

SmartStart Scripting Toolkit User Guide



November 2002 (Eleventh Edition)
Part Number 212490-011

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About This Guide

This guide is intended for use as a reference for implementing the SmartStart Scripting Toolkit server deployment utilities.

Audience Assumptions

This guide is intended for experienced IT professionals. Some of the utilities in the Toolkit can cause a loss of data if used incorrectly. Thus, a clear understanding of these utilities is critical. Be sure that all mission-critical systems will remain active in the event of a system failure prior to using the utilities.

Where to Go for Additional Help

For issues or problems not addressed by this guide, refer to the following resources for more information.

Online Documentation

Refer to the following documentation at

www.hp.com/servers/sstoolkit

- *Next Generation Server Deployment Tools: SmartStart Scripting Toolkit* white paper
- *SmartStart Scripting Toolkit Best Practices*
- *SmartStart Scripting Toolkit General FAQs*
- *SmartStart Scripting Toolkit Troubleshooting FAQs*
- SmartStart Scripting Toolkit Support Matrix

HP Technical Support

Standard email support for the Toolkit is provided through

support@compaq.com

Technical support specialists provide the following services:

- Diagnosis of problems related to the functionality of the utilities in the Toolkit
- Advice about proper installation and setup of the software configuration parameters
- Solutions to known Toolkit problems

Technical support specialists do not provide the following services:

- Loading software applications
- Walk-through installations of the Toolkit
- Batch file creation, scripting development, unattended installation processes, or debugging
- Third-party software support

Be sure that you have the following information available before sending a technical support request:

- Technical support registration number (if applicable)
- Hardware product serial numbers (if applicable)
- Hardware product model names and numbers (if applicable)
- Applicable error messages
- Add-on boards or hardware (if applicable)
- Third-party hardware or software (if applicable)
- Operating system type and Toolkit revision level
- Detailed questions

Website Resources

For additional troubleshooting tips, see the *SmartStart Scripting Toolkit Troubleshooting FAQs* at

www.hp.com/servers/sstoolkit

For information on other topics, visit the websites under the headings that follow.

Leading Operating System Manufacturers

www.microsoft.com

www.novell.com

www.redhat.com

Unattended Installation Help

<http://www.microsoft.com/ntserver/techresources/deployment/NTserver/DeployRoadmap.asp>

www.microsoft.com/technet/treeview/default.asp?url=/technet/prodtechnol/windows2000pro/deploy/unattend/sp1/unatd.asp

www.novell.com/documentation/lq/nw51/othr_enu/data/a2zj6s4.html

www.novell.com/documentation/lq/nw6p/index.html?page=/documentation/lq/nw6p/othr_enu/data/hz8pck9v.html

www.linux.org/docs/ldp/howto/KickStart-HOWTO.html

DOS Boot Disk Help

For Microsoft help with creating a Network DOS boot diskette, visit

[ftp.microsoft.com/bussys/clients/msclient](ftp://ftp.microsoft.com/bussys/clients/msclient)

For additional help with creating a Network DOS boot diskette, visit

www.compaq.com/support/files/desktops/us/download/6682.html

Compaq Server Support Software

For information on support software, refer to

www.compaq.com/support/files/index.shtml

Customer Feedback

Submit support questions to

support@compaq.com

Telephone Numbers

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For HP technical support:

- In the United States and Canada, call 1-800-652-6672.
- Outside the United States and Canada, refer to www.hp.com

Introduction

The SmartStart Scripting Toolkit includes a set of DOS-based utilities for configuring and deploying servers in a customized, predictable, and unattended manner. These utilities duplicate the configuration of a source server on target servers with minimum user interaction. This guide describes the Toolkit utilities and explains how the utilities interact to provide scripted server and array replication for mass server deployment.



CAUTION: Improper use of the Toolkit utilities can result in loss of critical data. Because of the potential data loss risk, only experienced individuals should use the Toolkit utilities. Before using the Toolkit, all necessary precautions must be taken to ensure that mission-critical systems will remain online if a failure occurs.

New Features in Release 1.9 of the Toolkit

The Toolkit now includes the following new features:

- Expanded support for HP ProLiant ML, DL, and BL servers, HP storage controllers, and the HP Remote Insight Lights-Out Edition II (RILOE II) board
- Additional Configuration Replication utility options

NOTE: Items unique to this release are indicated by *NEW* throughout this guide.

Due to new architecture in SmartStart 6.0 and later, SmartStart Scripting Toolkit 1.8 and later no longer require the following tools, which have been removed from the Toolkit:

- The Configuration Replication Utility for Pre-ML/DL Servers (CF_REP)
- The System Partition Enabling Utility (SYSPART)
- The Populate System Partition Utility (PSYSPART)



CAUTION: Deletion of the preceding utilities and changes to the directory structure on the SmartStart CD require changes to the script files. Script files from release 1.7 and earlier of the Toolkit will not work properly with SmartStart 6.0 or later. For more information on scripting, refer to the *SmartStart Scripting Toolkit Best Practices*.

IMPORTANT: The SmartStart Scripting Toolkit 1.8 and later are optimized for SmartStart 6.0 and later. SmartStart Scripting Toolkit 1.7 and earlier align to SmartStart 5.x releases. For additional information, refer to the SmartStart Scripting Toolkit website at

www.hp.com/servers/sstoolkit

Deployment Methods and Installation Requirements

To use the Toolkit utilities to configure a target system, first create a series of configuration scripts from a configured source server. Then edit the script files for the unconfigured target server and copy the files and Toolkit utilities to a network share or a bootable server configuration diskette.

The bootable server configuration diskette may also contain a server batch file that is run on the newly installed target server to configure the hardware and install the operating system in an unattended manner.

Table 1-1 summarizes deployment methods and installation requirements for each method.

Table 1-1: Server Deployment Methods

Deployment Method	Type of Installation	Benefits	Installation Requirements
SmartStart	Single-server installation	Assistance during server configuration and software installation	<ul style="list-style-type: none"> SmartStart CD Package Operating system (OS) to install
SmartStart using replicated installation	Replicated multiple-server installations	Replication of a saved SmartStart configuration across multiple servers	<ul style="list-style-type: none"> Initial server configured from SmartStart Target server identical to original server
Toolkit	High-volume deployment using the CD as OS source	Automated, unattended deployment	CD with OS and HP support software
Toolkit	High-volume deployment using the network as OS source	Automated, unattended deployment using a file server hosting the OS and HP software	Network share with OS and HP support software
Toolkit	High-volume deployment using RILOE or RILOE II board	Automated, unattended deployment with remote installation over the network	<ul style="list-style-type: none"> RILOE or RILOE II on target servers Network share with OS and HP support software
Toolkit with third-party imaging applications	High-volume deployment using imaging applications	Automated, unattended deployment with the benefits of popular imaging applications	Third-party imaging application

New server deployment with the Toolkit includes three steps:

1. Creating a server profile
2. Creating a server batch file
3. Creating a server configuration diskette or a boot diskette that connects to the network software repository

STEP 1—Creating a Server Profile

The server profile for target servers is generated from an optimally configured source server that has booted from a DOS diskette. The server profile consists of four main configuration files and an optional fifth file (for the Remote Insight Lights-Out Edition board) that are edited to match the servers being deployed.

The five server configuration files include:

- **Hardware script file**—Contains server hardware configuration information.
- **Array script file**—Contains disk array configuration information.
- **Partition script file**—Contains disk partition information.
- **Unattended text file**—Contains unattended operating system software installation information. This file is defined by the operating system installation process and is not created with the Toolkit utilities.

NOTE: The unattended text file is created by the user. Examples are provided in the *SmartStart Scripting Toolkit Best Practices*.

- **Remote Insight Lights-Out Edition script file (optional)**—Contains data for boot-strapping a RILOE or RILOE II board or configuration to a server. This file is required only for customers who want to use the Toolkit on servers with RILOE or RILOE II installed.

NOTE: Linux operating systems do not support RILOE scripting.

These five configuration script files contain all the server configuration information and become the basis for the server batch file.

IMPORTANT: The Toolkit utilities should be run in MS-DOS 6.22 or 7.0. The utilities do not function properly in DOS emulation within Microsoft Windows 95, Windows 98, Windows NT, or Windows 2000 operating systems. The utilities also do not function in a DOS emulator running under Red Hat Linux 6.2, 7.x, or 8.0.

HP has five utilities that create configuration files for the hardware, array, and partition configurations from an existing server. The Toolkit utilities read the configuration of a source server and duplicate it on a target server through a generated script file. Figure 1-1 illustrates the server deployment process using the Toolkit utilities.

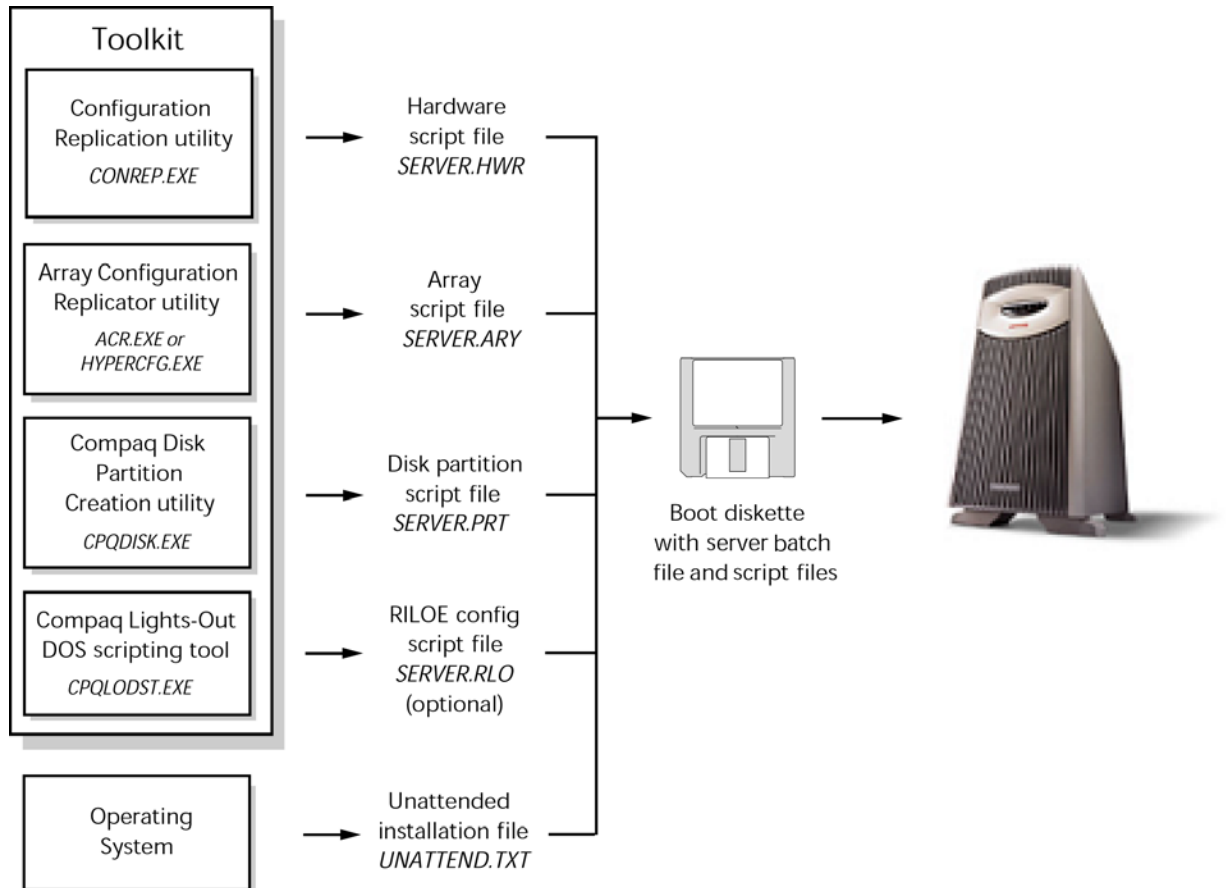


Figure 1-1: SmartStart Scripting Toolkit server deployment process

Configuration Replication Utility

The Configuration Replication Utility (CONREP) generates a hardware configuration file based on the server on which it is initially run. Run the configuration utility to create the hardware configuration data files that comprise the server profile.

NOTE: Although all of the Toolkit utilities, except CONREP, should run on all unsupported servers, the utilities have been tested only on the servers and controllers listed in the SmartStart Scripting Toolkit Matrix on the HP website at

www.hp.com/servers/sstoolkit

Array Configuration Replicator Utility

The Array Configuration Utility (ACR) creates a configuration script file that contains the array controller configuration information.

Integrated ATA RAID Replication Utility

HYPERCFG creates a configuration script file that contains the array controller configuration information for the ProLiant ML330 G2 server embedded ATA RAID controller.

Compaq Disk Partition Creation Utility

CPQDISK creates a configuration script file that defines the disk partition of the first logical drive on the server.

NOTE: The CPQDISK utility recognizes the system partition type and records any active partition it detects as a primary DOS partition when saving the data to the file.

Unattended Installation Text File

The unattended installation text file is defined by the operating system installed on the server. This file contains information required to run an unattended installation of the server operating system and is created and customized by the user. This file is not required if the user is attempting an unattended installation.

Compaq Lights-Out DOS Utility

The Compaq Lights-Out DOS Utility (CPQLODOS) generates a hardware configuration script file that is used to duplicate the RILOE or RILOE II configuration of an optimally configured source ProLiant ML or DL server to a target server.

The Compaq Lights-Out DOS Utility is not intended for continued administration. Use the Compaq Lights-Out Configuration Utility (CPQLOCFG) for administration purposes.

NOTE: RILOE and RILOE II scripting is not supported with Linux operating systems or when using the NetWare Client.

For more information on these utilities, refer to the *Remote Insight Lights-Out Edition User Guide* or the *Remote Insight Lights-Out Edition II User Guide* available at

www.hp.com/servers/lights-out

STEP 2—Creating a Server Batch File

Although server deployment is simpler when the source server configuration mirrors that of the target server, the Toolkit does not limit the user to this condition. The script files generated by the utilities can be edited and customized.

After the server profile script files are generated, use any ASCII text editor to edit the script files so that they conform to the hardware available on the target servers. A full description of the options and values that each script file accepts is given in Chapter 2 of this guide.

Next, create a server batch file using any ASCII text editor and incorporate various Toolkit utilities and DOS commands into the batch file. Use the edited server profile script files as input data files for the various Toolkit utilities to fully configure target servers. Several batch file–specific DOS commands can be used in the server batch file.

NOTE: Refer to the *SmartStart Scripting Toolkit Best Practices* for detailed examples of server batch files that launch server deployment processes.

DOS commands commonly used in batch files include:

- CALL—Runs a second batch file, then returns to the first batch file.
- ECHO—Displays messages on the screen. Turns the DOS echo feature on or off.
- FOR—Carries out a command for a group of files or directories.
- GOTO—Switches to commands in another part of the batch file and then continues processing commands.
- IF—Carries out a command based on the result of a condition.
- PAUSE—Pauses the batch file run and resumes when any key is pressed.
- REM—Annotates the batch file for documentation purposes.
- SHIFT—Changes the position of replaceable parameters.
- SUBST—Maps a directory as a drive letter.

NOTE: For more information about batch files and each of these commands, refer to the documentation provided with DOS.

In addition to standard DOS commands, the server batch file runs utilities from the Toolkit to set up and configure the target servers.

The configuration utilities and the following boot, disk, and system utilities modify and customize the server batch file. See Chapter 2 for a description of the arguments that each utility accepts.

Boot Utilities

During configuration and setup, the target server may need to reboot several times. The Toolkit contains four boot utilities that instruct the target server about when and how to reboot. Using the boot utilities, the user can customize the boot process.

Reboot Utility

REBOOT controls server reboots during the installation process. The utility determines to which device the server boots next and then performs the reboot. If no arguments are used, REBOOT restarts the target server using the default boot device as defined by the system configuration settings.

Set Boot Order Utility

STBTORDR changes the boot order of the target server for all reboots following the command. It also permanently changes the target server default boot order in the system settings without rebooting the server.

IMPORTANT: Due to the adoption of the BIOS Boot Spec for ProLiant ML G2 and DL G2 servers, STBTORDR functionality has been replaced with the enhanced functionality of the CONREP utility and data files. STBTORDR does not work with ProLiant ML/DL G2 servers. Use CONREP to modify the boot order on ProLiant ML/DL G2 systems.

Set Boot Utility

SETBOOT sets which device the server is to boot to next without rebooting the server. This utility provides control over which device boots during the installation process. SETBOOT sets the boot order for the next boot only.

Preboot eXecution Environment Enable/Disable Utility

PXEBOOT enables or disables Preboot eXecution Environment (PXE) functionality for embedded NICs on supported servers. Only one NIC can be enabled at a time.

Disk Utilities

The Toolkit contains two disk utilities used to configure hard drives in a system.

Compaq Disk Partition Creation Utility

CPQDISK creates a script file that defines the disk partition of the first logical drive of the server. Use this utility to set up the disk drive and to create partitions up to 4 GB. This utility is operating system-independent and works on all hard drive partition types.

Compaq Disk Formatting Utility

When setting up a new system, the hard drives may require formatting before an operating system is installed. CPQFMT formats the target server hard drive and provides partition formats of up to 4 GB each.

System Utilities

The Toolkit also contains seven system utilities used to control various steps in the installation process or to create a diskette for use during the installation process.

State Manager Utility

STATEMGR manages persistent state information between system reboots and sets and reads a state variable in the batch file. Setting and reading the state variable enables the user to control the steps necessary to complete the configuration of the target server. The state variable can be any word that is eight characters or less, and the value can be any integer between 0 and 254. STATEMGR also clears any previously set state variable.

System Type Utility

SYSTYPE identifies the server and translates the system ID to an integer between 0 and 254. The ID is returned as a DOS error level during batch execution. SYSTYPE provides for branching the deployment process to server-specific server batch file versions from within the AUTOEXEC.BAT file.

Array Type Utility

ARRTYPE reports which array controllers are configured on the target server or displays all array controllers configured on the target server, then translates the controller ID to an integer between 0 and 254. The ID is returned as a DOS error level during batch execution. ARRTYPE provides for branching the deployment process to array-specific server batch file versions from within the AUTOEXEC.BAT file.

Sign Disk Utility

SIGNDISK places a signature on the bootable server configuration diskette that launches the server batch file, forcing the system ROM to bypass the F1/F10 setup prompt. Bypassing the F1/F10 setup prompt allows the system to continue running with minimal user interaction.

NOTE: SIGNDISK is not intended for use while running the server batch file.

File Copy Utility

FILECOPY copies files based on a list described in a text file. If the user wants to copy files to a new system as part of server deployment, FILECOPY enables listed files to be copied to the specific location. FILECOPY is similar to the DOS XCOPY command, but it offers enhanced functionality and is not dependent on a specific DOS version.

Virtual Floppy Utility

If a RILOE board is installed in the target server, VFLOP controls the boot and write-protect status of the RILOE Virtual Floppy Drive. The utility enables the user to manipulate the Virtual Floppy Drive from a command line.

CD Eject Utility

CDEJECT uses the MS-DOS CD-ROM Driver (MSCDEX.EXE) utility to eject the CD tray from a target server.

STEP 3—Creating a Server Configuration Diskette

A bootable server configuration diskette enables customized server deployment.

The server configuration diskette must meet the following minimum requirements:

- Boots Caldera DOS 7.2 (NetWare) or MS-DOS 6.22 or 7.0 (Microsoft Windows or Linux)
- Signed using SIGNDISK
- Contains an AUTOEXEC.BAT file that loads the appropriate drivers and launches the server batch file

NOTE: When fully configured, the server configuration diskette can also be used to restore the server configuration.

If the target server does not have access to a network share, the server configuration diskette can also contain the server batch file, script files, and the Toolkit utilities. Otherwise, these files are stored on a network share and run from the network location, as long as the appropriate network stacks are created at the beginning of the configuration process.

Users can also create an installation CD containing all the software required to install the operating system on the target server and to run the Toolkit utilities. The user determines and maintains the directory structure of the CD.

IMPORTANT: Software is generally furnished under a license agreement and may be used or copied only in accordance with the terms of the agreement. Before copying software to a network software repository or creating a custom installation CD, refer to the terms of the software license agreement.

NOTE: Some utilities in the Toolkit require specific directory structures to operate properly. Refer to Chapter 2 for details about directory structure requirements.

Figure 1-2 illustrates the steps involved in the server configuration process using the utilities included in the Toolkit.

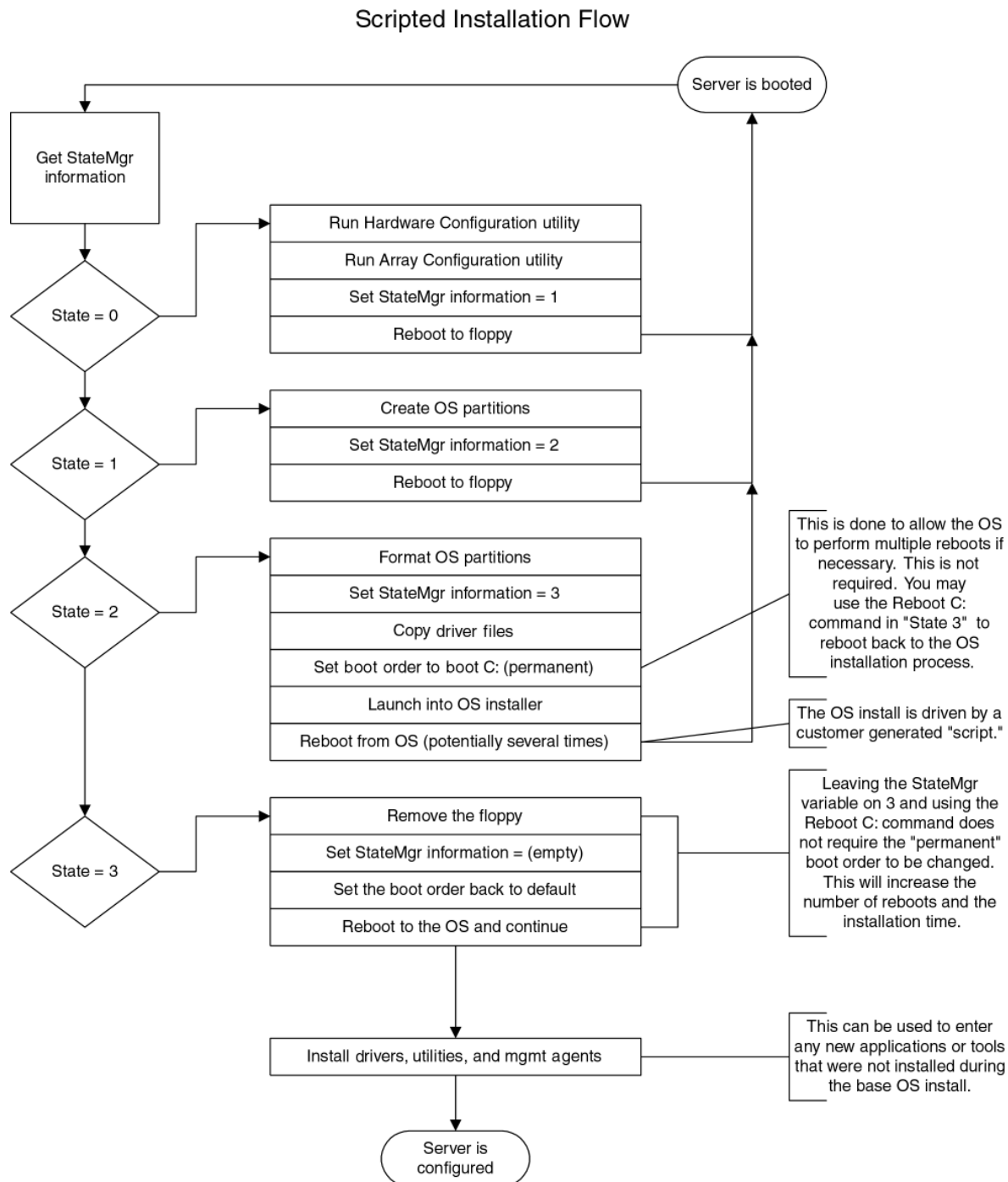


Figure 1-2: Scripted installation flow

For complete server deployment sample scripts, refer to the *SmartStart Scripting Toolkit Best Practices*.

Introduction

This chapter describes each utility in the SmartStart Scripting Toolkit and explains the command syntax required to use each utility.



CAUTION: Some of the utilities in the Toolkit can destroy data if used incorrectly. Because of the potential risk of data loss, take all necessary precautions to safeguard data so that mission-critical systems remain online if a failure occurs.

IMPORTANT: The Toolkit utilities require DOS 6.22 or 7.0.

- The utilities do not function properly running DOS emulation in Microsoft Windows 95, Windows 98, Windows NT, or Windows 2000 operating systems.
- The utilities do not function running DOS emulation under Linux.

Typical Implementation of the Utilities

All the utilities that form the Toolkit combine with standard batch file commands to fully configure a target server based on a configured source server. All necessary utilities, script data files generated by the utilities, and the server batch file fit on a standard 1.44-MB diskette. However, they do not fit on a standard 1.44-MB diskette if the server configuration diskette contains network software.

You can use the Toolkit utilities to customize server deployment to fit your needs. The following steps describe one example of a deployment:

1. Configure the hardware, arrays, and disk partitions on a source server using SmartStart. This configuration will be replicated to target servers by using the Toolkit utilities.
2. Generate the script files using CONREP, ACR, and CPQDISK.

IMPORTANT: If deploying a ProLiant ML330 G2 server with an embedded AMI ATA RAID controller, use HYPERCFG to generate a non-editable array configuration data file. Do not use ACR.

3. Review the server profile script files for accuracy and potential changes for the target server.
4. Create a network share accessible by the target server and copy operating system and driver files to be installed on the target server on the network share. Alternately, create a CD with these same files.

IMPORTANT: Software is generally furnished under a license agreement and may be used or copied only in accordance with the terms of the agreement. Before copying software to a network software repository or creating a custom installation CD, refer to the terms of the software license agreement.

5. Store the script files and the Toolkit utilities on the network share or the user-created CD.
6. Create a bootable server configuration diskette containing an AUTOEXEC.BAT file that launches the server batch file used to deploy the target server, depending on the HP system ID that is detected on the target server.

IMPORTANT: If installing over a network, the server configuration diskette must also contain network software that connects the target server to a network share before launching the deployment process.

7. Run SIGNDISK on the bootable server configuration diskette.
8. Be sure that the server batch file references the Toolkit utilities and launches the operating system installer with appropriate command line arguments.

9. Create a server installation operating system script file by modifying the Windows UNATTEND.TXT, NetWare RESPONSE.NI, or Linux ks.cfg files.

For additional information about the unattended installation text file, refer to the following resources:

- Operating system documentation
- *Microsoft Windows NT Server 4.0 Resource Kit*
- *Deployment Resources Roadmap: A Guide to Deploying Windows NT Server 4.0*
This document is available at
<http://www.microsoft.com/ntserver/techresources/deployment/NTserver/DeployRoadmap.asp>
- *Microsoft Windows 2000 Server Resource Kit*
- *Microsoft Windows 2000 Guide to Unattended Setup*
This document is available at
www.microsoft.com/technet/treeview/default.asp?url=/technet/prodtechnol/windows2000pro/deploy/unattend/sp1unatd.asp
- *Automating the NetWare 5 Installation with a Response File*
This document is available at
www.novell.com/documentation/lg/nw51/othr_enu/data/a2zj6s4.html
This document is also available as Technical Information Document (TID) 10055290.
- *Automating the NetWare 6 Installation with a Response File*
This document is available at
www.novell.com/documentation/lg/nw6p/index.html?page=/documentation/lg/nw6p/othr_enu/data/hz8pck9v.html
- *Red Hat Linux KickStart HOWTO*
This document is available at
www.linux.org/docs/ldp/howto/KickStart-HOWTO.html

NOTE: Toolkit deployment requires fewer modifications to script files when the target server hardware mirrors the source server hardware. At a minimum, the source server should be the same product as the target server.

10. Boot the target server with the server configuration diskette and supervise the deployment. The procedure requires minimal interaction from this point forward.

Syntax Conventions

Syntax refers to the way a command and parameters must be typed. Unless specified otherwise, type commands, parameters, and switches in all uppercase or all lowercase letters.

Example 2-1: Sample syntax line

```
SAMPLE[+R|-R][DRIVE:][PATH]FILENAME[...]
```

The meaning of each component of the sample syntax line is defined in Table 2-1.

Table 2-1: Command Line Syntax

Command Element	Meaning
SAMPLE	Specifies the name of the command.
[]	Indicates a component of the command line. Type only the information within the brackets, not the brackets themselves.
	Separates two mutually exclusive choices in a syntax line, as shown in the following example: break [on off] Type only one of these choices, break on or break off.
/ or -	Indicates a command line switch for executable files.
DRIVE:	Specifies the name of the hard disk drive, diskette drive, or other storage device.
PATH	Specifies the route the operating system must follow through the directory structure to locate a directory or file. A path and file name must be specified only if the file is not in the current directory.
FILENAME	A file name can be up to eight characters long and can be followed by a period (.) and an extension of up to three characters (for example, NW50CNFG.HWR). File names that follow this pattern adhere to the DOS 8.3 file naming convention. This document uses uppercase file names, but the file name can be typed in uppercase or lowercase letters. A device name or a drive letter cannot be specified for a file name.
...	Indicates that the previous parameter or switch can be repeated several times in a command. Type only the information, not the ellipsis (...) itself.
NOTE: In this document, the length of an example command or syntax may require it to continue on another line. When this happens, the second line (and any additional lines) is indented under the first line.	

Placeholder items used in the syntax lines in this chapter include:

- **Source**—Specifies the location of the data to be transferred to a specified destination or used as input to a command. The source can consist of a drive letter and colon, a directory name, a file name, or a combination of these items.
- **Destination**—Specifies the location to which the data specified by the source is to be transferred. The destination can consist of a drive letter and colon, a directory name, a file name, or a combination of these items.
- **String**—Specifies a group of characters to be treated as a unit. A string can include letters, numbers, spaces, or any other characters and is usually enclosed in double quotation marks.

Utility Online Help

Most Toolkit utilities include usage instructions. To obtain help with the syntax, parameters, and switches of a particular Toolkit utility, type the file name followed by `/?` in the command line. For example, for usage instructions on the ACR utility, enter the following command:

```
ACR /?
```

The utility displays information about its command line syntax, argument, and switches.

Configuration Utilities

The configuration utilities read the source server configuration and duplicate that configuration on a target server through a generated script file. The configuration utilities include:

- CONREP
- ACR
- HYPERCFG
- CPQLODOS

Configuration Replication Utility

CONREP generates a hardware configuration script file used to duplicate the hardware configuration of one ProLiant ML or DL series server onto another.

CONREP reads the state of the system environment variables and CMOS settings to determine the configuration of the server and writes the results to a text file that can be edited by the user. The utility then uses the data in the generated script file to configure the hardware of the target server.

Command Line Syntax

```
CONREP [/S[H] | /L] [DRIVE:][PATH]FILENAME [/?] [/P]
```

-or-

```
CONREP [-S[H] | -L] [DRIVE:][PATH]FILENAME [/?] [/P]
```


Command Line Arguments

IMPORTANT: Script file names generated and used by CONREP must follow the DOS 8.3 file naming convention.

`/S or -S`

This argument captures the hardware configuration of the source server and writes it to the script file specified by `[DRIVE:][PATH]FILENAME`.

`H`

This argument writes help comments to the script file specified by `[DRIVE:][PATH]FILENAME` and is used only with `/S` or `-S`.

`/L or -L`

This argument reads the configuration from the script file specified by `[DRIVE:][PATH]FILENAME` and writes it to the target server.

`/?`

This argument displays help information.

`/P or -P`

This argument pauses execution of the deployment when an error is encountered.

Command File Contents

A typical hardware configuration script file generated by CONREP displays script similar to the following:

```
Version 0.8
System_Id 685
OS_Major 5
OS_Minor 6
System_ComPort_A COM1; IRQ4
System_ComPort_B Disabled
System_Lpt_Port Disabled
System_Mouse Enabled; IRQ12
System_CPU_Serial_Number Disabled
System_APIC Full Table APIC
System_Diskette_Write Undefined
Standard_Boot_Order A: CD C: Tape

Controller_Order1_ID 0E 11 40 40
Controller_Order1_SlotNumber 0
Controller_Order1_Bus_Device_Function 00 01 00
Controller_Order2_ID 0E 11 FF FF
Controller_Order2_SlotNumber 0
Controller_Order2_Bus_Device_Function FF FF 00
```

```
ASR_Status Enabled
ASR_Timeout 10 minutes
ASR_Pager_Status Enabled
ASR_Pager_Dial_String 12345678900
ASR_Pager_Message 1234#
Thermal_Shutdown Enabled

Server_Name1 HouEmail1
Server_Asset1 HouEmail1
Server_OS1 Windows 2000 Server
Server_Misc1 other1
Admin_Name1 John Doe
Admin_Phone1 1234567890
Admin_Pager1 9876543210
Admin_Misc1 admin other1
Service_Name1 Jane Doe
Service_Phone1 1234567890
Service_Pager1 9876543210
Service_Misc1 service other1

RBSU_Language English

Diskette_Boot Enabled
NumLock Off
Post_F1_Prompt Enabled
Post_Speedup Enabled
PCI_Bus_Reset Enabled

Hot_Plug_Resources Normal

IRC_Enabled 1
IRC_Device 0
IRC_ComPort 2
IRC_ComIRQ 3
IRC_Share 0
IRC_Keyboard 0
IRC_ModemInit ATZ
IRC_ExtraInit AT&C1&D2
IRC_DialPrefix ATDT
IRC_AnswerMode ATS0=1
IRC_BaudRate 19200
IRC_DataBits 3
IRC_StopBits 0
IRC_Parity 0
IRC_User0_NewUser 0
IRC_User0_LoginName username
IRC_User0_Password password
IRC_User0_DialBackNumber 1
IRC_User0_Supervisor 1
IRC_User0_RemoteConsole 1
IRC_User0_RemoteReset 1
IRC_User0_BootSequence 1
IRC_User0_DialBackRequired 0
IRC_UserCount 1
```

The script file used by CONREP is a text file that contains options and parameters required to configure HP servers. The utility parses the script file in a case-insensitive manner. The script file can contain a blank line or a line in the form of the option name followed by a space and a value.

A semicolon is used as a first character in a line for comments within script files, and the utility ignores everything after a semicolon up to the next line.

Table 2-2 shows the contents of a typical CONREP script file and the possible values of each option.

IMPORTANT: Some servers do not support all features. Refer to the server documentation for more information on features supported by the server being deployed.

Table 2-2: Configuration Replication Utility

Option	Value
Operating System Configuration	
Version	This option refers to the version of the CONREP utility.
System_Id	This option identifies the server. Do not modify the value of this option.
OS_Major	This value defines the major operating system. See Table 2-3 for possible values. Avoid modifying the value of this option.
OS_Minor	This value defines the minor operating system. See Table 2-3 for possible values. Avoid modifying the value of this option.
Standard ISA Device Configuration	
System_ComPort_A	Common values for this option include: COM 1; IRQ4 COM 2; IRQ3 COM 3; IRQ5 COM 4; IRQ4 Disabled This option defines the COM port and IRQ in use by the first embedded serial port.
System_ComPort_B	Common values for this option include: COM 1; IRQ4 COM 2; IRQ3 COM 3; IRQ5 COM 4; IRQ3 Disabled This option defines the COM port and IRQ in use by the second embedded serial port.

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
System_Lpt_Port	<p>Common values for this option include:</p> <p>LPT 1; IRQ7 LPT 2; IRQ5 LPT 3; IRQ7 Disabled</p> <p>This option defines the LPT port and IRQ in use by the embedded parallel port.</p>
System_Mouse	<p>Common values for this option include:</p> <p>Enabled; IRQ12 Disabled</p> <p>This option defines whether the system mouse is enabled or disabled and which IRQ is used by the mouse.</p>
System_CPU_Serial_Number	<p>Possible values for this option include:</p> <p>Enabled Disabled</p> <p>This option defines whether the processor serial number is enabled or disabled.</p>
System_APIC	<p>Possible values for this option include:</p> <p>Full Table APIC Full Table Mapped Disabled Auto Set Table</p> <p>This option defines the available APIC mode settings.</p>
System_Diskette_Write	<p>Possible values for this option include:</p> <p>Read and Write Read Only</p> <p>This option defines access to the diskette drive.</p>
System_Processor_Hyper_Threading	<p>Possible values for this option include:</p> <p>Enabled Disabled</p> <p>This option defines whether Intel Hyper-Threading Technology is enabled or disabled. Hyper-Threading Technology allows two logical processors in one physical processor to execute different tasks simultaneously using the shared hardware resources of that single processor.</p>
System_NMI_Debug_Button	<p>Possible values for this option include:</p> <p>Enabled Disabled</p> <p>This option defines whether the NMI debug button on the system motherboard is enabled or disabled.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
System_WOL <i>NEW</i>	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled Disabled <p>This option defines whether Wake-On LAN is enabled. This option is only supported on RBSU systems.</p>
Standard_Boot_Order	<p>Common values for this option include:</p> <ul style="list-style-type: none"> A:, CD, C:, Tape A:, C:, CD C:, A:, CD C:, CD, A: CD, A:, C: CD, C:, A: <p>This option defines the boot order of the server.</p>
Memory_Protection	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Standard ECC Mirrored Single-Board Mirrored Online-Spare <p>This option defines the level of mirrored memory protection.</p> <p>This option is included only on ProLiant ML/DL G2 single-board mirrored servers.</p>
Controller_Order1_ID	<p>0E 11 40 40 This option defines the first mass-storage device controller ID string.</p> <p>To change the controller order, change only the number in the option label and be sure that all labels for each controller are changed.</p> <p>Avoid modifying the value of this option.</p>
Controller_Order1_SlotNumber	<p>0</p> <p>This option defines the slot number that the first mass-storage device controller is in.</p> <p>To change the controller order, change only the number in the option label and be sure that all labels for each controller are changed.</p> <p>Avoid modifying the value of this option.</p>
Controller_Order1_Bus_Device_Function	<p>00 01 00</p> <p>This option defines the function of the first mass-storage device controller.</p> <p>To change the controller order, change only the number in the option label and be sure that all labels for each controller are changed.</p> <p>Avoid modifying the value of this option.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
IPL_Device0	<p>CD-ROM</p> <p>This option describes the first device in the IPL boot order.</p> <p>To change the boot order, change only the number in the option label and be sure that all labels for each device are changed.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
IPL_Device0Index	<p>0</p> <p>This option defines the index of the first device in the IPL boot order.</p> <p>To change the boot order, change only the number in the option label and be sure that all labels for each device are changed.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on the ProLiant ML/DL G2 servers.</p>
PCI_Device1_ID	<p>This option describes the first PCI device in the system.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
PCI_Device1_Bus	<p>This option describes the first PCI device in the system.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
PCI_Device1_Device	<p>This option describes the first PCI device in the system.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
PCI_Device1_Function	<p>This option describes the first PCI device in the system.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
PCI_Device1_Index	<p>This option describes the first PCI device in the system.</p> <p>Avoid modifying the value of this option.</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
PCI_Device1_IRQ	<p>This option describes the first PCI device in the system.</p> <p>Possible values for this option include:</p> <p>1–15 Disabled</p> <p>This option is included only on ProLiant ML/DL G2 servers.</p>
BIOS Serial Console Configuration	
BIOS_Console_Port	<p>Possible values for this option include:</p> <p>COM1 COM2 Disabled</p> <p>This option defines the console port.</p>
BIOS_Console_Baud_Rate	<p>Possible values for this option include:</p> <p>9600 19200 57600 115200</p> <p>This option defines the console baud rate.</p>
BIOS_Console_Mode	<p>Possible values for this option include:</p> <p>VT100 ANSI</p> <p>This option defines the console mode.</p>
EMS_Console	<p>Possible values for this option include:</p> <p>Disabled Local Remote</p> <p>This option defines access to the EMS console.</p>
Automatic Server Recovery (ASR) Configuration	
ASR_Status	<p>Possible values for this option include:</p> <p>Enabled Disabled</p> <p>This option defines whether ASR is enabled or disabled.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
ASR_Timeout	<p>Common values for this option include:</p> <ul style="list-style-type: none"> 2 minutes 5 minutes 10 minutes 15 minutes 20 minutes 30 minutes <p>This option defines the ASR timeout.</p>
ASR_Pager_Status	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled COM1 Enabled COM2 Disabled <p>This option defines whether pager forwarding for ASR is enabled or disabled and which COM port is used for forwarding.</p>
ASR_Pager_Dial_String	This option defines a 60-character dial string.
ASR_Pager_Message	This option defines an eight-character pager message string.
Thermal_Shutdown	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled Disabled <p>This option defines whether ASR thermal shutdown is enabled or disabled.</p>
Integrated Management Display (IMD) String Configuration	
Server_Name1	This option defines two lines of 15 characters each for the IMD server name string.
Server_Asset1	This option defines two lines of 17 characters each for the IMD server asset tag string.
Server_OS1	This option defines three lines of 15 characters each for the IMD server primary operating system string.
Server_Misc1	This option defines two lines of 15 characters each for a miscellaneous IMD text string.
Admin_Name1	This option defines two lines of 15 characters each for the IMD administrator name string.
Admin_Phone1	This option defines two lines of 15 characters each for the IMD administrator phone number string.
Admin_Pager1	This option defines two lines of 15 characters each for the IMD administrator pager number string.
Admin_Misc1	This option defines two lines of 15 characters each for a miscellaneous IMD administrator text string.
Service_Name1	This option defines two lines of 15 characters each for the IMD service name string.

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
Service_Phone1	This option defines two lines of 15 characters each for the IMD service phone number string.
Service_Pager1	This option defines two lines of 15 characters each for the IMD service pager number string.
Service_Misc1	This option defines two lines of 15 characters each for a miscellaneous IMD service text string.
ROM-Based Setup Utility (RBSU) Configuration	
RBSU_Language	<p>This option is only for servers that support RBSU.</p> <p>Possible values for this option include:</p> <ul style="list-style-type: none"> English French German Italian Japanese Spanish <p>This option defines the language used by the ROM-Based Setup Utility.</p>
CMOS Configuration	
Diskette_Boot	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled Disabled <p>This option defines whether the diskette boot option is enabled or disabled.</p>
NumLock	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> On Off <p>This option defines whether the keyboard NumLock key is on or off.</p>
Post_F1_Prompt	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled Disabled Delayed <p>This option defines whether the system enables the user to access BIOS setup routines through the F1 key during system boot.</p>
Post_Speedup	<p>Possible values for this option include:</p> <ul style="list-style-type: none"> Enabled Disabled <p>This option defines whether all POST routines run by the system on boot or if a subset of routines is run instead, enabling a quicker boot process.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
PCI_Bus_Reset	<p>Possible values for this option include:</p> <p>Enabled Disabled</p> <p>This option defines whether the PCI bus is reset on boot.</p>
Hot-Plug Resource Configuration	
Hot_Plug_Resources	<p>Possible values for this option include:</p> <p>Disabled Minimal Normal Extensive Auto Set</p> <p>This option defines the amount of system resources set aside for use by hot-plug devices.</p> <p>Minimal and Auto Set are available only on RBSU systems.</p>
Integrated Remote Console (IRC) Configuration	
IRC_Enabled	<p>Possible values for this option include:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether IRC is enabled or disabled.</p>
IRC_Device	<p>0</p> <p>This option defines the IRC device that is used. Do not modify this value.</p>
IRC_ComPort	<p>2</p> <p>Possible values are any standard COM port designation. This option defines the COM port that the IRC device uses.</p>
IRC_ComIRQ	<p>3</p> <p>Possible values are any standard IRQ designation. This option defines the IRQ that the IRC device COM port uses.</p>
IRC_Share	<p>Possible values for this option include:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether the IRQ is shared among other devices in the system.</p>
IRC_Keyboard	<p>0</p> <p>This option defines the language of the keyboard.</p>
IRC_ModemInit	<p>A common initialization string is:</p> <p>ATZ</p> <p>This option defines the initialization string that is passed on to the IRC device.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
IRC_ExtraInit	<p>A common initialization string is: AT&C1&D2</p> <p>This option defines additional initialization strings that are passed on to the IRC device.</p>
IRC_DialPrefix	<p>Common dial prefix strings include: ATDT ATDP</p> <p>This option defines the dial prefix string that is passed on to the IRC device.</p>
IRC_AnswerMode	<p>A common answer mode initialization string is: ATS0=1</p> <p>This option defines the initialization string that is passed on to the IRC device to set it to answer mode.</p>
IRC_BaudRate	<p>Common values for the baud rate option are: 110, 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200</p> <p>This option defines the baud rate communication parameter of the IRC device.</p>
IRC_DataBits	<p>Possible values for this option are: 7, 8</p> <p>This option defines the data bits communication parameter of the IRC device.</p>
IRC_StopBits	<p>Possible values for this option are: 0, 1, 2</p> <p>This option defines the stop bits communication parameter of the IRC device.</p>
IRC_Parity	<p>Possible values for this option are: Even Odd None</p> <p>This option defines the parity communication parameter of the IRC device.</p>

continued

Table 2-2: Configuration Replication Utility *continued*

Option	Value
IRC_User0_NewUser	<p>Possible values for this option are:</p> <p>0 (No) 1 (Yes)</p> <p>This option defines whether the IRC device User0 is a new user.</p> <p>Additional users are defined sequentially as:</p> <p>IRC_User1_NewUser IRC_User2_NewUser IRC_User3_NewUser, and so on.</p>
IRC_User0_LoginName	This option defines the IRC device user name for User0.
IRC_User0_Password	This option defines the IRC device user password for User0.
IRC_User0_DialBackNumber	This option defines the IRC device user dial-back number for User0.
IRC_User0_Supervisor	<p>Possible values for this option are:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether IRC supervisor status is enabled or disabled for User0.</p>
IRC_User0_RemoteConsole	<p>Possible values for this option are:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether access to IRC remote console is enabled or disabled for User0.</p>
IRC_User0_RemoteReset	<p>Possible values for this option are:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether access to IRC remote reset is enabled or disabled for User0.</p>
IRC_User0_BootSequence	<p>Possible values for this option are:</p> <p>0 (Disabled) 1 (Enabled)</p> <p>This option defines whether access to IRC boot sequences is enabled or disabled for User0.</p>
IRC_User0_DialBackRequired	<p>Possible values for this option are:</p> <p>0 (No) 1 (Yes)</p> <p>This option defines whether IRC dial back is required for User0.</p>
IRC_UserCount	This option specifies how many users are defined in the IRC configuration section.

Table 2-3 shows the operating system definition values in the CONREP script file.

Table 2-3: Operating System Values

Operating System	Major	Minor
NetWare 3.10	0	1
NetWare 3.11	0	2
NetWare 4.1x and 4.2	0	3
NetWare 5.0, 5.1, 5.2, and 6.0	0	5
NetWare SMP 4.1x and 4.2	0	4
SCO Unix	1	1
SCO 5	1	2
Solaris	1	3
OS/2 2.x, Warp, Warp Connect, Warp Server	2	6
OS/2 2.11 SMP, Warp Server Advanced 4.0 with SMP	2	7
Banyan Vines	3	0
Banyan 8.0	3	2
Windows NT 3.51	5	4
Windows NT 4.0	5	5
Windows 2000	5	6
UnixWare 2.0	6	1
UnixWare 2.1	6	2
UnixWare 7.0	6	3
Linux	6	4
Other	FF	0

Command Line Examples

Example 2-2: CONREP command line to read a source server

```
CONREP /SH A:\DL360.HWR
```

CONREP reads the current configuration of the source server and writes it to the script file A:\DL360.HWR with additional help comments.

Example 2-3: CONREP command line to configure a target server

```
CONREP /L A:\DL360.HWR
```

CONREP reads the hardware configuration script file A:\DL360.HWR and duplicates it on the target server that is being configured.

IPL Boot Order Example

CONREP must be used to change the permanent boot order on all ProLiant G2 servers and later. The following is an example of the data file as saved by CONREP with help messages. The boot order in this example would be CD-ROM, A:, C:, PCI Device (NIC).

```
;For IPL devices, only change the digit following 'IPL_Device'  
;The other values should remain the same  
IPL_Device0 CD-ROM  
IPL_Device0Index 0  
IPL_Device1 Floppy Drive (A:)  
IPL_Device1Index 1  
IPL_Device2 Hard Drive (C:)  
IPL_Device2Index 2  
IPL_Device3 00000010  
IPL_Device3Index 3
```

NOTE: The description for device 3 represents the PCI bus, device, and function number of the device.

To change the boot order from CD-ROM, A:, C:, PCI Device (NIC) to A:, CD-ROM, NIC, C: edit the data file as shown in the following example:

```
IPL_Device1 CD-ROM  
IPL_Device1Index 0  
IPL_Device0 Floppy Drive (A:)  
IPL_Device0Index 1  
IPL_Device3 Hard Drive (C:)  
IPL_Device3Index 2  
IPL_Device2 00000010  
IPL_Device2Index 3
```

Notice that the data has not been changed; only the label should be changed.

IMPORTANT: Be sure that the boot devices are present if listed in the data file. If there is an entry for a diskette drive and no drive is actually present, the process will fail.

For example, on ProLiant ML/DL G2 servers a call to CONREP instead of STBTORDR would look like the following:

```
CONREP /L <FILENAME>
```

Where the <FILENAME> is a data file that only includes the IPL information.

Array Configuration Replicator Utility

ACR enables the user to configure the SMART-2, Smart Array, and RAID Array 4000 (RA4000) controllers on a target server. ACR reads the configuration information from a script file and applies the configuration to the controllers in the target server. ACR enables the array configuration existing on one ProLiant ML or DL server to be replicated on other servers with similar array storage resources.

ACR has three modes of operation:

- Capture mode—Captures the array configuration on all Storage Array controllers configured in the server and saves it to a script file, which can be used later for replication purposes.
- Custom mode—Reads an array configuration specified in a script file and applies the configuration on a target system, enabling the user to specify all the details of a configuration. Custom mode is typically required when applying a captured configuration.
- Auto mode—Reads the array configuration specified in a script file and applies the configuration on a target system, relying on basic input parameters and making automatic decisions to apply a configuration on a controller.

Command Line Syntax

- Source servers:

```
ACR [/C] [DRIVE:][PATH]FILENAME [/S] [/?] [/P]
```

- Target servers:

```
ACR [/I] [DRIVE:][PATH]FILENAME [/E] [DRIVE:][PATH]FILENAME [/S] [/O] [/?] [/P]
```

Command Line Arguments

NOTE: Script file names generated and used by the ACR utility must follow the DOS 8.3 file naming convention.

```
/C [DRIVE:][PATH]FILENAME
```

This argument is used on source servers to capture the existing array configurations on array controllers installed on a source server and to write the configurations to the file specified by [DRIVE:][PATH]FILENAME. If a file name is not specified, the configuration is written to the script file ACUCAPT.INI in the current working directory.

```
/I [DRIVE:][PATH]FILENAME
```

This argument is used on the target server to specify the input file name. The file name is the script file that is used by the utility to configure the array controllers. If [DRIVE:][PATH]FILENAME is not specified, the ACR utility attempts to use the file ACUINPUT.INI in the current working directory.

/O

This argument indicates an overwrite option. Normally, when ACR executes, it does not stamp configurations in a data-destructive manner, unless the /O argument is specified.

/E [DRIVE:][PATH]FILENAME

This argument specifies the file name for logging errors. If [DRIVE:][PATH]FILENAME is not specified, a file with the name ERROR.INI is created in the current working directory. Errors are not logged unless this argument is used.

/S

This argument runs ACR in silent mode. In silent mode, information messages are not displayed on the console. This argument does not turn off the display of error messages. To turn off the display of error messages, use operating system commands to redirect the output of the messages to a file.

/?

This argument displays help information.

/P or -P

This argument pauses execution of the deployment when an error is encountered.

Command File Contents

A typical array configuration script file generated by ACR displays a script similar to the following:

```

Action                =Configure
Method                =Custom

; Controller Options
; Controller Compaq INTEGRATED SMART ARRAY
Controller            =Slot 0
ReadCache             =100
WriteCache            =0
RebuildPriority       =Low
ExpandPriority        =Low

; Array Options
Array                 =A
OnlineSpare           =No
Drive                 =2:0,2:1
; Unused space remaining 2

; Logical Drive Options
LogicalDrive          =1
RAID                  =1
Size                  =17359
; Blocks per Dr=35553120, Offset=0
; Blocks=35553120
Sectors               =32
StripeSize           =256
ArrayAccelerator      =Enabled

```


The script file used by ACR is a text file that contains options and parameters required to configure HP array controllers. The ACR utility parses the script file in a case-insensitive manner.

Lines of the script file can be blank lines or lines in the form option=value.

Semicolons are used for comments within script files, and ACR ignores everything after a semicolon up to the next line.

The valid options in script files generated and read by ACR include:

- Control options—Define the overall behavior of ACR when it processes the scripts and stamps configurations. Control options can occur only once in the script file and must be the first options in the file.
- Controller options—Define a controller or set of controllers used in the configuration. This set of options must start with the controller option. All other options up to the next controller option are assumed to belong to the controller that is being defined. These options can be specified in any order, but an option from another category of options cannot occur between any two options in this category.
- Array options—Specify and describe a particular array in the configuration. These options are invalid if there is not a preceding controller option section. This set of options must start with the array option, and all the following options up to the next array or controller option are assumed to belong to the array being defined. These options can be specified in any order, but an option from another category of options cannot occur between any two options in this category.
- Logical drive options—Specify and describe a particular logical drive in the configuration. These options are invalid if there is no preceding array option. This set of options must start with the logical drive option, and all the following options up to the next logical drive, array, or controller option are assumed to belong to the logical drive being defined. These options can be specified in any order, but an option from another category of options cannot occur between any two options from this category.

Table 2-4 describes the control options used to define the overall behavior of ACR when it processes the scripts and stamps the configuration. Each option can have only one of the listed values.

Table 2-4: Control Options

Option	Value
<p>ACTION (required option)</p> <p>This option defines the configuration action performed.</p>	<ul style="list-style-type: none"> <li data-bbox="613 437 1458 580">• CONFIGURE This value is used to create new arrays and new logical volumes. If specified with the /O command line option, the ACR utility overwrites the existing configuration on the designated controllers before stamping new ones. <li data-bbox="613 600 1458 833">• RECONFIGURE This value is used to modify existing arrays and existing logical volumes. The process for creating a new logical volume on an existing array is the same as the process for modifying an existing array, so this option is also used to create new logical volumes. However, a new logical volume can be created only if the array is not reconfigured for expansion. If specified with the /O command line option, the ACR utility performs data-destructive operations wherever necessary.
<p>METHOD</p> <p>This option defines the configuration method by which the action is performed.</p>	<ul style="list-style-type: none"> <li data-bbox="613 854 1458 1003">• AUTO (default value) ACR tries to match the configuration in the input file as closely as possible. ACR makes automatic decisions about values of unspecified parameters. The rules governing automatic decisions are outlined in the "Automatic Configuration Rules" section. <li data-bbox="613 1024 1458 1136">• CUSTOM ACR uses only the criteria in the input file for the configuration and does not use any of its own configuration rules. Default values are used where required, but automation rules are not used.

Table 2-5 describes the controller options used to define a controller or set of controllers used in the configuration. Each option can have only one of the listed values.

Table 2-5: Controller Options

Option	Value
<p>CONTROLLER (required option)</p> <p>This option defines a controller or a set of controllers for the configuration. All options starting from this option to the next controller option are assumed to apply to the controllers chosen by this option.</p>	<ul style="list-style-type: none"> • FIRST With this value specified, ACR chooses the array controller having the lowest slot number for the configuration. If the controller found is a Fibre Channel host bus adapter, the first remote controller that fits the controller description is chosen for the configuration. • SLOT [N] A Controller at EISA or PCI slot [N] is used for the configuration. If the controller is a Fibre Channel host adapter, the first remote controller that fits the controller description is chosen from the set of controllers connected to this host. • SLOT [N] ALPA [N] This value must be used with SLOT [N]. This value indicates that a remote Fibre Channel controller with an Arbitrated Loop Physical Address [N] connected to a Fibre Channel host controller at EISA or PCI slot [N] is chosen for the configuration. • WWN [N] A remote Fibre Channel controller with a World Wide Name [N] is chosen for the configuration. This number must be provided in its hexadecimal representation and is eight bytes long. • ALL All controllers in the server are chosen for the configuration. If this option is specified, all other controller options generate an error.
<p>READCACHE</p> <p>This option specifies the percentage of the controller cache reserved for the read-ahead cache.</p>	<p>0, 10, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100 (default value is 50)</p>
<p>WRITECACHE</p> <p>This option specifies the percentage of the controller cache reserved for the posted-write cache.</p>	<p>0, 10, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100 (default value is 50)</p>
<p>REBUILDPRIORITY</p> <p>This option specifies the priority to be assigned for logical drive rebuilding.</p>	<ul style="list-style-type: none"> • LOW (default value) • MEDIUM • HIGH
<p>EXPANDPRIORITY</p> <p>This option specifies the priority to be assigned for logical drive expansion.</p>	<ul style="list-style-type: none"> • LOW (default value) • MEDIUM • HIGH

Table 2-6 describes the array options used to specify a particular array in the configuration. Each option, except the drive option, can have only one of the listed values.

Table 2-6: Array Options

Option	Value
<p>ARRAY (required)</p> <p>This option specifies the array used for configuration or reconfiguration. If the action is to reconfigure using the overwrite command line and the following option is another array option, then the array specified by this option is deleted.</p>	<p>ARRAYLETTER</p> <p>This is a single letter used to specify the array.</p>
<p>DRIVE</p> <p>This option specifies the set of drives used with the array. This option is required in custom mode. In auto mode, this option can be omitted, and the best drives are chosen depending on the first logical drive to be created for the array.</p>	<ul style="list-style-type: none"> • [N] This is the number of drives to be used for the array. In auto mode, ACR chooses the best set of drives to be assigned to the array. This value cannot be specified in the custom mode of operation. Instead, in custom mode use [PORTID]:[SCSIID]. • [PORTID]:[SCSIID] This value specifies the drive positions to be assigned to the array. Commas separate the drive positions.
<p>ONLINESPARE</p> <p>This option specifies the online spare used with the array. By omitting this option in auto mode, a spare is not assigned to the array if a suitable drive is not found.</p>	<ul style="list-style-type: none"> • YES Assigns an online spare to this array. The best spare drive is chosen automatically. This value is invalid in the custom mode of operation. • [PORTID]:[SCSIID] This is the drive position of the spare drive to be assigned to the array. • NO (default value) Does not assign an online spare to the array.

Table 2-7 describes the logical drive options used to specify a particular logical drive in the configuration. Each option can have only one of the listed values.

Table 2-7: Logical Drive Options

Option	Value
<p>LOGICALDRIVE (required)</p> <p>This option specifies the logical drive number to be configured or reconfigured. The drive number must be the next highest drive number not configured.</p>	<p>[N]</p> <p>This is a numeric value from 1 to 32.</p>
<p>RAID</p> <p>This option specifies the RAID level for this logical drive.</p>	<p>0, 1, 4, 5, ADG (default value is ADG)</p> <ul style="list-style-type: none"> This is the RAID level to be chosen. In auto mode, the RAID level for the drive is chosen automatically depending on the number of drives. Advanced Data Guarding (ADG) is the default value if it is supported and enabled. Otherwise, RAID 5 is the default value.
<p>SIZE</p> <p>This option specifies the size of the logical volume in megabytes.</p>	<ul style="list-style-type: none"> [N] Specifies the size of the logical drive in megabytes. MAX (default value) Specifies that all the remaining space on the array must be allocated to this logical drive.
<p>SECTORS (required option)</p> <p>This option sets the number of sectors per track to be used for this logical volume.</p>	<p>32, 63</p> <ul style="list-style-type: none"> Thirty-two sectors are used for higher performance, but they force the maximum boot drive size to 4 GB. If the drive is not a boot drive, the drive size is not limited to 4 GB. Sixty-three sectors are used for large drives and they allow boot drive sizes up to 8 GB. Logical drives always use 63 sectors when the drive size is over 255 GB.
<p>STRIPESIZE</p> <p>This option specifies the stripe size of the logical drive in kilobytes. If the stripe size is not specified, the default based on the RAID level is chosen automatically.</p>	<p>8, 16, 32, 64, 128, 256</p> <ul style="list-style-type: none"> RAID 0 and RAID 1 drives can use any of the above stripe sizes. RAID 4, RAID 5, and ADG drives are limited to 8, 16, 32, or 64.
<p>ARRAYACCELERATOR</p> <p>This option enables the array accelerator for this logical drive.</p>	<ul style="list-style-type: none"> ENABLED (default value) Enables the array accelerator for this logical drive. DISABLED Disables the array accelerator for this logical drive.

The following text shows an overview input file describing all options for configuring one or more array controllers. The overview provides valid options and their values. Required and default values are in bold type.

```

; Semicolons depict comments
Action                = {Configure, Reconfigure}
Method                  = {Auto, Custom}

; Controller Options
; There can be multiple controller specifications in the file
Controller            = {First, All, Slot [N], Slot [N] ALPA [N],
WWN [N]}
ReadCache               = {0, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90,
100}
WriteCache              = {0, 10, 20, 25, 30, 40, 50, 60, 70, 75, 100}
RebuildPriority         = {low, medium, high}
ExpandPriority          = {low, medium, high}

; Array Options
; There can be multiple array specifications in the file
Array                 = {A, B, C, D, E, ..., Z}
OnlineSpare             = {Yes, No, Port: ID}
Drive                   = {n, Port: ID, Port: ID...}

; Logical Drive Options
LogicalDrive         = {1, 2, 3, ..., 32}
RAID                    = {0, 1, 4, 5, ADG}
Size                    = {[N], Max}
Sectors              = {32, 63}
StripeSize             = {8, 16, 32, 64, 128, 256}
ArrayAccelerator        = {Enabled, Disabled}

```

Automatic Configuration Rules

When the configuration method is auto, the following four rules apply:

- If the RAID level for a logical drive is not specified, the RAID level for the logical drive is chosen based on Table 2-8.

Table 2-8: RAID Level Selection

Number of Physical Drives	Selected RAID Level
1	RAID 0
2	RAID 1
3	RAID 5
4+	RAID ADG if supported; otherwise RAID 5

- If the number of drives is specified without specified positions, ACR chooses the drives with sizes within 10 percent of the smallest drive chosen.

- If the drive is not specified, ACR chooses the number of drives based on Table 2-9. The set of drives chosen has sizes that fall within 10 percent of the smallest size.

Table 2-9: Drive Selection

RAID Level	Number of Drives Used
RAID 0+1 or RAID 1	All available drives if number of available drives is even; otherwise, number of available drives minus 1
All other RAID levels	All available drives

- If the spare is not specified, ACR attempts to assign a spare based on the availability of a drive and the selected RAID level.

If sufficient drives exist to achieve the selected RAID level in the drive array (see Table 2-8 for the minimum number of drives required for each RAID level), the drive arrays are assigned a spare.

Command Line Examples

```
ACR /C A:\ACRCFG.TXT /S
```

ACR reads the array configuration on the source server and generates the script file ACRCFG.TXT with the information on the A: drive. ACR does not display informational messages on the console but displays errors encountered.

```
ACR /C
```

ACR reads the array configuration on the source server and generates the default script file ACUCAPT.INI with the information in the current working directory of the system. All messages are displayed.

```
ACR /I A:\ACRCFG.TXT /E /O
```

ACR reads the array configuration from the script file ACRCFG.TXT on the A: drive and stamps the target server with the configuration, overwriting previous information in a destructive manner. Any errors encountered in the process are written to the default file ERROR.INI in the current working directory of the system, and messages display on the console.

```
ACR /I /E A:\ERROR.LOG /S
```

ACR reads the array configuration from the default script file ACUINPUT.INI in the current working directory on the system and stamps the target server with the configuration in a nondestructive manner. Any errors encountered in the process are written to the file ERROR.LOG on the A: drive. ACR does not display informational messages on the console but does display error messages.

Integrated ATA RAID Replication Utility

HYPERCFG enables the user to configure the AMI ATA RAID controllers on a target server. HYPERCFG only offers the ability to capture and replicate the configuration. The utility captures the array configuration on the ProLiant ML330 G2 server with the embedded AMI ATA RAID controller configured in the server and saves it to a script file, which can be used later for replication purposes. Editing and manipulation of this script file are not supported.

Command Line Syntax

- In general

```
HYPERCFG [CONFIGURATION OPTIONS] [/F[FILENAME]]
```

- Source servers

```
HYPERCFG /A[m][/!][/2] /L /E[o][DRIVE:] /F[CONFIG FILENAME]
```

- Target servers

```
HYPERCFG /A[m][/!][/2] /E[o][DRIVE:] /@[CONFIG FILENAME]
```

Command Line Arguments

IMPORTANT: Script file names generated and used by the HYPERCFG utility must follow the DOS 8.3 file naming convention.

Configuration options are used to configure the RAID. The valid switches are:

```
/A[m] [/!] [/2]
```

This argument is for automatic RAID configuration.

- When [m]=S[STRIPE SIZE] the argument configures RAID in RAID 0 with the specified stripe size. The stripe size must lie within the range [32...4096]. If an invalid stripe size is specified, the utility assumes 64 K stripe size (default stripe size is 64 K).
- When [m]=M the argument configures RAID in RAID 1.
- When [m] = R[STRIPE SIZE] the argument configures RAID in RAID 0+1 mode with the specified stripe size. The stripe size must lie within the range [64...4096], in multiples of 4 K.

```
/!
```

When used with this option, the preceding argument configures only one drive in RAID 0 mode and adds the other drive as a spare. This option works only when two drives are present in the system.

/2

There are 2 MB of configuration data saved at the end of the drive in the Integrated RAID Configuration Data (IRCD). This argument reduces the reported drive size by 2 MB.

If [m] is not specified, the utility configures RAID in RAID 0 (STRIPE) mode with 64 K stripe size.

/E [o]

This argument erases the configuration/error log sector (metadata).

- When [o] = C, the argument erases the configuration sector.
- When [o] = E, the argument erases the error log sector.
- When [o] = A, the argument erases both the configuration and error log sectors.

/@ [CONFIG. FILENAME]

This argument configures the RAID from the specified configuration file. If the file name is not specified, the configuration file name is assumed to be HYPERCFG.CFG.

/L

This argument displays the configuration sector of the drives.

/F [FILENAME]

This argument redirects the output to the specified file name. If the file name is not specified the default file is assumed to be HYPERCFG.CFG.

/S

This argument runs HYPERCFG in silent mode. In silent mode, information messages are not displayed on the console. This argument does not turn off the display of error messages. To turn off the display of error messages, use operating system commands to redirect the output of the messages to a file.

/?

This argument displays help information.

/X

This argument enables the server to display an error message and pause before continuing execution of the command.

Configuration File Contents

The configuration file is used for configuring the RAID. The configuration file is not case sensitive and ignores white spaces and tabs. The configuration file contains three logical blocks in the following order.

- RAID information
- Logical Array Information
- Physical Drive Information

RAID Information

This logical block starts with the keyword `TOTAL_LOGICAL_ARRAYS`. This block must be organized as follows:

```
TOTAL_LOGICAL_ARRAYS      :<No. of Arrays>
TOTAL_PHYSICAL_DRIVES    :<No. of Phy. Drives>
OPTIONS                  :<+/-WRITE_CACHE
                        +/-VIRUS_PROTECTION
                        +/-DMA_ENABLED>
```

The valid choices for the `OPTIONS` field are:

- `WRITE_CACHE`, where + is enabled and – is disabled
- `VIRUS_PROTECTION`, where + is enabled and – is disabled
- `DMA_ENABLED`, where + is on and – is off

Logical Array Information

This logical block starts with the keyword `LOGICAL_ARRAY`. This block must be organized as follows:

```
LOGICAL_ARRAY             :<Array No.>
RAID_MODE                 :<STRIPE/MIRROR/RAID10>
STRIPE_SIZE               :<STRIPE SIZE>
TOTAL_STRIPES             :<No. of Stripes>
TOTAL_PHYSICAL_DRIVES    :<No. of Phy. Drives in Array>
```

NOTE: For RAID mode, Stripe=RAID 0 and Mirror=RAID 1

Physical Drive Information

This logical block starts with the keyword `PHYSICAL_DRIVE`. This block must be organized as follows:

```
PHYSICAL_DRIVE           :<Drive No.>
DRIVE_ID                 :<Drive ID>
DRIVE_SIZE               :<Drive Size>
```

Command File Contents

A typical array configuration script file generated by HYPERCFG displays a script similar to the following example. This example is for a RAID 1 pair (20 MB) residing on the secondary master and slave.

```
TOTAL_LOGICAL_ARRAYS :01
TOTAL_PHYSICAL_DRIVES :02
OPTIONS               :-WRITE_CACHE -VIRUS_PROTECTION +DMA_ENABLED
LOGICAL_ARRAY         :01
RAID_MODE              :MIRROR
STRIPE_SIZE           :64KB
TOTAL_STRIPES         :01
TOTAL_PHYSICAL_DRIVES :02
PHYSICAL_DRIVE        :01
DRIVE_ID               :10
DRIVE_SIZE             :19090MB
PHYSICAL_DRIVE        :02
DRIVE_ID               :11
DRIVE_SIZE            :19090MB
```

The logical blocks can be separated by any number of blank lines, but the lines within the logical block must be consecutive. Blank lines are not allowed within the logical block.

There will be as many PHYSICAL DRIVE INFO blocks as the number of drives participating in the array.

All the PHYSICAL DRIVE INFO blocks for a logical array must follow the LOGICAL ARRAY INFO block before the start of the next LOGICAL ARRAY INFO block.

SPARE ARRAY information should not be included in the configuration file.

- Drives other than those specified in the configuration file are configured as SPARE DRIVES.
- To force configuration of a spare drive, do not include that drive in the configuration file. This drive will be automatically configured as SPARE.

Any other lines that do not contain keywords are regarded as comments.

Command Line Examples

```
HYPERCFG /L /F
```

HYPERCFG reads the configuration sector of the drive and writes the information to the HYPERCFG.DAT file. This file may later be used as an input source to the following command to configure a target server.

```
HYPERCFG /@HYPERCFG.CFG
```

HYPERCFG reads the array configuration file and configures the current server.

```
HYPERCFG /EA
```

HYPERCFG erases all configuration information from the server in question.

```
HYPERCFG /AM
```

HYPERCFG writes the configuration file to configure RAID 1.

```
HYPERCFG /AR1024
```

HYPERCFG writes the configuration file to configure RAID 10 with a 1024 KB stripe size.

```
HYPERCFG /AS1024
```

HYPERCFG writes the configuration file to configure RAID 0 with a 1024 KB stripe size.

Remote Insight Support

HP offers support for the Remote Insight Lights-Out Edition (RILOE) and Remote Insight Lights-Out Edition II (RILOE II) features available on ProLiant ML/DL servers with the CPQLODOS utility.

Lights-Out DOS Utility

CPQLODOS is a command-line utility that generates a hardware configuration script file used to duplicate the RILOE or RILOE II configuration of a source ProLiant ML/DL server on a target server.

NOTE: CPQLODOS is a DOS-only tool that requires MS-DOS 6.0 or higher. Lights-out scripting is not supported on Linux operating systems or when using the Novell NetWare Client.

CPQLODOS enables you to configure features exposed through F8 startup or the graphical user interface. This utility is not intended for continued administration. The Remote Insight Board Command Language (CPQLOCFG) should be used to administer user rights and network functionality on the server.

For more information on these utilities, refer to the *Remote Insight Lights-Out Edition User Guide* or the *Remote Insight Lights-Out Edition II User Guide* available at

www.hp.com/servers/lights-out

Command Line Syntax

- Source servers:

```
CPQLODOS [/WRITE_XML] [DRIVE:][PATH]FILENAME [/S] [/?] [/P]
```

- Target servers:

```
CPQLODOS [/LOAD_XML] [DRIVE:][PATH]FILENAME [/E]  
[DRIVE:][PATH]FILENAME [/S] [/O] [/?] [/P]
```

Command Line Arguments

```
/HELP or /?
```

These arguments display simple help messages.

```
/RESET_RILOE
```

This argument resets the RILOE board to default factory settings.

```
/DETECT
```

This argument detects the RILOE board on the target server.

```
/GET_STATUS
```

This argument retrieves and displays the RILOE board status and firmware version.

```
/GET_HOSTINFO
```

This argument retrieves and displays the current host server information on the RILOE board and displays the server name and number.

```
/GET_USERINFO
```

This argument obtains the current users stored in the RILOE board and displays the names, login names, and security mask information.

```
/GET_NICCONFIG
```

This argument retrieves and displays the NIC settings stored in the RILOE board.

```
/GET_DHCPCONFIG
```

This argument retrieves and displays the DHCP settings stored in the RILOE board.

```
/MIN_FW
```

This argument enables you to set the minimum firmware version on which the RILOE board will run.

```
/WRITE_XML=A:\DL360.RLO
```

This argument reads the Shared Memory Interface (SMIF) settings on the RILOE board and writes the NIC, DHCP, and user settings into an XML hardware configuration script file.

```
/LOAD_XML=A:\DL360.RLO
```

This argument loads the script file and applies its changes to the current configuration on the RILOE board.

```
/VERIFY_XML
```

This argument verifies the accuracy of the script file and generates an error message for any incorrect data.

```
/P or -P
```

This argument enables the server to display an error message and pause before exiting.

Command File Contents

For examples of the command file contents, refer to Appendix B of the *Remote Insight Lights-Out Edition User Guide* or the *Remote Insight Lights-Out Edition II User Guide* at

www.hp.com/servers/lights-out

Command Line Examples

For examples of the command line parameters, refer to the “Compaq Lights-Out DOS Utility” Appendix of the *Remote Insight Lights-Out Edition User Guide* or the *Remote Insight Lights-Out Edition II User Guide* at

www.hp.com/servers/lights-out

Boot Utilities

The boot utilities included in the Toolkit control and modify the boot process of the target server. The boot utilities include:

- REBOOT
- STBTORDR
- SETBOOT
- PXEBOOT

Reboot Utility

REBOOT is used from a batch file, in conjunction with other utilities, to control server reboots. This utility enables the user to reboot the server with control over which device is the boot device. If no boot drive argument is passed on to REBOOT, the tool reboots the server using whichever drive is specified as the default drive.

Command Line Syntax

```
REBOOT [DRIVE:] [/COLD] [/?]
```

Command Line Arguments

[DRIVE:]

Valid arguments that can be passed on to REBOOT are A:, C:, CD, PXE, or no argument.

By specifying an argument, the drive indicated is set to boot on the next reboot, and the system is restarted.

If no argument is provided, the system is set to boot using the defined boot order, and the system is restarted.

/COLD

This argument forces a hardware-level cold boot. The argument is optional and, if used, must be placed at the end of the argument list. This argument is supported only on systems with Integrated Remote Console or ASM. Otherwise, the argument has no effect.

/?

This argument displays help information.

Command File Contents

REBOOT does not use a command file.

Command Line Examples

```
REBOOT A:
```

This command reboots the system to the A: drive.

```
REBOOT
```

This command reboots the system to the drive that is defined as the default boot drive in the system configuration.

```
REBOOT A: /COLD
```

On systems with IRC or ASM, this example performs a hardware-level cold boot of the system, rebooting to the A: drive. On systems without IRC or ASM, this command reboots the system to the A: drive.

```
REBOOT PXE /COLD
```

On systems with IRC or ASM, this example performs a hardware-level cold boot of the system, rebooting to the PXE NIC. On systems without IRC or ASM, this command reboots the system to the PXE NIC.

Set Boot Order Utility

STBTORDR is used from a batch file in conjunction with other utilities. This utility enables the user to permanently modify the system boot order and updates the system configuration settings. The utility does not reboot the system.

IMPORTANT: Due to the adoption of the BIOS Boot Spec for ProLiant ML/DL G2 servers, STBTORDR functionality has been replaced with enhanced functionality utilizing the CONREP utility and data files. STBTORDR does not work with the ProLiant ML/DL G2 servers. Use CONREP to modify the boot order on ProLiant ML/DL G2 systems. Refer to the IPL boot order example in the “Configuration Utilities” section for details.

Command Line Syntax

```
STBTORDR [DRIVE: | DEVICE #1] [DRIVE: | DEVICE #2] [DRIVE: |  
DEVICE #3] [DRIVE: | DEVICE #4] [/?] [/P]
```

Command Line Arguments

```
[DRIVE: | DEVICE #1]
```

This is the first drive or device from which the system is set to boot when the system is restarted. This argument is not optional and must not duplicate any other argument.


```
[DRIVE: | DEVICE #2]
```

This is the second drive or device from which the system is set to boot when the server is restarted. The system uses this drive or device if the first drive or device is not available. This argument is not optional and must not duplicate any other argument.

```
[DRIVE: | DEVICE #3]
```

This is the third drive or device from which the system is set to boot when the server is restarted. The system uses this drive or device if the first two drives or devices are unavailable. This argument is not optional and must not duplicate any other argument.

```
[DRIVE: | DEVICE #4]
```

This is the fourth drive or device from which the system is set to boot when the server is restarted. The system uses this drive or device if the first three drives or devices are unavailable. This argument is not optional and must not duplicate any other argument.

```
/?
```

This argument displays help information.

```
/P or -P
```

This argument enables the server to display an error message and pause before exiting.

Command File Contents

STBTORDR does not use a command file.

Command Line Examples

```
STBTORDR CD C: A: TAPE
```

This command changes the boot order in the system configuration as indicated. When the system is restarted, it first attempts to boot from the CD-ROM drive. If booting from the CD-ROM drive fails, the system then attempts to boot from the C: drive. If booting from the C: drive fails, the system attempts to boot from the A: drive. If that fails, the system attempts to boot from the tape drive.

```
STBTORDR A: C: CD TAPE
```

This command changes the boot order in the system configuration. When the system is restarted, it first attempts to boot from the A: drive. If booting from the A: drive fails, the system then attempts to boot from the C: drive. If booting from the C: drive fails, the system attempts to boot from the CD drive. If that fails, the system attempts to boot from the tape drive.

Set Boot Utility

SETBOOT is used from a batch file in conjunction with other utilities. This utility enables the user to set the device from which the server next boots, without rebooting the system. Use this utility when a particular installation process causes the system to reboot.

Command Line Syntax

```
SETBOOT [DRIVE:] [/?]
```

Command Line Arguments

[DRIVE:]

Valid arguments that can be passed to SETBOOT are A:, C:, CD, PXE, or no argument. The system is not restarted.

If no argument is provided, the system is set to boot using the system-defined boot order. The system is not restarted.

/?

This argument displays help information.

Command File Contents

SETBOOT does not use a command file.

Command Line Example

```
SETBOOT C:
```

The utility sets the next reboot to boot from the C: drive. When the system is instructed to boot, the system restarts by booting from the C: drive.

```
SETBOOT PXE
```

The utility sets the next reboot to boot from the PXE NIC. When the system is instructed to boot, the system restarts by booting from the PXE NIC.

Preboot eXecution Environment Enable/Disable Utility

This utility enables or disables PXE functionality for embedded NICs on supported servers. Only one NIC can be enabled at a time.

Command Line Syntax

```
PXEBOOT [/ENABLE1 | /ENABLE2 | /DISABLE]
```

Command Line Arguments

```
[ENABLE1 | ENABLE2 | DISABLE]
```

ENABLE1

This argument enables PXE support on the first embedded NIC.

ENABLE2

This argument enables PXE support on the second embedded NIC.

DISABLE

This argument disables PXE support on all NICs. Only one NIC can be enabled at a time.

Command File Contents

PXEBOOT does not use a command file.

Command Line Example

```
PXEBOOT /ENABLE1
```

This argument enables PXE on the first embedded NIC.

Disk Utilities

The disk utilities included in the Toolkit prepare and modify the hard drive partitions of the target server. The disk utilities include:

- CPQDISK
- CPQFMT

Disk Partition Creation Utility

CPQDISK enables the user to read and write disk partition table entries on the first logical disk drive for later formatting. This utility reads the partition table information from a script file and stamps the configuration on the hard drive in the target server. The utility enables the partition configuration existing on one HP server to be replicated on servers with similar storage resources.

CPQDISK uses standard DOS INT13h calls for partition manipulation and uses disks defined as device 80h. The utility is limited to FAT16, type 6h drives for DOS partitions and type 12h drives for system partitions.

IMPORTANT: CPQDISK also captures source partitions that are not of type 6h or 12h. However, these nonstandard source partitions are converted to DOS partitions of type 6h in the partition configuration script file that is generated by the utility. Be sure that the partition configuration script file is edited to remove this erroneous information, particularly when deploying operating systems such as Linux.

CPQDISK differs from the DOS FDISK command in several ways:

- It handles partitions up to 4 GB.
- It can create an EISA system partition for later population.
- It takes commands from a text file, not a user interface or command line.
- It can read and save partition information from an existing server.
- It creates the system and DOS partitions at the same time.

Command Line Syntax

```
CPQDISK [/R | /W] [DRIVE:][PATH]FILENAME [/?] [/P]
```

- or -

```
CPQDISK [-R | -W] [DRIVE:][PATH]FILENAME [/?] [-P]
```

Command Line Arguments

NOTE: Script file names generated and used by CPQDISK must follow the DOS 8.3 file naming convention.

/R or -R

This argument captures the partition configuration of the source system and writes it to the script file specified by [DRIVE:][PATH]FILENAME.

/W or -W

This argument reads the partition configuration from the script file specified by [DRIVE:][PATH]FILENAME and writes it to the target system.

[DRIVE:][PATH]FILENAME

This argument specifies the name of the script file from which to read or write the partition information. A file name is required, but if the path is not specified, the utility assumes that the directory is the current working directory.

/?

This argument displays help information.

/P or -P

This argument enables the server to display an error message and pause before exiting.

Command File Contents

A typical partition configuration script file generated by CPQDISK displays script similar to the following:

```
[General Parameters]
Overwrite=true

[Partition0]
Size=40
Type=12
Active=false

[Partition1]
Size=4000
Type=6
Active=true
```

The script file used by CPQDISK is a text file that contains options and parameters required to configure partition table entries. CPQDISK parses the script file in a case-insensitive manner. A line of the script file can be a blank line or a line in the form *option=value*. Semicolons are used for comments within the script files, and CPQDISK ignores everything after a semicolon up to the next line.

The valid options in the script file are divided into the following sections:

- **General Parameters**—This section is required and is used to set attributes that affect the functioning of CPQDISK as a whole. Table 2-10 provides the possible values of this option.

Table 2-10: General Parameters

Option	Value
Overwrite	<ul style="list-style-type: none"> • TRUE (initial value) This value enables overwriting the master boot record of the target hard drive, even if there is information in the partition table. • FALSE This value prevents overwriting the master boot record of the target hard drive if there is information in the partition table.

- **Partition Number**—This section is used to describe the partitions that are written to the master boot record of the target hard drive. Each partition must have its own section. Table 2-11 shows the options that can be changed to describe each partition.

Table 2-11: Partition Number

Option	Value
Size	This option specifies the size of the partition in megabytes. The number must be an integer. If the size specified cannot be obtained, the utility creates the closest possible size that is smaller than the specified size.
Type	This option specifies the type of partition. Common types are 12h for system partitions, 6h for DOS partitions, and 5h for extended DOS partitions.
Active	This option specifies whether the partition is marked as active for booting. The Active option can be set to true or false. Only one partition can have a key that is set to true.

Command Line Examples

```
CPQDISK /R A:\DL360_NW.PRT
```

CPQDISK reads partition information from the source system and writes it to the DL360_NW.PRT script file on the A: drive.

```
CPQDISK /W A:\DL360_NW.PRT
```

CPQDISK reads partition information stored in the DL360_NW.PRT script file on the A: drive and writes it to the target server hard drive.

Disk Formatting Utility

CPQFMT enables the user to format partitions created by the Disk Partition Creation utility.

CPQFMT differs from the DOS `FORMAT` command in that it can handle disk partitions up to 4 GB in size. CPQFMT uses standard DOS int13h calls for disk manipulation and is limited to formatting FAT16, type 6h drives. CPQFMT does not support FAT32 partition formatting.

Command Line Syntax

```
CPQFMT [DRIVE:] [/?][P]
```

Command Line Arguments

[DRIVE:]

CPQFMT can format any valid drive letter with a DOS partition table entry.

/?

This argument displays help information.

Command File Contents

CPQFMT does not use a command file.

Command Line Examples

```
CPQFMT C:
```

The utility formats the C: drive.

```
CPQFMT D:
```

The utility formats the D: drive.

System Utilities

The system utilities control steps in the installation process or set up a diskette to use during the installation process. System utilities in the Toolkit include:

- STATEMGR
- SYSTYPE
- ARRTYPE
- SIGNDISK
- FILECOPY
- VFLOP
- CDEJECT

State Manager Utility

STATEMGR enables the user to keep track of the execution state during system reboots. This utility writes persistent state information to an environment variable and reads the information from the environment variable.

Command Line Syntax

```
STATEMGR [/R | -R] [EVNAME] [/?]
```

- or -

```
STATEMGR [/W | -W] [EVNAME] [VALUE] [/?]
```

Command Line Arguments

/R or -R

This argument reads the state of the environment variable defined by [EVNAME]. The value of the environment variable is returned as a DOS error level.

/W or -W

This argument writes the state defined by [VALUE] to an environment variable defined by [EVNAME].

EVNAME

This argument creates an environment variable used to represent the state to manage. The variable can be any word that is eight characters or less.

VALUE

This argument is used only with the /W or -W arguments to indicate the value of the environment variable to maintain. [VALUE] is limited to integers between 0 and 254. If no value is provided when using /W or -W, the state environment variable is cleared.

/?

This argument displays help information.

Command File Contents

STATEMGR does not use a command file.

Command Line Examples

```
STATEMGR /W PHASE 3
```

STATEMGR writes the state value 3 to the PHASE environment variable.

```
STATEMGR /R PHASE
```

STATEMGR reads the PHASE environment variable and returns its value as a DOS error level. If the environment variable has been reset or no value has been stored, the error level returned is 0.

System Type Utility

SYSTYPE runs by the AUTOEXEC.BAT file when the target server boots. The utility identifies the target server and translates the system ID to an integer between 0 and 254. The translated system ID is reported as a DOS error level, enabling the AUTOEXEC.BAT file to launch the server batch file that is specific to the target server.

Command Line Syntax

```
SYSTYPE [DRIVE:][PATH]FILENAME [/?] [/P]
```

Command Line Arguments

```
[DRIVE:][PATH]FILENAME
```

This argument specifies the location and name of the translation script file that SYSTYPE uses to translate the detected system ID to a DOS error level. FILENAME must always be specified. However, if [DRIVE:] and [PATH] are unspecified, the utility assumes that FILENAME is in the current working directory.

/?

This argument displays help information.

```
/P or -P
```

This argument enables the server to display an error message and pause before exiting.

Command File Contents

The Toolkit includes a translation script file called SSSTKSYS.INI for SYSTYPE. This file can be edited with any standard text editor to remove or include other servers. All translation script files display scripts similar to the following text extracted from the SSSTKSYS.INI file:

```
; ProLiant 1600
CPQ0553=28
CPQ0686=39

; ProLiant 1850R
CPQ0679=34

; ProLiant 3000
CPQ0561=29
CPQ0709=36

; ProLiant 6400R
CPQ0810=43

; ProLiant 8500
CPQ1608=44

; ProLiant ML330
CPQ0655=54

; ProLiant ML330e
CPQ0723=66

; ProLiant ML350
CPQ0653=47
CPQ0825=62

; ProLiant ML370
CPQ0690=48

; ProLiant ML370G2
CPQ0xxx=67

; ProLiant ML530
CPQ0712=49

; ProLiant ML570
CPQ0714=52

; ProLiant ML750
CPQ1611=65

; ProLiant DL320
CPQ0826=63

; ProLiant DL360
CPQ0685=51

; ProLiant DL380
CPQ0692=50
```

```
; ProLiant DL380G2
CPQ0071A=68

; ProLiant DL580
CPQ0715=53

; ProLiant DL760
CPQ1610=64
```

The translation script file used by SYSTYPE is a text file that contains a maximum of 255 HP system IDs and the DOS error level assigned to each system ID (0 to 254). Each line is in the form CPQxxxx=DOS error level, where xxxx represents the system ID number.

Semicolons are used for comments within the translation script files to identify the system ID with the name of the server. SYSTYPE ignores everything after a semicolon up to the next line.

SYSTYPE parses the translation script file in a case-insensitive manner.

Command Line Examples

```
SYSTYPE SSSTKSYS.INI
```

SYSTYPE obtains the HP system ID from the system on which it is running and translates the ID to the corresponding DOS error level that is specified in the default SSSTKSYS.INI translation script file. Because the drive and path to the translation script file are not specified, the utility uses the SSSTKSYS.INI translation script file in the current working directory.

```
SYSTYPE A:\CUSTKSYS.DAT
```

SYSTYPE obtains the HP system ID from the system on which it is running and translates the ID to the corresponding DOS error level that is specified in the custom CUSTKSYS.DAT translation script file located in the root directory of the A: drive.

NOTE: CUSTKSYS.DAT is a user-defined file and is not included in the Toolkit.

Array Type Utility

ARRTYPE uses the same functionality as SYSTYPE, wherein a DOS error level is returned depending on which array controller is configured in the server. Command line parameters include the data file name, which displays similarly to the one used by SYSTYPE, and a command, which can be one of the following:

- A number that represents the controller order to check, based on boot order, beginning with 1
- FIRST, which returns the first configured array controller it finds, regardless of the boot order of the array
- QUERY, which displays all configured array controllers in the server

NOTE: The QUERY command does not return an error level.

Command Line Syntax

```
ARRTYPE FILENAME [CONTROLLERORDER | FIRST | QUERY] [/?] [/P]
```

Command Line Arguments

[FILENAME]

```
ARRTYPE [DRIVE:][PATH]FILENAME
```

This argument specifies the location and name of the translation script file that ARRTYPE uses to translate the detected array controller ID to a DOS error level. FILENAME must always be specified. However, if [DRIVE:] and [PATH] are unspecified, the utility assumes that FILENAME is in the current working directory.

[CONTROLLERORDER | FIRST | QUERY]

This command defines which controller to report.

- CONTROLLER ORDER is a number from 1 to 16 that represents the controller order of the array controller to query.
- FIRST reports the ID of the first array controller found.
- QUERY displays all array controllers in the system without returning an error level.

/?

This argument displays help information.

/P or -P

This argument enables the server to display an error message and pause before exiting.

Command File Contents

The Toolkit includes a translation script file called SSSTKARR.INI for ARRTYPE. This file can be edited with any standard text editor to remove or include other controllers. All translation script files display scripts similar to the following text extracted from the SSSTKARR.INI file:

```
Smart-2 Array Controller
0E114030=1

Smart-2SL Array Controller
0E114031=2

Smart Array 3200 Controller
0E114032=3

Smart Array 3100ES Controller
0E114033=4

Smart Array 221 Controller
0E114034=5

Integrated Smart Array Controller
0E114040=6

Smart Array 4200 Controller
0E114050=7

Smart Array 4250ES Controller
0E114051=8

Smart-Array 431 Controller
0E114058=9

Smart-Array 5300 Controller
0E114070=10

Smart Array 532 Controller
0E114082=12

Smart Array 5i Controller
0E114088=11
```

The translation script file used by ARRTYPE is a text file that contains a maximum of 255 HP array controller IDs and the DOS error level assigned to each array controller ID (0 to 254). Each line is in the form xxxxxxxx=DOS error level, where xxxxxxxx represents the array controller ID number.

Semicolons are used for comments within the translation script files to identify the array controller ID with the name of the server. ARRTYPE ignores everything after a semicolon up to the next line.

ARRTYPE parses the translation script file in a case-insensitive manner.

Command Line Example

```
ARRTYPE SSSTKARR.INI 3
```

This command returns the error level based on the ID of the controller defined as the third controller.

```
ARRTYPE SSSTKARR.INI FIRST
```

This command returns the error level based on the ID of the first configured array controller found, regardless of the boot order of the array.

```
ARRTYPE ARRTYPE.INI QUERY
```

This command displays a list of all configured array controllers found that are defined in ARRTYPE.INI.

Sign Disk Utility

SIGNDISK enables the user to stamp the server configuration diskette with information required to bypass the F1/F10 setup prompt on systems restarted with the diskette. Do not use SIGNDISK in the server batch file.

NOTE: SIGNDISK can be run in DOS, Windows NT 4.0, or Windows 2000 operating systems. However, the utility does not run in Windows 95 or Windows 98 because these operating systems do not enable the utility to modify the boot sector on a diskette.

Command Line Syntax

```
SIGNDISK [/?]
```

Command Line Argument

```
/?
```

This argument displays help information.

Command File Contents

SIGNDISK does not use a command file.

Command Line Example

```
SIGNDISK
```

SIGNDISK stamps the diskette in the drive with information required to bypass the F1/F10 setup prompt.

File Copy Utility

FILECOPYY replaces the DOS XCOPYY command. FILECOPYY differs from the DOS command in several ways:

- It is not dependent on a specific DOS version.
- It can use either a file list to determine which files need to be copied to the target server or a wild card to copy all files from a source directory.
- It can create all necessary directories and copy empty directories.
- It can operate in silent mode with overwrite control.

Command Line Syntax

```
FILECOPYY [/S:SOURCE] [/D:DESTINATION] [/S] [/E] [/Q] [/O[N | A]]  
[/F:][DRIVE:][PATH]FILELIST.TXT [/?] [/P]
```

Command Line Arguments

`/S:SOURCE`

This argument specifies the base source path, in the form [DRIVE:][PATH], where the copied files are located.

`/D:DESTINATION`

This argument specifies the base destination path in the form [DRIVE:][PATH] for the files to be copied. If the /S argument is used, subdirectories required by the files are created.

`/S`

This argument copies files and populated subdirectories from the source path to the destination path.

`/E`

This argument copies files and all subdirectories (including empty subdirectories) from the source path to the destination path.

`/Q`

This argument requires the /O argument. It suppresses the display of all error messages.

`/O[N | A]`

This argument controls which files can be overwritten during the file copy process. If N is used, only newer files are overwritten. If A is used, all files are overwritten.

`/F:[DRIVE:][PATH]FILELIST.TXT`

This argument specifies the name of the text file that contains the list of files that are copied. An alternate drive and path can be specified for the location of FILELIST.TXT. If no drive and path are specified, the File Copy utility assumes that FILELIST.TXT is located in the current directory.

/?

This argument displays help information.

/P or -P

This argument enables the server to display an error message and pause before exiting.

Command File Contents

A typical command file used by FILECOPYY displays a script similar to the following:

```
aaa.exe
include\bbb.txt
wildcard\*.*
```

The file list specifies which tree of the source path is copied to the destination path.

For example, FILECOPYY /S:A:\SOURCE /D:C:\TARGET /F:FILELIST.TXT copies files listed in the file FILELIST.TXT, as shown in Table 2-12.

Table 2-12: FILECOPYY

Files copied from	Files copied to
A:\SOURCE\AAA.EXE	C:\TARGET\AAA.EXE
A:\SOURCE\INCLUDE\BBB.TXT	C:\TARGET\INCLUDE\BBB.TXT
A:\SOURCE\WILDCARD*.*	C:\TARGET\WILDCARD*.*

Note: The subdirectories INCLUDE and WILDCARD are created on the destination disk if they do not already exist.

Command Line Examples

```
FILECOPYY /S:S:\NT\CPQDRVR /D:C:\$OEM$ /S /E /Q /OA /F:CPQDRVR.TXT
```

FILECOPYY copies all files listed in the file CPQDRVR.TXT from S:\NT\CPQDRVR to C:\\$OEM\$. The utility creates all directories specified in the source, including empty directories, and overwrites all files in the destination directory. Error messages are suppressed.

```
FILECOPYY /S:S:\NT\CPQDRVR /D:C:\$OEM$ /S /E /ON /F:CPQDRVR.TXT
```

FILECOPYY copies all files listed in the file CPQDRVR.TXT from S:\NT\CPQDRVR to C:\\$OEM\$. The utility creates all directories specified in the source, including empty directories, and only overwrites files in the destination directory with newer versions. Error messages are not suppressed.

```
FILECOPYY /S:S:\NT\CPQDRVR /D:C:\$OEM$ /S /E /ON /F:*.*
```

FILECOPYY copies all files from S:\NT\CPQDRVR to C:\\$OEM\$. The utility creates all directories specified in the source, including empty directories, and only overwrites files in the destination directory with newer versions. Error messages are not suppressed.

Virtual Floppy Utility

VFLOP controls the status of the RILOE Virtual Floppy Drive. The utility enables the user to set the boot and write-protect properties for the Virtual Floppy Drive from a script without using a Web browser.

IMPORTANT: The latest version of the RILOE is required for VFLOP to function properly with the Virtual Floppy Drive. For more information about RILOE, refer to the following website:

www.hp.com/servers/lights-out

Command Line Syntax

```
VFLOP [/B:ALWAYS | ONCE | NEVER] [/P:ON | OFF] [/?]
```

Command Line Arguments

```
/B:[ALWAYS | ONCE | NEVER]
```

This argument defines how the Virtual Floppy Drive is used to boot the target server.

```
/P:[ON | OFF]
```

This argument defines the write-protect status of the Virtual Floppy Drive.

```
/?
```

This argument displays help information.

Command File Contents

VFLOP does not use a command file.

Command Line Examples

```
VFLOP /B:NEVER /P:OFF
```

The Virtual Floppy Drive is not used to boot the target server. The server boot partition is used instead. The content of the Virtual Floppy Drive is not write protected.

```
VFLOP /B:ONCE /P:ON
```

The Virtual Floppy Drive is used to boot the target server once. Then, the server boot partition is used to boot the server. The content of the Virtual Floppy Drive is write protected.

```
VFLOP /B:ALWAYS /P:ON
```

The Virtual Floppy Drive is always used to boot the target server. The content of the Virtual Floppy Drive is write protected.

CD Eject Utility

The Microsoft DOS CD-ROM Driver (MSCDEX.EXE) utility must be installed in the server for CDEJECT to function. If no command line parameters are given, CDEJECT ejects all CDs that it detects. Drive letters assigned by MSCDEX can be used to specify which CDs should be ejected. Multiple drive letters can be used.

Command Line Syntax

```
CDEJECT [DRIVE: ...]
```

Command Line Arguments

```
[DRIVE:]
```

Either valid arguments pass to drive letters assigned by MSCDEX, or no argument is displayed. If no argument is displayed, the program ejects all CDs detected.

Command File Contents

CDEJECT does not use a command file.

Command Line Example

```
CDEJECT
```

The utility ejects all CDs as defined by MSCDEX.

```
CDEJECT D: E:
```

The utility ejects the CDs defined by the D: and E: drives. It bypasses these devices if they are not CD-ROM drives.

NOTE: This utility is most effective with a Slimline CD-ROM drive tray because the tray remains open until the user closes the tray. Other CD-ROM drive models retract the tray after a specified time or after a system reboot. The utility may not work when using a Windows 98 boot diskette.

Glossary

Preboot eXecution Environment (PXE)

A feature that enables a server to boot from a remote server. The PXE Boot Enable/Disable utility (PXEBOOT) enables or disables PXE functionality on embedded NICs in supported ProLiant servers through the ROM-Based Setup Utility Advanced Options.

Remote Insight Lights-Out Edition (RILOE)

An HP server-based printed circuit assembly and support software that provides Web browser access to other HP servers through a seamless, hardware-based, operating system-independent graphical remote console. New features on the board include a virtual power button, DNS/DHCP IP autoconfiguration, and ROM-based configuration capability.

ROM-Based Setup Utility (RBSU)

A feature of ProLiant ML and DL servers in which the configuration utility of the system is built into the ROM.

Server profile

A system configuration derived from a source server using the Toolkit. The server profile includes a hardware script file, an array script file, a disk partition script file, and an operating system unattended installation file. The first three files are created by the Toolkit utilities and the fourth is created by the operating system.

Server batch file

The file created to deploy a target server. The file includes the various script files, the unattended installation file, and the Toolkit utilities and DOS commands required to copy the source server profile to the target server.

Source server

The HP ProLiant product used to create the script files, batch files, diskettes, and CDs that are required for use with the Toolkit.

Target server

The HP ProLiant product deployed by the Toolkit utilities, including batch files and an operating system.

Unattended installation

The process of linking the configuration script file to the operating system installation file and Toolkit utilities through the server batch file.

Virtual Floppy Drive

A feature on the Remote Insight Lights-Out Edition that enables a host server to boot remotely from a standard 1.44-MB diskette (Windows 95, Windows 98, or DOS) in a network client, enabling remote operating system installation from a network drive and remote server ROM updates. When paired with the Toolkit, the Virtual Floppy Drive also enables unattended installation of servers.

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