ID), object identifier (object ID), or hardware identifier (controller ID).

IDE

Abbreviation for Integrated Drive 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.

IHV

Abbreviation 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.

IP address

Abbreviation for Internet Protocol address. *See* TCP/IP.

IPMB

Abbreviation for intelligent platform management bus, which is a bus used in systems management technology.

IPMI

Abbreviation for Intelligent Platform Management Interface, which is a part of systems management technology.

IPX

Abbreviation 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 system (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 system are also compatible with 8-bit ISA expansion cards.

ISV

Abbreviation for independent software vendor.

ITE

Abbreviation for information technology equipment.

Java

A cross-platform programming language developed by Sun Microsystems.

JSSE

Abbreviation for Java Secure Socket Extension.

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 1000.

KB

Abbreviation for kilobyte(s), 1024 bytes.

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

Kbit(s)
Abbreviation for kilobit(s), 1024 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 system by pressing the <Ctrl><Alt><Del> key combination.

kHz
Abbreviation for kilohertz, 1000 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
Abbreviation for leaded or leadless chip carrier.

LCD
Abbreviation for liquid crystal display.

A type of display used in many portable computers. LCDs utilize two sheets of polarizing material with a liquid crystal solution between them. An electric current passed through the liquid causes the crystals to align so that light cannot pass through them. Each crystal, therefore, is like a shutter, either allowing light to pass through or blocking the light.

LIF
Acronym for low insertion force. Some systems 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 system 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 system's microprocessor.

LPT*n*

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

LRA

Abbreviation for local response agent.

mA

Abbreviation for milliampere(s).

MAC

Acronym for media access control, which is a network sublayer between a network node and the network physical layer.

MAC address

Acronym for media access control address, which is a unique address embedded in the physical components of a NIC.

mAh

Abbreviation for milliampere-hour(s).

managed system

A managed system is any system that is monitored and managed using Server Administrator. Systems running Server Administrator can be managed locally or remotely through a supported Web browser. *See* remote management system.

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 system 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 system with 16 MB of memory" refers to a system with 16 MB of RAM.

memory address

A specific location, usually expressed as a hexadecimal number, in the system'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. The MIB is used to send detailed status/commands from or to an SNMP managed device.

microprocessor

The primary computational chip inside the system 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

Acronym for musical instrument digital interface.

modem

A device that allows your system to communicate with other systems over telephone lines.

modular system

A system that can include multiple server modules. Each server module functions as an individual system. To function as a system, a server module is inserted into a chassis which includes power supplies, fans, a system management module, and at least one network switch module. The power supplies, fans, system management module, and network switch module are shared resources of the server modules in the chassis. See server module.

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).

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 CIM Management Object File (MOF).

NDIS

Abbreviation for Network Driver Interface Specification.

NDS

Abbreviation for NetWare® Directory Structure.

NIC

Acronym for network interface controller.

NICI

Abbreviation for NetWare International Cryptographic Infrastructure.

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 Windows NT File System option in the Windows NT operating system. NTFS is an advanced file system designed for use specifically within the Windows NT operating system. It supports file system recovery, extremely large storage media, and long filenames. It also supports object-oriented applications by treating all files as objects with user-defined and system-defined attributes. *See also* FAT and FAT32.

NTLM

Abbreviation for Windows NT LAN Manager. NTLM is the security protocol for 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 system. 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.

operation

The process of applying a command through the appropriate interface.

option

An argument to a command that modifies its function rather than providing data and is usually set off by a delimiter such as **-** or /. Some options may or must be followed by a value, for example:

```
utilname -option=argument
```

OTP

Abbreviation for one-time programmable.

PAM

Acronym for Pluggable Authentication Modules. PAM allows system administrators to set an authentication policy without having to recompile authentication programs.

parallel port

An I/O port used most often to connect a parallel printer to your system. You can usually identify a parallel port on your system 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 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. The predominant 32-bit or 64-bit local-bus standard 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™ Expandable RAID controller.

peripheral device

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

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 MB and 127 MB.

PIC

Acronym for programmable interrupt controller.

PIP

Acronym for peripheral interchange program.

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.

PKCS #7

Abbreviation for Public Key Cryptography Standard #7. PKCS #7 is an RSA Data Security, Inc., standard for encapsulating signed data such as a certificate chain.

PKIS

Abbreviation for Novell Public Key Infrastructure Services.

PLCC

Abbreviation for plastic leaded chip carrier.

PEF

Abbreviation for Platform Event Filter.

A PEF is a function that compares an event against a set of configurable event filters and triggers a selectable action, such as, an alert on a match.

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 system, 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 system 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.

PPP

Short for Point-to-Point Protocol; it is a method of connecting a computer to the Internet.

PQFP

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

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 to 4 GB
- Multitasking
- Virtual memory, a method for increasing addressable memory by using the hard drive

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

Abbreviation for quad flat pack.

RAC

Acronym for remote access controller.

RAID

Acronym for redundant array of independent drives.

RAM

Acronym for random-access memory. A system'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 system.

RAMDAC

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

RAM disk

A memory-resident program that emulates a hard drive.

RAS

Acronym for remote access service, which is a service provided by some Microsoft Windows operating systems that allows most of the services that would be available on a network to be accessed over a modem. The service includes support for dial-up and logon tasks and presents the same network interface as the normal network drivers used for the NIC.

RBAC

Abbreviation for role-based access control.

RDRAM

Acronym for Rambus DRAM. A dynamic RAM chip technology from Rambus, Inc. Direct RDRAMs are used in systems. 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.

remote management system

A remote management system is any system that accesses the Server Administrator home page on a managed system from a remote location using a supported Web browser. *See* managed system.

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

rpm

Abbreviation for revolutions per minute.

RPM

Abbreviation for RPM Package Manager.

RSA

Abbreviation for Rivest, Shamir, and Adleman, the inventors of a public key encryption technology developed by RSA Data Security, Inc.

RTC

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

SAN

Acronym for storage area network.

SAS

Acronym for Secure Authentication Services.

SATA

Abbreviation for Serial Advanced Technology Attachment.

SCA

Abbreviation 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.

SEL

Acronym for system event log.

The system event log is a time-stamped nonvolatile record of the most recent platform events that have been logged in the shelf.

SDMS

Abbreviation for SCSI device management system.

sec

Abbreviation for second(s).

SEC

Abbreviation for single-edge contact.

secure port server

An application that makes Web pages available for viewing by Web browsers using the HTTPS protocol. *See* Web server.

serial port

An I/O port used most often to connect a modem to your system. You can usually identify a serial port on your system 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 system 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.

server module

A modular system component that functions as an individual system. To function as a system, a server module is inserted into a chassis which includes power supplies, fans, a system management module, and at least one network switch module. The power supplies, fans, system management module, and network switch module are shared resources of the server modules in the chassis. *See* modular system.

service tag number

A bar code label that identifies each system in the event that you need to call 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 and 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

Abbreviation for surface mount device.

SMTP

Abbreviation for Simple Mail Transfer Protocol.

SNMP

Abbreviation for Simple Network Management Protocol. SNMP, a popular network control and monitoring protocol, is part of the original TCP/IP protocol suite. SNMP provides the format in which vital information about different network devices, such as network servers or routers, can be sent to a management application.

SNMP trap

A notification (event) generated by the RAC or ESM that contains information about state changes on the managed system or about potential hardware problems.

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 portable computers.

SOIC

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

SOJ

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

SOL

Abbreviation for Serial Over LAN. SOL enables suitably designed servers to transparently redirect the serial character stream of a baseboard UART to/from a remote client over a shared LAN. The architecture requires software running on the managed system's BMC and client software running on a management station and/or a central network proxy.

SRAM

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

SSH

Abbreviation for Secure Shell.

SSH is a program that may be used to log into another system over a network, to execute commands in a remote system, and to move files from one system to another. It provides strong authentication and secure communication over insecure channels.

SSL

Abbreviation for secure socket layer.

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.

support commands

Commands that specify how an action should be performed.

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 system.

switch

On a 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 system 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 system'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 system what hardware is installed and how the system 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 system's hardware and customize the system's operation by setting such features as password protection and energy management. Some options in the System Setup program require that you reboot the system (or the system 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.

TAP

Abbreviation for Telelocator Alphanumeric Protocol, which is a protocol used for submitting requests to a pager service.

TCP/IP

Abbreviation for Transmission Control Protocol/Internet Protocol. A system for transferring information over a computer network containing dissimilar systems, such as systems running Windows and UNIX®.

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.

TFTP

Abbreviation for Trivial File Transfer Protocol. TFTP is a version of the TCP/IP FTP protocol that has no directory or password capability.

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. Server Administrator-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
Abbreviation for thin quad flat pack.

TSR
Abbreviation for terminate-and-stay-resident. A TSR program runs in the background. Most TSR programs implement a pre-defined 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 system without starting any TSR programs.

TSOP
Abbreviation for thin small outline package. A very thin, plastic, rectangular surface mount chip package with gull-wing pins on its two short sides.

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

UDP
Abbreviation 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.

UPS

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

URL

Abbreviation for Uniform Resource Locator (formerly Universal Resource Locator).

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.

utility partition

A bootable partition on the hard drive that provides utilities and diagnostics for your hardware and software. When activated, the partition boots and provides an executable environment for the partition's utilities.

UTC

Abbreviation for Universal Coordinated Time. *See* GMT.

UTP

Abbreviation for unshielded twisted pair.

UUID

Abbreviation for Universal Unique Identification.

V

Abbreviation for volt(s).

VAC

Abbreviation for volt(s) alternating current.

Validation

Process of checking a command.

varbind

An algorithm used to assign an object identifier (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.

VDC

Abbreviation for volt(s) direct current.

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 system. 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 system'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 systems, 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 system.

video memory

Most VGA and SVGA video adapters include memory chips in addition to your system'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 system 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 system or network runs out of memory. The most common way that virus programs move from one system to another is by 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 system'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.

VNC

Abbreviation for virtual network computing.

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.

VT-100

Abbreviation for Video Terminal 100, which is used by the most common terminal emulation programs.

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*.

WAN

Abbreviation for wide area network.

Web server

An application that makes Web pages available for viewing by Web browsers using the HTTP protocol.

WH

Abbreviation for watt-hour(s).

winbom.ini file

Winbom.ini provides a bill-of-materials to guide the installation and configuration process. **Winbom.ini** is used in different ways throughout the preinstallation and manufacturing process.You can start a computer using Windows PE as the operating system, and run the command factory -winpe to preinstall Windows from a configuration set specified in the **Winbom.ini** file.

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.

X.509 Certificate

An X.509 certificate binds a public encryption key to the identity or other attribute of its principal. Principals can be people, application code (such as a signed applet) or any other uniquely identified entity (such as a secure port server or Web server).

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.

X Windows system

The graphical user interface used in the Red Hat Enterprise Linux environment.

ZIF

Acronym for zero insertion force. Some systems 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 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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