SmartStart Scripting Toolkit

Best Practices

Part Number 234115-005

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Product Version: 1.5A

Compaq redefined the paradigm for quick and easy server deployment with SmartStart. As businesses are faced with the need to deploy hundreds to thousands of servers in a quick and reliable fashion, Compaq offers the SmartStart Scripting Toolkit. The SmartStart Scripting Toolkit radically simplifies high-volume server deployment by delivering a hands-off, unattended installation and configuration solution. Using SmartStart technology, the Scripting Toolkit provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated process cuts time from each server deployment, making it possible to scale servers to high volumes in rapid fashion.

The SmartStart Scripting Toolkit supports Compaq ProLiant DL and ProLiant ML series servers, as well as selected pre-ML/DL Compaq servers. The Scripting Toolkit includes a modular set of utilities and important documentation that describe how to apply these new tools to build an automated server deployment process.

COMPAQ

Compaq SmartStart Scripting Toolkit Best Practices 1.5A

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Contents

Chapter 3
Microsoft Windows 2000 Deployment

Chapter 4
Novell NetWare 5.1 Deployment

Chapter 5
Red Hat Linux 6.2 or 7.x Deployment

About This Guide

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

CAUTION: 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. Ensure that all mission-critical systems will remain active in the event of a system failure prior to using the utilities.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

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

Online Documentation

Reference the following Compaq documentation at

www.compaq.com/manage/toolkit.html

- *Next Generation Server Deployment Tools: Compaq SmartStart Scripting Toolkit* white paper
- *Compaq SmartStart Scripting Toolkit User Guide*
- *Compaq SmartStart Scripting Toolkit General FAQs*
- *Compaq SmartStart Scripting Toolkit Troubleshooting FAQs*
- *SmartStart Scripting Toolkit Support Matrix*

Compaq Technical Support

Compaq offers standard email support for the Toolkit through questions submitted to

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

Ensure 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 Troubleshooting Frequently Asked Questions at

www.compaq.com/manage/toolkit.html

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

www.microsoft.com/ntserver/nts/deployment/planguide

www.microsoft.com/technetwin2000/win2ksrv/technote/unattend.asp

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

This document is also available as Technical Information Document number 10055290.

www.linux.org/docs/ldp/howto/HOWTO-INDEX/index.html

DOS Boot Disk Help

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

ftp.microsoft.com/bussys/clients/msclient

For Compaq 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, see the Compaq website at

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

Customer Feedback

Submit feedback on the Toolkit to

compaqss@compaq.com

For support questions, contact Compaq at

support@compaq.com

1

Introduction

Best Practices

"Best practice" refers to an accepted method of performing a task or finding the best way to do something that fits a particular situation. The best practices for the Compaq SmartStart Scripting Toolkit utilities include planning and designing the operating system deployment to minimize problems before they occur.

Best practices also include organizing installation files into folders, editing and commenting the server batch file, and performing the deployment. These are a set of operational procedures that, when strictly followed, help reduce errors by standardizing deployment procedures.

The chapters that follow provide examples of best practices for implementing the Toolkit utilities, along with the sample script files and server batch files that launch the server deployment by using a CD or across a network.

CAUTION: Because of the potential risk of data loss, ensure that all necessary precautions are taken so that mission-critical systems are not disrupted if a failure occurs.

All of the best practices examples presented in these chapters assume that the target servers are Compaq *ProLiant*™ ML or DL servers. The CONREP utility is used to build the hardware configuration script file for these servers.

If deploying Compaq ProLiant 1600,1850R, 3000, 6400R, or 8500 servers, use the Configuration Replication utility for pre-ML/DL servers (CF_REP). Otherwise, deployments of these servers will fail.

Refer to the *Compaq SmartStart™ Scripting Toolkit User Guide* for more information about CF_REP.

IMPORTANT: All the best practices examples presented in these chapters are tested on specific server configurations and should not be used in a general sense. Using these examples without modifications for specific environment will result in failed installations. The batch files are intended to illustrate the server configuration and operating system installation process. There are multiple ways to use the Toolkit utilities.

Deployment Overview

Figure 1-1 illustrates the basic deployment strategies discussed in this guide. For more information, refer to Table 1-1 in the Toolkit user guide.

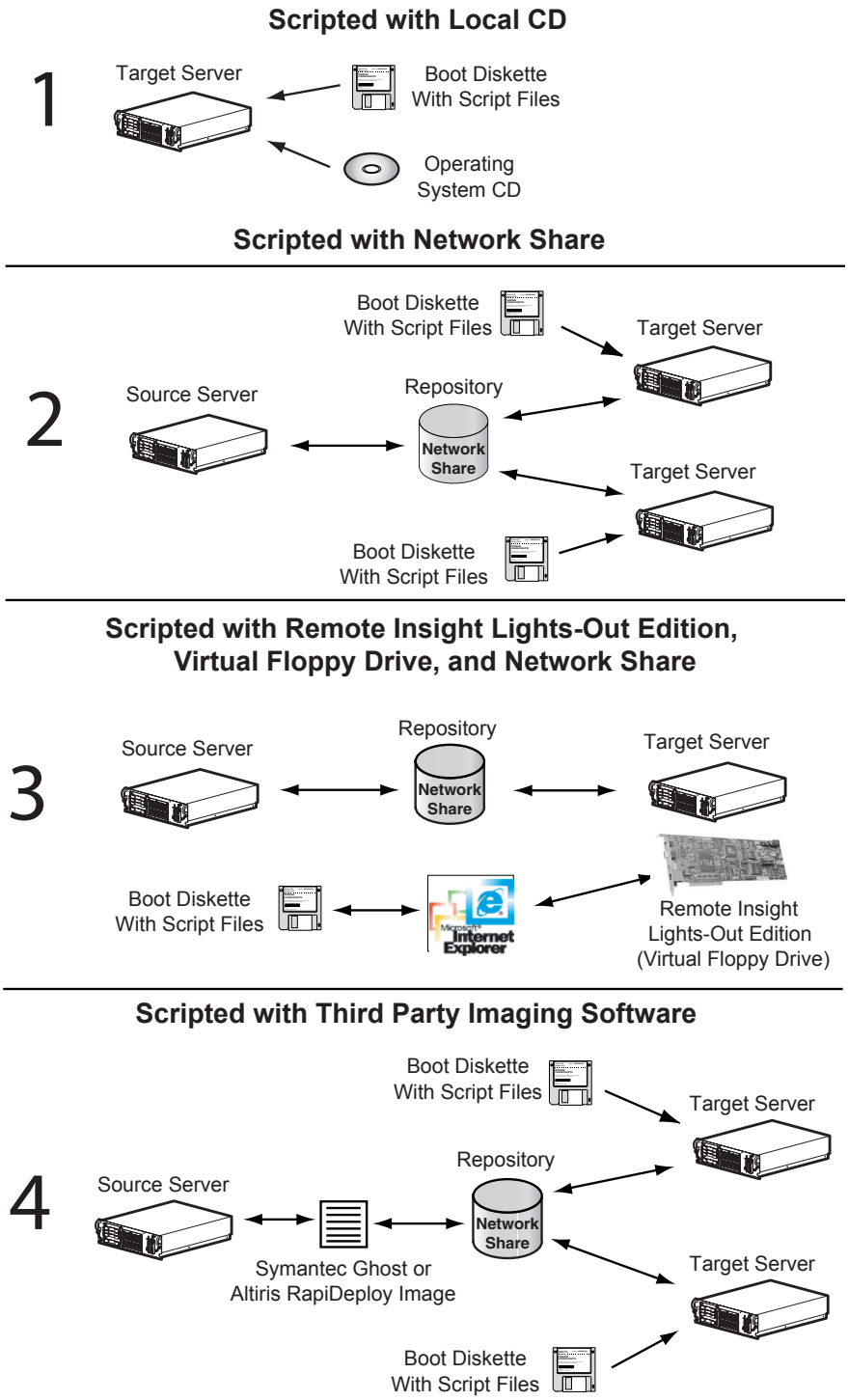

Figure 1-1: Server deployment strategies

Minimum Requirements

IMPORTANT: Before beginning the deployment process, ensure that you have sufficient software rights to install the operating system and software applications on the target server.

Have the following items available before starting:

- *Compaq SmartStart Scripting Toolkit User Guide*
- Compaq SmartStart for Servers 4.80 or later (kit or CDs)
- Compaq Management 4.80 or later
- Network operating system software and documentation
- Bootable MS-DOS version 6.22 or 7.0 and documentation

IMPORTANT: Ensure that sufficient free memory is available in DOS after all the required device drivers are loaded. The Toolkit utilities use the DOS operating system, which is limited to 640 KB of addressable memory. The examples provided for creating bootable network diskettes may create situations where there is not enough memory to execute the Toolkit utilities.

NOTE: Reference to basic DOS commands is made throughout this chapter. For more information about each of these commands, refer to the DOS documentation.

2

Microsoft Windows NT 4.0 Deployment

This chapter provides best practice scenarios for using the Toolkit to deploy the Microsoft Windows NT 4.0 operating system with a CD or across a network.

CD-Based Deployment

This scenario illustrates the deployment of Windows NT 4.0 by using a CD that contains the files necessary to set up the target server. This CD is created by the user and includes:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

NOTE: CD-based server deployments can be lengthy, depending on the speed of the CD-ROM drive, the cleanliness of the CD, and the presence of CD-caching software.

Deployment Process Overview

The general CD-based server deployment process consists of the following steps:

1. Creating the bootable server configuration diskette
2. Creating the server profile script files
3. Creating the server batch file
4. Creating the installation CD-ROM
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette

Follow these steps to create a bootable server configuration diskette used to initiate the server deployment process.

Create the bootable server configuration diskette by using DOS 6.22 or 7.0.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Create a *CONFIG.SYS* file that loads the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by the
REM *** target server
device=himem.sys
device=setver.exe
device=cpqidecd.sys /d:cpqcdrom
device=ifshlp.sys
REM *** Establish default shell to use
shell=command.com /p
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on the server configuration.

3. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the server configuration diskette.
4. Create an *AUTOEXEC.BAT* file that will load the drivers necessary for the CD-ROM and launch the server deployment process. A typical *AUTOEXEC.BAT* file will be similar to the following text:

```
path=a:\;s:\cpq
REM *** Loads the CD-ROM driver
mscdex.exe /d:cpqcdrom /l:s
REM *** Loads the CD-ROM caching program
smartdrv.exe d+ s 1024 1024
REM *** Switch to the CD drive and installation directory
s:
cd \cpq
REM *** Start the scripted server deployment by calling the
REM *** configuration batch file
call a:\dl380nt.bat
```

If the System Type (SYSTYPE) utility is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file will be similar to the following text:

```
path=a:\;s:\cpq
REM *** Loads the CD-ROM driver mscdex.exe /d:cpqcdrom /l:s
REM *** Loads the CD-ROM caching program smartdrv.exe d+ s 1024
REM *** 1024
REM *** Switch to the CD drive and installation directory
s:
cd \cpq

REM *** ------------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and calling the server-specific server
REM *** batch file. Although this example shows the batch files
REM *** in subdirectories on the A: drive, the files can be
REM *** placed in any location accessible by the target server
REM *** (or on s:\servers\dl580\dl580nt.bat on the network share
REM *** repository).
REM *** ------------------------------------------------------------

s:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call a:\dl580\dl580nt.bat
goto end

:DL380
call a:\dl380\dl380nt.bat
goto end

:ML530
call a:\ml530\ml530nt.bat
goto end

:ML350
call a:\ml350\ml350nt.bat
goto end

cd \

:end
```

5. Ensure that all files referenced in the *AUTOEXEC.BAT* file are copied to the server configuration diskette (if not using a network share).
6. Sign the server configuration diskette with the Sign Disk (SIGNDISK) by typing SIGNDISK at the A:\ prompt. Signing the server configuration diskette stamps the diskette with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

Server Configuration Files

There are five script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)
- *HYPERCFG.CFG*—Array configuration script file generated by HYPERCFG (required by ProLiant ML330 G2 servers that have AMI ATA RAID controllers)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL380NT.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL380NT.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL380NT.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL380NT.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL380NT.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL380NT.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script Files

1. Generate the RILOE configuration script file. For examples of the command line parameters, see the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

   www.compaq.com/manage/remote-lightsout.html

2. Generate the array configuration script file for ProLiant ML330 G2 servers with an AMI ATA RAID controller using the following command:

   ```
   HYPERCFG /S /L /FA:\@DL380NT.CFG
   ```

   This command reads the array configuration on the source servers and writes the array configuration script file to A:*DL380NT.CFG*.

Unattended Installation File

When the server profile script files are generated and modified for the target server, modify and save a copy of the *UNATTEND.TXT* file on the server configuration diskette. See the last section of this chapter for a typical unattended installation file for Windows NT 4.0.

NOTE: Refer to the operating system documentation for a complete description of the options that can be modified in the operating system-dependent unattended installation file to customize the installation of Windows NT 4.0.

Using a standard text editor, create the following three additional Toolkit files for Windows NT 4.0 and store them in the \TOOLKIT\CPQNT4 subdirectory of the configuration diskette.

1. Create a file called *CMD.TXT* to install and configure Compaq programs.

   NOTE: *CMD.TXT* is a script file executed by the SmartStart *GUICMD.EXE* utility. *GUICMD.EXE* is copied to the target system and executed by the Windows NT 4.0 installer during the graphical portion of the operating system installation process.

   The *CMD.TXT* file is similar to the following for SmartStart 4.80 and 4.90:

   ```
   Compaq Installation Utility
   Installing and configuring Compaq programs. Please wait...
   c:\compaq\cimu\setup.exe -s –sms
   c:\cpqmove.exe
   c:\ssd\setup.exe express
   c:\cimu\cpqsetup.exe cmushort.inf wait /f
   deldir c:\ssd
   delfile c:\unattend.txt
   deldir c:\cimu
   deldir c:\$oem$
   deldir c:\drivers
   deldir c:\i386
   ```

The *CMD.TXT* file is similar to the following for SmartStart 5.0 or later:

```
Compaq Installation Utility
Installing and configuring Compaq programs. Please wait...
c:\compaq\cimu\setup.exe -s –sms
c:\cpqmove.exe
c:\ntcsp\setupc.exe /f /silent c:\ntcsp\bp000051.xml
c:\cimu\cpqsetup.exe cmushort.inf wait /f
deldir c:\ntcsp
delfile c:\unattend.txt
deldir c:\cimu
deldir c:\$oem$
deldir c:\drivers
deldir c:\i386
```

IMPORTANT: The *BP000051.XML* file number shown changes for each SmartStart version released.

IMPORTANT: *GUICMD.EXE* is located in the \SSNT40\SSNT\COMPAQ\ subdirectory on SmartStart. The command does not accept any arguments, but expects the following structure in the *CMD.TXT* data file:

- The first line must be the progress dialog title.
- The second line must be the progress dialog message.
- Commands must have an EXE or COM extension. *GUICMD.EXE* will not run files with CMD or BAT extensions.
- *GUICMD.EXE* accepts the following internal commands in Windows NT 4.0:

  ```
  DELFILE [DRIVE:][PATH]FILENAME1[DRIVE:][PATH]
  FILENAME2[DRIVE:][PATH]FILENAME3

  DELDIR [DRIVE:][PATH1] [DRIVE:][PATH2] [DRIVE:][PATH3]

  COPYFILE [SOURCE DRIVE:][PATH]FILENAME]
  [DESTINATION DRIVE:][PATH][OPTIONAL FILENAME]

  RENAME [DRIVE:][PATH]OLDFILENAME NEWFILENAME
  ```

- *GUICMD.EXE* does not use operating system wildcards and does not prompt when replacing or deleting information.

2. Create a file called *CMDLINES.TXT* with the following text:

   ```
   [Commands]
   "c:\guicmd.exe"
   ```

   NOTE: *CMDLINES.TXT* is an input file of commands that is run by the operating system.

3. Create a file called *TXTSETUP.OEM,* adding all driver files required for text mode setup. The *TXTSETUP.OEM* file will be similar to the following text:

   ```
   [Disks]
   d1="CPQ CPQ CPQ32FS2",\,\
   d2="CPQ CPQ CPQARRY2",\,\
   d3="CPQ CPQ CPQARRAY",\,\
   d4="CPQ CPQ CPQSMGRK",\,\
   d5="CPQ CPQ ADPU160M",\,\
   [Defaults]
   scsi=cpq32fs2
   ```

```
[SCSI]
cpqarray="Compaq Drive Array"
cpqarry2="Compaq Integrated Smart Array 42xx Controllers"
cpq32fs2="Compaq 32-Bit SCSI-2 Controllers"
cpqsmgrk="Compaq Service Manager"
adpu160m="Compaq Ultra 160m PCI SCSI Controller (NT 4.0)"

[Files.scsi.cpq32fs2]
driver=d1,cpq32fs2.sys, cpq32fs2
inf=d1,fastscsi.inf

[Config.cpq32fs2]
value="",tag,REG_DWORD,1A

[Files.scsi.cpqarry2]
driver=d2,cpqarry2.sys,cpqarry2
inf=d2,cpqarry2.inf

[Config.cpqarry2]
value="",tag,REG_DWORD,102

[Files.scsi.cpqarray]
driver=d3,cpqarray.sys,cpqarray
inf=d3,cpqarray.inf

[Config.cpqarray]
value="",tag,REG_DWORD,100

[Files.scsi.cpqsmgrk]
driver=d4,cpqsmgrk.sys,cpqsmgrk

[Config.cpqsmgrk]
value="",tag,REG_DWORD,C8

[Files.scsi.adpu160m]
driver=d5,adpu160m.sys, adpu160m
inf=d5,adpu160m.inf

[Config.adpu160m]
value="",tag,REG_DWORD,20
```

NOTE: For additional information about structuring the *TXTSETUP.OEM* file, refer to the file *HW.INI,* located on SmartStart in the \CPQSUPSW\NTSSD\ subdirectory.

Creating the Server Batch File

The server batch file typically resides on the server configuration diskette and launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, the console feedback of the executable files run by the server batch file must be redirected to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For example:

```
S:\CPQ\CONREP -L A:\DL380NT.HWR > A:\LOGS\DL380NT.LOG
```

This command creates the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command S:\CPQ\CONREP -L A:\DL380NT.HWR to the *DL380NT.LOG* file. If a file already exists, ">" replaces the file.

```
S:\CPQ\ACR /I A:\DL380NT.ARY >> A:\LOGS\DL380NT.LOG
```

This command appends any console feedback generated by the command S:\CPQ\ACR /I A:\DL380NT.ARY to the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive.

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

```
S:\CPQ\CPQDISK /R A:\DL380NT.PRT >> A:\LOGS\DL380NT.LOG
```

This command appends any console feedback generated by the command S:\CPQ\CPQDISK /R A:\DL380NT.PRT to the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive.

For maximum configuration flexibility, the configuration batch file will execute these steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from the server configuration diskette is similar to the following:

```
@echo off
cls
REM *** ------------------------------------------------------
REM *** Change to the CD drive and get the current state
REM *** ------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information…
s:\cpq\statemgr /r phase

REM *** ------------------------------------------------------
REM *** Remove this initial pause when the batch file is fully
REM *** tested and debugged
REM *** ------------------------------------------------------
pause

REM *** ------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0

:State0
REM *** ------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** A:\DL380NT.HWR. Increase the state variable
REM *** ------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l a:\dl380nt.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

REM *** ------------------------------------------------------
REM *** No reboot is necessary
REM *** ------------------------------------------------------
```

```
:State1
REM *** ------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration  information in the script file
REM *** A:\DL380NT.ARY and stamping it on the array controllers
REM *** of the target server. Increase the state variable and
REM *** reboot
REM *** ------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i a:\dl380nt.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
s:\cpq\reboot a:


:State2
REM *** ------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the A:\DL380NT.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server. Prepare for system partition
REM *** population. Increase state variable and reboot
REM *** ------------------------------------------------------
echo Creating Disk Partition...
s:\cpq\cpqdisk /w a:\dl380nt.prt
s:\cpq\syspart /update:enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
s:\cpq\reboot a:
```

```
:State3
REM *** ----------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Populating System Partition…
c:\
cd\
s:\cpq\psyspart /s:s:
s:\cpq\syspart /update:disable
echo Setting State Information…
s:\cpq\statemgr /w Phase 4

REM *** ----------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the DOS
REM *** partition is D: If you want to remove this reboot, use D:
REM *** instead of C: when referring to the DOS partition until a
REM *** reboot is done
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:


:State4
REM *** ----------------------------------------------------------
REM *** Fifth state
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:

REM *** ----------------------------------------------------------
REM *** Copy Microsoft Windows NT 4.0 operating system files and
REM *** OEM driver files from the CD to the hard drive of the
REM *** target server, creating subdirectories as needed
REM *** ----------------------------------------------------------
echo Creating Driver Directory and Copying Drivers...
s:
s:\cpq\filecopy /s:s:\i386 /d:c:\i386 /s /e /f:*.*
s:\cpq\filecopy /s:s:\cpqnt4\$oem$ /d:c:\i386\$oem$ /s /e /f:*.*

REM *** ----------------------------------------------------------
REM *** Copy the customized UNATTEND.TXT file from the system
REM *** configuration diskette to the root directory of the target
REM *** server’s hard drive
REM *** ----------------------------------------------------------
copy a:\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 5
```

```
:State5
REM *** ----------------------------------------------------------
REM *** Sixth state
REM *** Copy operating system files to the boot partition
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Setting the state to allow diskette removal during the
installation of Windows NT
s:\cpq\statemgr /w Phase 6
echo Starting operating system installation…

REM *** ----------------------------------------------------------
REM *** Locking the target drive before running WINNT.EXE
REM *** ----------------------------------------------------------
c:
cd \i386
echo Y | lock c:\ > nul

REM *** ----------------------------------------------------------
REM *** Start installation of the operating system from the hard
REM *** drive of the target system, reading unattended
REM *** installation instructions from the C:\UNATTEND.TXT file
REM *** ----------------------------------------------------------
winnt /s:c:\i386 /u:c:\unattend.txt


:State6
REM *** ----------------------------------------------------------
REM *** Second sixth state
REM *** Resets state variable to 6 to allow operating system
REM *** reboot without removing the diskette
REM *** ----------------------------------------------------------
s:\cpq\statemgr /w Phase 6
echo The Windows NT installation will continue after the reboot...

REM *** ----------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ----------------------------------------------------------
s:\cpq\vflop /b:never /p:off

REM *** Reboot to drive C
s:\cpq\reboot c:


REM *** ----------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents may be placed
REM *** here
REM *** ----------------------------------------------------------
:State7
:State8
:State9
:State10
```

Creating the Installation CD-ROM

Creating an installation CD for a Windows NT 4.0 server deployment is optional. However, this step provides full control over installation of the operating system and other utilities on the target server.

When creating the CD, an organized directory structure is critical.

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 creating a custom installation CD, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the CD with the server batch file.

1. Do not place any files in the root directory of the installation CD.
2. Create an \I386 subdirectory and copy the contents of the Windows NT 4.0 CD \I386 subdirectory into the installation CD \I386 subdirectory.
3. Create a \CPQ subdirectory and copy all of the Toolkit utilities into the subdirectory.
4. Create a \CPQNT4\OEM subdirectory and copy all Compaq .OEM extension operating system files and drivers into this subdirectory.
5. Create a batch file (using the DOS utilities XCOPY and EXPAND) similar to the following text to automate the preparation of the \I386 and \CPQNT4\OEM subdirectories:

NOTE: The following example uses the DOS XCOPY command to copy the necessary drivers and support files. XCOPY is DOS-version dependent and does not work if there are version differences. If the DOS COPY command is used instead of XCOPY, ensure that the destination directories are created before copying files to the directories. Also, ensure that the correct drive designations and paths specific to the configuration are included in the server batch file.

This example will work in SmartStart 4.80 and 4.90.

```
REM *** ------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart for Servers image
REM *** \NT4SENG is the folder with Microsoft NT 4.0 \i386 folder
REM *** \TOOLKIT\CPQNT4 is the folder with toolkit files for
REM *** Microsoft NT 4.0
REM *** ------------------------------------------------------

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\compaq\compaq.bmp
\cpqnt4\$oem$\compaq.bmp /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\cmdlines.txt\ cpqnt4\$oem$\cmdlines.txt /s
/e /c /f /h /r /k
```

```
REM *** ------------------------------------------------
echo Updating Compaq Files: $OEM$\$$\SYSTEM32
REM *** ------------------------------------------------
xcopy \ss480\ssnt40\ssnt\microsft\netoemdh.inf
\cpqnt4\$oem$\$$\system32\netoemdh.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\microsft\oemnadzz.inf
\cpqnt4\$oem$\$$\system32\oemnadzz.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\msncdet.dll
\cpqnt4\$oem$\$$\system32\msncdet.dll /s /e /c /f /h /r /k
expand.exe \nt4seng\i386\netsetup.dl_
\cpqnt4\$oem$\$$\system32\netsetup.dll
expand.exe \nt4seng\i386\tcpcfg.dl_
\cpqnt4\$oem$\$$\system32\tcpcfg.dll
expand.exe \nt4seng\i386\ftdisk.sy_
\cpqnt4\$oem$\$$\system32\ftdisk.sys

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\C
REM *** ------------------------------------------------------
xcopy \toolkit\cpqnt4\cmd.txt \cpqnt4\$oem$\c\cmd.txt /s /e /c /f
/h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\guicmd.exe
\cpqnt4\$oem$\c\guicmd.exe /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Net Drivers: $OEM$\C\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd\net\intelnic\*.*
\cpqnt4\$oem$\c\drivers\net\intelnic\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd\net\netflx3\*.*
\cpqnt4\$oem$\c\drivers\net\netflx3\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 CIMU: $OEM$\C\COMPAQ\CIMU
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\cimu\*.* \cpqnt4\$oem$\c\compaq\cimu\*.* /s /e
/c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\ss40\*.* \cpqnt4\$oem$\c\cimu\*.*
/s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 NTSSD: $OEM$\C\SSD
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd\*.* \cpqnt4\$oem$\c\ssd\*.* /s /e /c
/f /h /r /k

REM *** ------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------
set textmode=\cpqnt4\$oem$\textmode
xcopy \ss480\cpqsupsw\ntssd\scsi\160m\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\array\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\cpqarry2\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\fastscsi\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
```

```
REM *** ------------------------------------------------------
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from the SmartStart CD 4.90 or
REM *** later
REM *** ------------------------------------------------------
xcopy \ss490\cpqsupsw\ntssd\scsi\cpqcissm\*.*
\cpqnt4\$oem$\textmode\*.*/s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\txtsetup.oem
\cpqnt4\$oem$\textmode\txtsetup.oem /s /e /c /f/h /r /k

REM *** ------------------------------------------------------
echo Updating Files for System Partition
REM *** ------------------------------------------------------
xcopy \ss480\diags\*.* c:\diags\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\*.* c:\syscfg\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\difdat\install.dif
c:\syscfg\difdat\install.dif /s /e /c /f /h /r /k
```

This example will work in SmartStart 5.0 or later

```
REM *** ------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart for Servers image
REM *** \NT4SENG is the folder with Microsoft NT 4.0 \i386 folder
REM *** \TOOLKIT\CPQNT4 is the folder with toolkit files for
REM *** Microsoft NT 4.0
REM *** ------------------------------------------------------

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\compaq\compaq.bmp
\cpqnt4\$oem$\compaq.bmp /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\cmdlines.txt\ cpqnt4\$oem$\cmdlines.txt /s
/e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\$$\SYSTEM32
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\microsft\netoemdh.inf
\cpqnt4\$oem$\$$\system32\netoemdh.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\microsft\oemnadzz.inf
\cpqnt4\$oem$\$$\system32\oemnadzz.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\msncdet.dll
\cpqnt4\$oem$\$$\system32\msncdet.dll /s /e /c /f /h /r /k
expand.exe \nt4seng\i386\netsetup.dl_
\cpqnt4\$oem$\$$\system32\netsetup.dll
expand.exe \nt4seng\i386\tcpcfg.dl_
\cpqnt4\$oem$\$$\system32\tcpcfg.dll
expand.exe \nt4seng\i386\ftdisk.sy_
\cpqnt4\$oem$\$$\system32\ftdisk.sys

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\C
REM *** ------------------------------------------------------
xcopy \toolkit\cpqnt4\cmd.txt \cpqnt4\$oem$\c\cmd.txt /s /e /c /f
/h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\guicmd.exe
\cpqnt4\$oem$\c\guicmd.exe /s /e /c /f /h /r /k
```

```
REM *** ------------------------------------------------------
echo Updating Net Drivers: $OEM$\C\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd40\net\intelnic\*.*
\cpqnt4\$oem$\c\drivers\net\intelnic\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd40\net\netflx3\*.*
\cpqnt4\$oem$\c\drivers\net\netflx3\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 CIMU: $OEM$\C\COMPAQ\CIMU
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\cimu\*.* \cpqnt4\$oem$\c\compaq\cimu\*.* /s /e
/c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\ss40\*.* \cpqnt4\$oem$\c\cimu\*.*
/s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 NTSSD: $OEM$\C\SSD
REM *** ------------------------------------------------------
xcopy \ss50\cpqsupsw\ntcsp\*.* \cpqnt4\$oem$\c\ntcsp\*.* /s /e /c
/f /h /r /k

REM *** ------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------
set textmode=\cpqnt4\$oem$\textmode
xcopy \ss480\cpqsupsw\ntssd40\scsi\160m\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\array\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\cpqarry2\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\fastscsi\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f/h /r /k

REM *** ------------------------------------------------------
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from the SmartStart CD 4.90 or
REM *** later
REM *** ------------------------------------------------------
xcopy \ss490\cpqsupsw\ntssd40\scsi\cpqcissm\*.*
\cpqnt4\$oem$\textmode\*.*/s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\txtsetup.oem
\cpqnt4\$oem$\textmode\txtsetup.oem /s /e /c /f/h /r /k

REM *** ------------------------------------------------------
echo Updating Files for System Partition
REM *** ------------------------------------------------------
xcopy \ss480\diags\*.* c:\diags\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\*.* c:\syscfg\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\difdat\install.dif
c:\syscfg\difdat\install.dif /s /e /c /f /h /r /k
```

NOTE: Ensure that you are using the most recent version of SmartStart for Servers to obtain supported drivers for new hardware devices. Also, add lines to copy the new devices and add the new devices to the *UNATTEND.TXT* and *TXTSETUP.OEM* files.

6. If multiple server profiles form part of the installation CD, create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on. Copy the three server profile script files and the customized operating system-dependent unattended installation file into each server profile subdirectory.

NOTE: If SYSTYPE is used to enable branching from the *AUTOEXEC.BAT* file, copy the server-specific configuration batch file into each server subdirectory.

7. Create additional subdirectories to copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management.
8. If the system partition on the target server is populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the installation CD.

IMPORTANT: When the directory structure of the installation CD is determined, ensure that the server batch file runs all programs and utilities from the CD.

Deploying the Target Server

To begin a new server deployment with the installation CD:

1. Insert the server configuration diskette into the target server.
2. Power up the target server and insert the CD.
3. Supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Network-Based Deployment

This scenario illustrates the deployment of Windows NT 4.0 across a network. A shared network drive that contains the files necessary to set up the target server must be available to the target server. The shared drive contains:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

Network-based server deployments can be lengthy. Because performance decreases dramatically over a 10-Mb/s network, Compaq recommends network-based deployments over 100-Mb/s (and faster) networks only.

Deployment Process Overview

The general network-based server deployment process includes:

1. Creating the bootable server configuration diskette with network software
2. Creating the server profile script files
3. Creating the server batch file
4. Preparing the network software repository
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette with Network Software

Follow these steps to create a bootable server configuration diskette for booting the target server and loading the Microsoft Networking protocol stack. Loading the network protocol stack allows the target server to connect to a network share and initiate the server deployment process over the network.

IMPORTANT: Create the bootable server configuration diskette by using DOS version 6.22 or later.

NOTE: See Appendix A for an alternate procedure to create a basic network boot diskette using a Microsoft Network Client 3.0 set of diskettes for DOS.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Ensure that the latest NIC drivers are available for the server on which Windows NT 4.0 will be installed. In this case, an Ethernet NIC is installed.

3. Using a Windows NT Server 4.0 machine, start the Network Client Administrator tool and select **Make Network Installation Startup Disk.**

NOTE: For information about using the Network Client Administrator, refer to the online documentation for the utility.

4. Select Network Client v3.0 for MS-DOS and Windows.
5. Select any of the NICs from the list, for example, **NE2000-compatible.**
6. When prompted, supply the Computer name, User name, Domain, and Network protocol. In this sample, Transmission Control Protocol/Internet Protocol (TCP/IP) and Dynamic Host Configuration Protocol (DHCP) are being used.
7. Copy the proper DOS NDIS driver into the A:\NET directory of the server configuration diskette.
8. Modify the *SYSTEM.INI* file in the A:\NET directory so that it contains the following line:

```
NETCARD=FILENAME.DOS

[network]
preferredredir=BASIC
autostart=BASIC
```

NOTE: *FILENAME.DOS* is the name of the DOS NDIS driver file copied to the server configuration diskette, for example, *N100.DOS.*

9. Modify the *PROTOCOL.INI* file in the A:\NET directory so that it contains the following line:

```
DRIVERNAME=FILENAME$
```

NOTE: FILENAME$ is the name of the DOS NDIS driver name, for example, N100$.

10. Edit the *CONFIG.SYS* file on the server configuration diskette so that it loads the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by the
REM *** target server
device=a:\dos\himem.sys
device=a:\dos\setver.exe
device=a:\net\ifshlp.sys
dos=high
buffers=30
files=40
stacks=9,256
switches=/f
lastdrive=z:
REM *** Establish default shell to use
shell=command.com /p
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on the server configuration.

11. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the server configuration diskette in the appropriate subdirectories.

12. Edit the *AUTOEXEC.BAT* file to remove the line that runs *SETUP.EXE* and add a line that maps a drive letter to the network share. For example, add the line:

```
NET USE S: \\DEPLOY\SHAREVOL /YES
REM *** where S=mapped drive, DEPLOY=server name, and
REM *** SHAREVOL=network share on the server
```

A typical *AUTOEXEC.BAT* file is similar to the following:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start

REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:

REM *** Start the scripted server deployment by calling the
REM *** configuration batch file that resides in the shared
REM *** network directory
call s:\dl380nt.bat
```

If the SYSTYPE utility is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file will be similar to the following text:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start
```

```
REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:
cd \cpq

REM *** ------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and calling the server-specific
REM *** configuration batch file.
REM *** ------------------------------------------------------

s:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call s:\dl580nt.bat
goto end

:DL380
call s:\dl830nt.bat
goto end

:ML530
call s:\ml530nt.bat
goto end

:ML350
call s:\ml350nt.bat
goto end

cd \

:end
```

13. Sign the server configuration diskette with SIGNDISK included in the Toolkit. Signing the server configuration diskette stamps the diskette with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the server configuration diskette.

Creating the Server Profile Script Files

There are five script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)
- *HYPERCFG.CFG*—Array configuration script file generated by HYPERCFG (required by ProLiant ML330 G2 servers that have AMI ATA RAID controllers)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL380NT.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL380NT.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL380NT.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL380NT.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL380NT.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL380NT.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script Files

1. Generate the RILOE configuration script file. For examples of the command line parameters, see the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

   www.compaq.com/manage/remote-lightsout.html

2. Generate the array configuration script file for ProLiant ML330 G2 servers with an AMI ATA RAID controller using the following command:

   ```
   HYPERCFG /S /L /FA:\@DL380NT.CFG
   ```

   This command reads the array configuration on the source servers and writes the array configuration script file to A:*DL380NT.CFG*.

Unattended Installation File

When the server profile script files are generated and modified for the target server, save a copy of the *UNATTEND.TXT* file on the server configuration diskette. See the end of this chapter for a typical unattended installation file for Windows NT 4.0.

Refer to the operating system documentation for a complete description of the options that can be modified in the operating system unattended installation file to customize the installation of Windows NT 4.0.

Using a standard text editor, create the following three additional Toolkit files for Windows NT 4.0 and store them in the \TOOLKIT\CPQNT4\ subdirectory of the server configuration diskette.

1. Create a file called *CMD.TXT* to install and configure Compaq programs.

NOTE: *CMD.TXT* is a script file executed by the *GUICMD.EXE* SmartStart utility. *GUICMD.EXE* is copied to the target system and executed by the Windows NT 4.0 installer during the graphical portion of the operating system installation process.

The *CMD.TXT* is similar to the following for SmartStart 4.80 and 4.90:

```
Compaq Installation Utility
Installing and configuring Compaq programs. Please wait...
c:\cpqmove.exe
c:\ssd\setup.exe.express
c:\cimu\cpqsetup.exe cmushort.inf wait /f
deldir c:\ssd
delfile c:\unattend.txt
deldir c:\cimu
deldir c:\$oem$
deldir c:\drivers
deldir c:\i386
```

The *CMD.TXT* is similar to the following for SmartStart 5.0 or later:

```
Compaq Installation Utility
Installing and configuring Compaq programs. Please wait...
c:\cpqmove.exe
c:\ntcsp\setupc.exe /f /silent c:/ntcsp/bp000051.xml
c:\cimu\cpqsetup.exe cmushort.inf wait /f
deldir c:\ntcsp
delfile c:\unattend.txt
deldir c:\cimu
deldir c:\$oem$
deldir c:\drivers
deldir c:\i386
```

IMPORTANT: The *BP000051.XML* file number shown changes for each SmartStart version released.

IMPORTANT: *GUICMD.EXE* is located in the \SSNT40\SSNT\COMPAQ\ subdirectory on SmartStart. The command does not accept any arguments, but expects the following structure in the *CMD.TXT* data file:

- The first line must be the progress dialog title.
- The second line must be the progress dialog message.
- Commands must have an EXE or COM extension. *GUICMD.EXE* will not run files with CMD or BAT extensions.
- *GUICMD.EXE* accepts the following internal commands in Windows NT 4.0:

  ```
  DELFILE [DRIVE:][PATH]FILENAME1[DRIVE:][PATH]
  FILENAME2[DRIVE:][PATH]FILENAME3

  DELDIR [DRIVE:][PATH1] [DRIVE:][PATH2] [DRIVE:][PATH3]

  COPYFILE [SOURCE DRIVE:][PATH]FILENAME]
  [DESTINATION DRIVE:][PATH][OPTIONAL FILENAME]

  RENAME [DRIVE:][PATH]OLDFILENAME NEWFILENAME
  ```

- *GUICMD.EXE* does not use operating system wildcards and does not prompt when replacing or deleting information.

2. Create a file called *CMDLINES.TXT.* The format of the *CMDLINES.TXT* file is similar to the following:

   ```
   [Commands]
   "c:\guicmd.exe"
   ```

3. Create a file called *TXTSETUP.OEM*, adding all driver files required for text mode setup. The *TXTSETUP.OEM* file is similar to the following:

   NOTE: For additional information about structuring the *TXTSETUP.OEM* file, refer to the file *HW.INI*, located on SmartStart for Servers in the \CPQSUPSW\NTSSD\ subdirectory.

   ```
   [Disks]

   d1="CPQCPQCPQ32FS2",\,\
   d2="CPQCPQCPQARRY2",\,\
   d3="CPQCPQCPQARRAY",\,\
   d4="CPQCPQCPQSMGRK",\,\
   d5="CPQCPQADPU160M",\,\
   ```

```
[Defaults]
scsi=cpq32fs2

[SCSI]
cpqarray=”Compaq Drive Array”
cpqarray2=”Compaq Integrated Smart Array 42xx Controllers”
cpq32fs2=”Compaq 32-Bit SCSI-2 Controllers”
cpqsmgrk=”Compaq Service Manager”
adpu160m=”Compaq Ultra 160m PCI SCSI Controller (NT 4.0)

[Files]
driver=d1,cpq32fs2.sys, cpq32fs2
inf=d1,fastscsi.inf

[Config.cpq32fs2]
value=”,tag,REG_DWORD,1A

[Files.scsi.cpqarry2]
driver=d2,cpqarry2.sys,cpqarry2
inf=d2,cpqarry2.inf

[Config.cpqarry2]
value=”,tag,REG_DWORD,102

[Files.scsi.cpqarry]
driver=d3,cpqarry.inf

[Config.cpqarray]
value=”,tag,REG_DWORD,102

[Files.scsi.cpqarray]
driver=d3,cpqarray.sys,cpqarray
ijnf=d3,cpqarray.inf

[Config.cpqarray]
value=”,tag,REG_DWORD,100

[Files.scsi.cpqsmgrk]
driver=d4,cpqsmgrk.sys,cpqsmgrk

[Config.cpqsmgrk]
value=”,tag,REG_DWORD,C8

[Files.scsi.adpu160m]
driver=d5,adpu160m.sys, adpu160m

[Config.adpu160m]
value=”,tag,REG_DWORD,20
```

Creating the Server Batch File

In the case of network installations, the server batch file typically resides in the root directory of the shared network drive and launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, redirect the console feedback of the executable files run by the server batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For example:

```
S:\CPQ\CONREP -L A:\DL380NT.HWR > A:\LOGS\DL380NT.LOG
```

This command creates the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command S:\CPQ\CONREP -L A:\DL380NT.HWR to the *DL380NT.LOG* file.

```
S:\CPQ\ACR /I A:\DL380NT.ARY >> A:\LOGS\DL380NT.LOG
```

This command appends any console feedback generated by the command S:\CPQ\ACR /I A:\DL380NT.ARY to the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive.

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

```
S:\CPQ\CPQDISK /W A:\DL380NT.PRT >> A:\LOGS\DL380NT.LOG
```

This command appends any console feedback generated by the command S:\CPQ\CPQDISK /R A:\DL380NT.PRT to the file *DL380NT.LOG* in the \LOGS subdirectory on the A drive.

To allow for maximum configuration flexibility, the configuration batch file will execute these steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities and the configuration script files from a shared network location is similar to the following:

```
@echo off
cls
REM *** ----------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information…
s:\cpq\statemgr /r phase
REM *** ----------------------------------------------------------
REM *** Remove this initial pause when the batch file is fully
REM *** tested and debugged
REM *** ----------------------------------------------------------
pause

REM *** ----------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ----------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0


:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL380NT.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\dl380\dl380nt.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1
REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------
```

```
:State1
REM *** ------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL380NT.ARY and stamping it onto the
REM *** array controllers of the target server
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\dl380\dl380nt.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
s:\cpq\reboot a:


:State2
REM *** ------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the
REM *** S:\SERVERS\DL380\DL380NT.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server
REM *** Prepare for system partition population
REM *** Increase state variable and reboot
REM *** ------------------------------------------------------
echo Creating Disk Partition...
s:\cpq\cpqdisk /w s:\servers\dl380\dl380nt.prt
s:\cpq\syspart /update:enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
s:\cpq\reboot a:
```

```
:State3
REM *** ------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------------
echo Populating System Partition…
c:\
cd\
s:\cpq\psyspart /s:s:
s:\cpq\syspart /update:disable
echo Setting State Information…
s:\cpq\statemgr /w Phase 4
REM *** ------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the DOS
REM *** partition is D:
REM *** If you want to remove this reboot, use D: instead of C:
REM *** when referring to the DOS partition until a reboot is done
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
s:\cpq\reboot a:

:State4
REM *** ------------------------------------------------------
REM *** Fifth state
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:

REM *** ------------------------------------------------------
REM *** Copy Microsoft Windows NT 4.0 operating system files and
REM *** OEM driver files from the CD to the hard drive of the
REM *** target server, creating subdirectories as needed
REM *** ------------------------------------------------------
echo Creating Driver Directory and Copying Drivers…
s:
s:\cpq\filecopy /s:s:\i386 /d:c:\i386 /s /e /f:*.*
s:\cpq\filecopy /s:s\cpqnt4\$oem$ /d:c\i386\$oem$ /s /e /f.*.*
REM *** ------------------------------------------------------
REM *** Copy the customized UNATTEND.TXT file from the shared
REM *** network drive to the root directory of the target server's
REM *** hard drive
REM *** ------------------------------------------------------
copy s:\servers\dl380\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 5
```

```
:State5
REM *** ----------------------------------------------------------
REM *** Sixth state
REM *** Copy operating system files to the boot partition
REM *** Increment the state variable
REM *** ----------------------------------------------------------
echo Setting the state to allow diskette removal during the
installation of
Windows NT
s:\cpq\statemgr /w Phase 6
echo Starting operating system installation…
REM *** ----------------------------------------------------------
Locking the target drive before running WINNT.EXE
REM *** ----------------------------------------------------------
c:
cd \i386
each Y | lock c:\ > nul
REM *** ----------------------------------------------------------
REM *** Start installation of the operating system, reading
REM *** unattended installation instructions from the
REM *** C:\UNATTEND.TXT file
REM *** ----------------------------------------------------------
winnt /s:s:\i386 /u:c:\unattend.txt


:State6
REM *** ----------------------------------------------------------
REM *** Second sixth state
REM *** Resets state variable to 6 to allow operating system
REM *** reboot without removing the diskette
REM *** ----------------------------------------------------------
s:\cpq\statemgr /w Phase 6
echo The Windows NT 4.0 installation will continue after the
reboot...
REM *** ----------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ----------------------------------------------------------
s:\cpq\vflop /b:never /p:off
REM *** Reboot to drive C
s:\cpq\reboot c:
REM *** ----------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents may be placed
REM *** here
REM *** ----------------------------------------------------------
:State7
:State8
:State9
:State10
```

Preparing the Network Software Repository

When creating the network software repository, it is important to organize the directory structure.

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, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the repository with the server batch file.

1. Create an account with read-only access to the software image files in the software repository.
2. Place only configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they may also be placed in the subdirectories containing the server profiles.
3. Create an \I386 subdirectory and copy the contents of the Windows NT 4.0 CD \I386 subdirectory into the software repository \I386 subdirectory.
4. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
5. Create a \CPQNT4\OEM subdirectory and other OEM subdirectory structures and copy all Compaq OEM extension operating system files and drivers into the appropriate subdirectories.

6. Create a batch file similar to the following text (using the DOS utilities XCOPY and EXPAND) to automate the preparation of the \I386 and \CPQNT4\OEM subdirectories.

IMPORTANT: The following example batch file uses the DOS XCOPY command to copy the necessary drivers and support files. XCOPY is DOS-version dependent and does not work if there are version differences. If the DOS COPY command is used instead of XCOPY, ensure that the destination directories are created before copying files to the directories. Also, ensure that the correct drive designations and paths specific to your configuration are included in the batch file.

This example will work in SmartStart 4.80 and 4.90

```
REM *** ------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart CD image
REM *** \NT4SENG is the folder with Microsoft NT 4.0 \i386 folder
REM *** \TOOLKIT\CPQNT4 is the folder with toolkit files for
REM *** Microsoft NT 4.0
REM *** ------------------------------------------------------

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\compaq\compaq.bmp
\cpqnt4\$oem$\compaq.bmp /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\cmdlines.txt \cpqnt4\$oem$\cmdlines.txt /s
/e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\$$\SYSTEM32
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\microsft\netoemdh.inf
\cpqnt4\$oem$\$$\system32\netoemdh.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\microsft\oemnadzz.inf
\cpqnt4\$oem$\$$\system32\oemnadzz.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\msncdet.dll
\cpqnt4\$oem$\$$\system32\msncdet.dll /s /e /c /f /h /r /k
expand.exe \nt4seng\i386\netsetup.dl_
cpqnt4\$oem$\$$\system32\netsetup.dll
expand.exe \nt4seng\i386\tcpcfg.dl_
\cpqnt4\$oem$\$$\system32\tcpcfg.dll
expand.exe \nt4seng\i386\ftdisk.sy_
\cpqnt4\$oem$\$$\system32\ftdisk.sys

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\C
REM *** ------------------------------------------------------
xcopy \toolkit\cpqnt4\cmd.txt \cpqnt4\$oem$\c\cmd.txt /s /e /c /f
/h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\guicmd.exe
\cpqnt4\$oem$\c\guicmd.exe /s /e /c /f /h /r /k
```

```
REM *** ------------------------------------------------------
echo Updating Net Drivers: $OEM$\C\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy
\ss480\cpqsupsw\ntssd\net\intelnic\*.*\cpqnt4\$oem$\c\drivers\net\
intelnic\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd\net\netflx3\*.*
\cpqnt4\$oem$\c\drivers\net\netflx3\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 CIMU: $OEM$\C\COMPAQ\CIMU
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\cimu\*.* \cpqnt4\$oem$\c\compaq\cimu\*.* /s /e
/c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\ss40\*.* \cpqnt4\$oem$\c\cimu\*.*
/s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 NTSSD: $OEM$\C\SSD
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd\*.* \cpqnt4\$oem$\c\ssd\*.* /s /e /c
/f /h /r /k

REM *** ------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd\scsi\160m\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\array\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\cpqarry2\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd\scsi\fastscsi\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from
REM *** the SmartStart CD 4.90 or later
xcopy \ss490\cpqsupsw\ntssd\scsi\cpqcissm\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\txtsetup.oem
\cpqnt4\$oem$\textmode\txtsetup.oem /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Files for System Partition
REM *** ------------------------------------------------------
xcopy \ss480\diags\*.* c:\diags\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\*.* c:\syscfg\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\difdat\install.dif
c:\syscfg\difdat\install.dif /c /f /h /r /k
```

This example will work in SmartStart 5.0 or later.

```
REM *** ------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart CD image
REM *** \NT4SENG is the folder with Microsoft NT 4.0 \i386 folder
REM *** \TOOLKIT\CPQNT4 is the folder with toolkit files for
REM *** Microsoft NT 4.0
REM *** ------------------------------------------------------

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\compaq\compaq.bmp
\cpqnt4\$oem$\compaq.bmp /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\cmdlines.txt \cpqnt4\$oem$\cmdlines.txt /s
/e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\$$\SYSTEM32
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\ssnt\microsft\netoemdh.inf
\cpqnt4\$oem$\$$\system32\netoemdh.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\microsft\oemnadzz.inf
\cpqnt4\$oem$\$$\system32\oemnadzz.inf /s /e /c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\msncdet.dll
\cpqnt4\$oem$\$$\system32\msncdet.dll /s /e /c /f /h /r /k
expand.exe \nt4seng\i386\netsetup.dl_
cpqnt4\$oem$\$$\system32\netsetup.dll
expand.exe \nt4seng\i386\tcpcfg.dl_
\cpqnt4\$oem$\$$\system32\tcpcfg.dll
expand.exe \nt4seng\i386\ftdisk.sy_
\cpqnt4\$oem$\$$\system32\ftdisk.sys

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\C
REM *** ------------------------------------------------------
xcopy \toolkit\cpqnt4\cmd.txt \cpqnt4\$oem$\c\cmd.txt /s /e /c /f
/h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\guicmd.exe
\cpqnt4\$oem$\c\guicmd.exe /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Net Drivers: $OEM$\C\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy
\ss480\cpqsupsw\ntssd40\net\intelnic\*.*\cpqnt4\$oem$\c\drivers\ne
t\intelnic\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd40\net\netflx3\*.*
\cpqnt4\$oem$\c\drivers\net\netflx3\*.* /s /e /c /f /h /r /k
```

```
REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 CIMU: $OEM$\C\COMPAQ\CIMU
REM *** ------------------------------------------------------
xcopy \ss480\ssnt40\cimu\*.* \cpqnt4\$oem$\c\compaq\cimu\*.* /s /e
/c /f /h /r /k
xcopy \ss480\ssnt40\ssnt\compaq\ss40\*.* \cpqnt4\$oem$\c\cimu\*.*
/s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows NT 4.0 NTSSD: $OEM$\C\SSD
REM *** ------------------------------------------------------
xcopy \ss50\cpqsupsw\ntcsp\*.* \cpqnt4\$oem$\c\ntcsp\*.* /s /e /c
/f /h /r /k

REM *** ------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd40\scsi\160m\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\array\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\cpqarry2\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd40\scsi\fastscsi\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from
REM *** the SmartStart CD 4.90 or later
xcopy \ss490\cpqsupsw\ntssd40\scsi\cpqcissm\*.*
\cpqnt4\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \toolkit\cpqnt4\txtsetup.oem
\cpqnt4\$oem$\textmode\txtsetup.oem /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Files for System Partition
REM *** ------------------------------------------------------
xcopy \ss480\diags\*.* c:\diags\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\*.* c:\syscfg\*.* /s /e /c /f /h /r /k
xcopy \ss480\syscfg\difdat\install.dif
c:\syscfg\difdat\install.dif /c /f /h /r /k
```

NOTE: Ensure that you are using the most recent version of SmartStart for Servers to obtain supported drivers for new hardware devices. Also, add lines to copy the new devices and add the new devices to the *UNATTEND.TXT* and *TXTSETUP.OEM* files.

7. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on. Copy the three server profile script files from the server configuration diskette and the customized operating system-dependent unattended installation file into each server profile subdirectory.

NOTE: If using SYSTYPE to enable branching from the *AUTOEXEC.BAT* file, also copy the server-specific configuration batch file into each server subdirectory.

8. Create additional subdirectories to copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management.
9. If the system partition on the target server will be populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the software repository.

IMPORTANT: When the directory structure of the network software repository is determined, ensure that the configuration batch file runs all programs and utilities correctly from the network location.

Deploying the Target Server

To begin a new server deployment over the network, follow these steps:

1. Insert the bootable server configuration diskette into the target server.
2. Power up the target server and supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which connects the target server to the network share and starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Windows NT 4.0 *UNATTEND.TXT* Sample File

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately.

Refer to the operating system documentation for a complete description of the options that can be modified in the operating system-dependent unattended installation file to customize the installation of Microsoft Windows NT 4.0. More information can be found in the *Microsoft Windows NT Server 4.0 Resource Kit* or in the *Deployment Resources Roadmap: A Guide to Deploying Windows NT Server 4.0* document, available on the Microsoft website:

www.microsoft.com/ntserver/nts/deployment/planguide/DeployRoadmap.asp

NOTE: Bolded lines indicate modifications made to fully automate the installation of the operating system.

```
[Network]
InstallAdapters=SelectedAdaptersSection
InstallInternetServer=InternetParamSection
InstallProtocols=ProtocolsSection
InstallServices=ServicesSection
JoinWorkgroup="COMPAQ"

[SelectedAdaptersSection]
;If the retail NIC drivers work for the installed NIC, this
;section can be removed along with “InstallAdapters” in the
;Network section.
;If and OEM NIC driver is required, it should be added here.
N100=OEMCardParameters, C:\DRIVERS\NET\INTELNIC

[OEMCardParameters]

[Unattended]
ConfirmHardware=no
ExtendOemPartition=1
FileSystem=ConvertNTFS
KeyboardLayout="US"
NoWaitAfterGUIMode=1
NoWaitAfterTextMode=1
NtUpgrade=no
OemPreinstall=Yes
OemSkipEula=Yes
OverWriteOemFilesOnUpgrade=No
TargetPath=WINNT
UnattendMode=FullUnattended
Win31Upgrade=no
OemPnPDriversPath=C:\DRIVERS\NET
```

```
[MassStorageDrivers]
;These drivers must be in the order listed below
"IDE CD-ROM (ATAPI 1.2)/PCI IDE Controller"=RETAIL
"Compaq Integrated Smart Array 42xx Controllers"=OEM
"Compaq 32-Bit SCSI-2 Controllers"=OEM
"Compaq Drive Array"=OEM
"Compaq Service Manager"=OEM
"Compaq Ultra 160m PCI SCSI Controller (NT 4.0)"=OEM
“Compaq Smart Array 53xx Controller”=OEM

[GuiUnattended]
OEMBlankAdminPassword=1
AdvServerType=SERVERNT
AutoLogon=Yes
AutoLogonCount=1
OEMSkipRegional=1
OemSkipWelcome=1
TimeZone="(GMT-06:00) Central Time (US & Canada)"

[LicenseFilePrintData]
AutoMode=PERSERVER
AutoUsers=5

[Display]
AutoConfirm=1
BitsPerPel=8
ConfigureAtLogon=0
VRefresh=60
XResolution=640
YResolution=480

[OEMBootFiles]
;These files must be in the order listed below
TXTSETUP.OEM
CPQSMGRK.SYS
CPQARRAY.SYS
CPQ32FS2.SYS
CPQARRY2.SYS
ADPU160M.SYS
CPQCISSM.SYS

[OEM_Ads]
Logo="COMPAQ.BMP"

[InternetParamSection]
FTPRoot=C:\INETSRV\FTPROOT
GopherRoot=C:\INETSRV\GOPHERROOT
InstallADMIN=1
InstallDir=C:\Inetsrv
InstallFTP=1
InstallGOPHER=1
InstallHTMLA=1
InstallINETSTP=1
InstallW3SAMP=1
InstallWWW=1
WWWRoot=C:\INETSRV\WWWROOT
```

```
[ProtocolsSection]
NBF="NetBUIParameters"
TC="TCPIPParameters"

[NBFParamSection]

[TCPIPParameters]
DHCP="Yes"
DNSName=""
DNSServer=""

[UserData]
ComputerName="SS"
FullName="SmartStart"
OrgName="Compaq"
;Product Key required in not select version
;ProductID="xxx-xxxxxxx"
```

The server deployment configuration and operating system installation process is complete.

3

Microsoft Windows 2000 Deployment

This chapter provides best practice scenarios for using the Toolkit to deploy the Microsoft Windows 2000 Server and Windows 2000 Advanced Server operating systems with a CD or across a network.

CD-Based Deployment

This scenario illustrates the deployment of Windows 2000 by using a CD that contains the files necessary to set up the target server. This CD is created by the user and includes:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

NOTE: CD-based server deployment speed varies depending on the speed of the CD-ROM drive, the cleanliness of the CD, and the presence of CD-caching software.

Deployment Process Overview

The general CD-based server deployment process consists of the following steps:

1. Creating the bootable server configuration diskette
2. Creating the server profile script files
3. Creating the server batch file
4. Creating the installation CD-ROM
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette

Follow these steps to create a bootable server configuration diskette that will be used to initiate the server deployment process:

NOTE: Create the bootable server configuration diskette using DOS 6.22 or 7.0.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Create a *CONFIG.SYS* file that loads the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by the target
REM *** server
device=himem.sys
device=setver.exe
device=cpqidecd.sys /d:cpqcdrom
device=ifshlp.sys
REM *** Establish default shell to use
shell=command.com /p
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on the server configuration.

3. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the server configuration diskette.
4. Create an *AUTOEXEC.BAT* file that will load the drivers necessary for the CD-ROM and optionally launch the server deployment process. A typical *AUTOEXEC.BAT* file will be similar to the following:

```
path=a:\;s:\cpq
REM *** Loads the CD-ROM driver
mscdex.exe /d:cpqcdrom /l:s
REM *** Loads the CD-ROM caching program
smartdrv.exe d+ s 1024 1024
REM *** Switch to the CD drive and installation directory
s:
cd \cpq
REM *** Start the scripted server deployment by calling the
REM *** configuration batch file
call a:\dl380w2k.bat
```

If SYSTYPE is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file is similar to the following:

```
path=a:\;s:\cpq
REM *** Loads the CD-ROM driver
mscdex.exe /d:cpqcdrom /l:s
REM *** Loads the CD-ROM caching program
smartdrv.exe d+ s 1024 1024

REM *** Switch to the CD drive and installation directory
s:
cd \cpq

REM *** ------------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and
REM *** calling the server-specific configuration batch file.
REM *** Although this example shows the configuration batch files
REM *** in subdirectories on the A: drive, they can be placed in
REM *** any location that is accessible by the target server.
REM *** ------------------------------------------------------------

s:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call a:\dl580\dl5802k.bat
goto end

:DL380
call a:\dl380\dl8302k.bat
goto end

:ML530
call a:\ml530\ml5302k.bat
goto end

:ML350
call a:\ml350\ml3502k.bat
goto end

cd \

:end
```

5. Sign the server configuration diskette with SIGNDISK by copying the utility to the diskette and typing SIGNDISK at the A:/ prompt. Signing the server configuration diskette stamps the diskette with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the server configuration diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

Server Configuration Files

There are five script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)
- *HYPERCFG.CFG*—Array configuration script file generated by HYPERCFG (required by ProLiant ML330 G2 servers that have AMI ATA RAID controllers)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL3802K.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL3802K.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL3802K.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL3802K.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL3802KT.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL3802K.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script Files

1. Generate the RILOE configuration script file. For examples of the command line parameters, refer to the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

   www.compaq.com/manage/remote-lightsout.html

2. Generate the array configuration script file for ProLiant ML330 G2 servers with an AMI ATA RAID controller using the following command:

   ```
   HYPERCFG /S /L /FA:\@DL380NT.CFG
   ```

   This command reads the array configuration on the source servers and writes the array configuration script file to A:*DL3802K.CFG*.

Unattended Installation File

When the server profile script files are generated and modified for the target server, save a copy of the *UNATTEND.TXT* file onto the server configuration diskette. See the end of this chapter for a typical unattended installation file for Windows 2000.

NOTE: Refer to the operating system documentation for a complete description of the options that can be modified in the operating system-dependent unattended installation file to customize the installation of Windows 2000.

Using a standard text editor, create the following two additional Toolkit files for Windows 2000 and store them in the \TOOLKIT\CPQW2K subdirectory of the server configuration diskette.

1. Create a file called *CMD.TXT* to install Compaq Support Paqs for Windows 2000.

NOTE: *CMD.TXT* is a script file executed by the *GUICMD.EXE* SmartStart for Servers utility. *GUICMD.EXE* is copied to the target system and executed by the Windows 2000 installer during the graphical portion of the operating system installation process.

The *CMD.TXT* is similar to the following:

```
Compaq Installation Utility
Updating Windows 2000 with the latest Compaq drivers.
Please wait...
REM *** The file names are dependent on the version of SmartStart
REM *** for Servers that is used. These files are from SmartStart
REM *** version 4.80.
waitonprocess setup50.exe 120
c:\ntcsp\setupc /f /silent c:\ntcsp\bp000032.xml
c:\cmsisu.exe
delfile c:\cmsisu.exe
delfile c:\unattend.txt
deldir c:\ntcsp
deldir c:\quicklch
```

NOTE: *CMSISU.EXE* is located in the \SSNT50\SSNT\COMPAQ\ subdirectory on SmartStart for Servers. The command does not accept any arguments and performs the following functions on Microsoft Windows 2000 platforms:

- Restores the Quick Launch buttons on the Windows taskbar.
- Removes unnecessary hardware from the Windows registry.

IMPORTANT: *GUICMD.EXE* is located in the SmartStart \SSNT50\SSNT\COMPAQ\ subdirectory. The command does not accept any arguments but expects the following structure in the *CMD.TXT* data file:

- The first line must be the progress dialog title.
- The second line must be the progress dialog message.
- Commands must have an EXE or COM extension. *GUICMD.EXE* will not run files with CMD or BAT extensions.
- *GUICMD.EXE* accepts the following internal commands in Microsoft Windows 2000:

```
DELFILE [DRIVE:][PATH]FILENAME1 [DRIVE:][PATH]FILENAME2
[DRIVE:][PATH]FILENAME3

DELDIR [DRIVE:][PATH1] [DRIVE:][PATH2] [DRIVE:][PATH3]

COPYFILE [SOURCE DRIVE:][PATH]FILENAME [DESTINATION
DRIVE:][PATH][OPTIONAL FILENAME]

RENAME [DRIVE:][PATH]OLDFILENAME NEWFILENAME

WAITONPROGRESS [PROCESS NAME] [TIMEOUT IN SECONDS]
```

- *GUICMD.EXE* does not use operating system wildcards and does not prompt when replacing or deleting information.

2. Create a file called *CMDLINES.TXT.* The format of the *CMDLINES.TXT* file is similar to the following:

```
[Commands]
"Command1"
"Command2"
```

NOTE: *CMDLINES.TXT* is an input file of commands that is run by the operating system. *CMDLINES.TXT* is not required in Windows 2000.

Creating the Server Batch File

The server batch file typically resides on the server configuration diskette but may reside on a network share or CD. The server batch file launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, redirect the console feedback of the executable files that are run by the configuration batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files of the console feedback to be logged. For example:

```
S:\CPQ\CONREP -L A:\DL3802K.HWR > A:\LOGS\DL3802K.LOG
```

This command creates the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command S:\CPQ\CONREP -L A:\DL3802K.HWR to the *DL3802K.LOG* file.

```
S:\CPQ\ACR /I A:\DL3802K.ARY >> A:\LOGS\DL3802K.LOG
```

This command appends any console feedback generated by the command S:\CPQ\ACR /I A:\DL3802K.ARY to the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive.

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

```
S:\CPQ\CPQDISK /R A:\DL3802K.PRT >> A:\LOGS\DL3802K.LOG
```

This command appends any console feedback generated by the command S:\CPQ\CPQDISK /R A:\DL3802K.PRT to the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive.

For maximum configuration flexibility, the configuration batch file will these steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable. Reboot if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from the server configuration diskette is similar to the following:

```
@echo off
cls
REM *** ----------------------------------------------------------
REM *** Change to the CD drive and get the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information…
s:\cpq\statemgr /r phase
REM *** ----------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** fully tested and debugged
REM *** ----------------------------------------------------------
pause

REM *** ----------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ----------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0

:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** A:\DL3802K.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l a:\dl3802k.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1
REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------
```

```
:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file
REM *** A:\DL3802K.ARY and stamping it onto the array
REM *** controllers of the target server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i a:\dl3802k.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the A:\DL3802K.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server
REM *** Prepare for system partition population
REM *** Increase state variable and reboot
REM *** ----------------------------------------------------------
echo Creating Disk Partition...
s:\cpq\cpqdisk /w a:\dl3802k.prt
c:\cpq\syspart /update:enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:
```

```
:State3
REM *** ----------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Populating System Partition…
c:\
cd\
s:\cpq\psyspart /s:s:
s:\cpq\syspart /update:disable
echo Setting State Information...
s:\cpq\statemgr /w Phase 4
REM *** ----------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the DOS
REM *** partition is D:
REM *** If you want to remove this reboot, use D: instead of C:
REM *** when referring to the DOS partition until a reboot is done
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State4
REM *** ----------------------------------------------------------
REM *** Fifth state
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:
REM *** ----------------------------------------------------------
REM *** Copy driver files from the CD to the hard drive of the
REM *** target server, creating subdirectories as needed
REM *** ----------------------------------------------------------
s:\cpq\filecopy /s:s:\cpqw2k\$oem$ /d:c:\i386\$oem$ /s /e /f:*.*
REM *** ----------------------------------------------------------
REM *** Copy the customized UNATTEND.TXT file from the
REM *** configuration diskette to the root directory of the target
REM *** server hard drive
REM *** ----------------------------------------------------------
copy a:\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 5
```

```
:State5
REM *** ----------------------------------------------------------
REM *** Sixth state
REM *** Copy operating system files to the boot partition
REM *** Increase the state variable
REM *** ----------------------------------------------------------
s:
cd \i386
echo Setting the state to allow diskette removal during the
installation of
echo Windows 2000...
s:\cpq\statemgr /w Phase 6
echo Starting operating system installation...
REM *** ----------------------------------------------------------
REM *** Start installation of the operating system, reading
REM *** unattended installation instructions from the
REM *** C:\UNATTEND.TXT file
REM *** ----------------------------------------------------------
winnt /s:s:\i386 /u:c:\unattend.txt

:State6
REM *** ----------------------------------------------------------
REM *** Second sixth state
REM *** Resets state variable to 6 to allow operating system
REM *** reboot without removing the diskette
REM *** ----------------------------------------------------------
s:\cpq\statemgr /w Phase 6
echo The Windows 2000 installation will continue after the
reboot...
REM *** Turn off the Virtual Floppy Drive
REM *** ----------------------------------------------------------
s:\cpq\vflop /b:never /p:off
REM *** Reboot to C drive
s:\cpq\reboot c:

REM *** ----------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents may be placed
REM *** here
REM *** ----------------------------------------------------------
:State7
:State8:State9
:State10
```

Creating the Installation CD-ROM

Creating an installation CD for a Windows 2000 server deployment is optional. However, this step provides full control over installation of the operating system and other utilities onto the target server.

When creating the CD, an organized directory structure is critical.

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 creating a custom installation CD, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the CD with the server batch file.

1. Do not place any files in the root directory of the installation CD.
2. Create an \I386 subdirectory and copy the contents of the Windows 2000 CD \I386 subdirectory into the installation CD \I386 subdirectory.
3. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
4. Create a \CPQW2K\OEM subdirectory and other OEM subdirectory structures, then copy all Compaq OEM extension operating system files and drivers into the appropriate subdirectories.
5. Create a batch file similar to the following by using the DOS utilities XCOPY and EXPAND to automate the preparation of the \I386 and \CPQW2K\OEM subdirectories:

IMPORTANT: The example uses the DOS XCOPY command to copy the necessary drivers and support files. XCOPY is DOS-version dependent and does not work if there are version differences. If you use the DOS COPY command instead of XCOPY, ensure that you create the destination directories before copying files to the directories. Also, ensure that the correct drive designations and paths specific to your configuration are included in the batch file.

```
REM *** ------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart image
REM *** ------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\adpu160m\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
```

```
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from SmartStart for Servers
REM *** 4.90 or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\adpu160m\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \cpqsupsw\ntssd50\cpqcissm\*.* c:\$oem$\$1\$win_nt$.~ls\*.*
/s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from SmartStart for Servers
REM *** 4.90 or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating NET Drivers: $OEM$\$1\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\int100\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\int1000\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\netflx3\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k
REM *** ------------------------------------------------------
echo Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntcsp\*.* \cpqw2k\$oem$\$1\ntcsp\*.* /s /e
/c /f /h /r /k
REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\$1\$win_nt$.~ls
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from SmartStart for Servers 4.90
REM *** or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
REM *** \cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
```

```
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\$1\$win_nt$.~ls\ /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\quicklch\*.*
\cpqw2k\$oem$\$1\quicklch\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cmsisu.exe \cpqw2k\$oem$\$1\ /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cpqbfile.exe \cpqw2k\$oem$\$1\ /s
/e /c /f /h /r /k
xcopy \toolkit\cpqw2k\cmd.txt \cpqw2k\$oem$\$1\ /s /e /c /f /h /r
/k
xcopy \ss480\ssnt50\ssnt\compaq\guicmd.exe\cpqw2k\$oem$\$1\  /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\reboot.inf \cpqw2k\$oem$\$1\ /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cpqclean.cmd \cpqw2k\$oem$\$1 /s
/e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\compaq.bmp \cpqw2k\$oem$\ /s /e /c
/f /h /r /k

REM *** ------------------------------------------------------------
echo Updating Windows 2000 Resource Kit Files: $OEM$\$1\W2KRK
REM *** ------------------------------------------------------------
xcopy \w2krk\*.* \cpqw2k\$oem$\$1\w2krk\*.* /s /e /c /f /h /r /k
```

NOTE: Ensure that you are using the most recent version of SmartStart for Servers to obtain supported drivers for new hardware devices. Also, add lines to copy the new devices and add the new devices to the *UNATTEND.TXT* and *TXTSETUP.OEM* files.

NOTE: *CPQBFILE.EXE* is located in the SmartStart \SSNT50\SSNT\COMPAQ subdirectory. The command removes the Windows boot option from the Windows 2000 *BOOT.INI* file.

6. Create a \CPQSUPSW subdirectory and copy all Compaq operating system files and drivers with an .OEM extension into the subdirectory.
7. If multiple server profiles form part of the installation CD, create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on. Copy the three server profile script files and the customized operating system-dependent unattended installation file into each server profile subdirectory.

   If using SYSTYPE to enable branching from the *AUTOEXEC.BAT* file, also copy the server-specific configuration batch file into each server subdirectory.
8. Create additional subdirectories to copy all other user-selected utilities and management agents available on SmartStart and Compaq Management.
9. If the system partition on the target server will be populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the installation CD.

IMPORTANT: When the directory structure of the installation CD is determined, ensure that the server batch file runs all programs and utilities from the CD.

Deploying the Target Server

To begin a new server deployment with the installation CD:

1. Insert the bootable server configuration diskette into the target server.
2. Power up the target server and insert the CD.
3. Supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which then starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Network-Based Deployment

This scenario illustrates the deployment of Windows 2000 over the network. A shared network drive that contains the files necessary to set up the target server must be available to the target server. This shared drive includes:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

NOTE: Network-based server deployments can be lengthy. Because performance decreases dramatically over a 10-Mb/s network, Compaq recommends network-based deployments over 100-Mb/s (and faster) networks only.

Deployment Process Overview

The general network-based server deployment process includes:

1. Creating the bootable server configuration diskette with network software
2. Creating the server profile script files
3. Creating the server batch file
4. Preparing the network software repository
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette with Network Software

Create a bootable server configuration diskette (using DOS version 6.22 or 7.0) for booting the target server and loading the Microsoft Networking protocol stack. Loading the network protocol stack allows the target server to connect to a network share and initiate the server deployment process over the network.

NOTE: See Appendix A for an alternate procedure to create a basic network boot diskette using a Microsoft Network Client 3.0 set of diskettes for DOS.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Ensure that the latest Network Interface Controller (NIC) drivers are available for the server on which Windows 2000 will be installed. In this case, an Ethernet NIC is installed.
3. Using a Windows NT Server 4.0, start the **Network Client Administrator** tool and select **Make Network Installation Startup Disk.**

NOTE: For information about using the Network Client Administrator, refer to the online documentation for the utility.

4. Select Network Client v3.0 for MS-DOS and Windows.
5. Select any of the NICs from the list, for example, **NE2000-compatible.**
6. When prompted, supply the Computer name, User name, Domain, and Network protocol. This document assumes that both Transmission Control Protocol/Internet Protocol (TCP/IP) and Dynamic Host Configuration Protocol (DHCP) are being used.
7. Copy the proper DOS NDIS driver into the A:\NET directory of the server configuration diskette.
8. Modify the *SYSTEM.INI* file in the A:\NET directory so that it contains the following line:

   ```
   NETCARD=FILENAME.DOS

   [network]
   preferredredir=BASIC
   autostart=BASIC
   ```

   where *FILENAME.DOS* is the name of the DOS NDIS driver file copied to the server configuration diskette, for example, *N100.DOS.*
9. Modify the *PROTOCOL.INI* file in the A:\NET directory so that it contains the following line:

   ```
   DRIVERNAME=FILENAME$
   ```

NOTE: FILENAME$ is the name of the DOS NDIS driver name, for example, N100$.

10. Edit the *CONFIG.SYS* file on the server configuration diskette so that it loads the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by the
REM *** target server
device=a:\dos\himem.sys
device=a:\dos\setver.exe
device=a:\net\ifshlp.sys
dos=high
buffers=30
files=40
stacks=9,256
switches=/f
lastdrive=z:
REM *** Establish default shell to use
shell=command.com /p
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on the server configuration.

11. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the server configuration diskette in the appropriate subdirectories.

12. Edit the *AUTOEXEC.BAT* file to remove the line that runs *SETUP.EXE* and add a line that maps a drive letter to the network share. For example, add the line:

```
NET USE S:\\DEPLOY\SHAREVOL /YES
REM *** where S=mapped drive, DEPLOY=server name, and
SHAREVOL=network share on the server
```

A typical *AUTOEXEC.BAT* file is similar to the following:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start

REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:

REM *** Start the scripted server deployment by calling the
REM *** configuration batch file that resides in the shared
REM *** network directory
call s:\dl380w2k.bat
```

If the SYSTYPE utility is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file will be similar to the following text:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start

REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:

cd \cpq

REM *** ------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and calling the appropriate sever batch
REM *** file.
REM *** ------------------------------------------------------

s:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call s:\dl5802k.bat
goto end

:DL380
call s:\dl8302k.bat
goto end

:ML530
call s:\ml5302k.bat
goto end

:ML350
call s:\ml3502k.bat
goto end

cd \

:end
```

13. Sign the server configuration diskette with SIGNDISK included in the Toolkit. Signing the server configuration diskette stamps the diskette with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the server configuration diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

Server Configuration Files

There are five script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)
- *HYPERCFG.CFG*—Array configuration script file generated by HYPERCFG (required by ProLiant ML330 G2 servers that have AMI ATA RAID controllers)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL3802K.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL3802K.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL3802K.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL3802K.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL3802KT.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL3802K.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script Files

1. Generate the RILOE configuration script file. For examples of the command line parameters, refer to the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

   www.compaq.com/manage/remote-lightsout.html

2. Generate the array configuration script file for ProLiant ML330 G2 servers with an AMI ATA RAID controller using the following command:

   ```
   HYPERCFG /S /L /FA:\@DL380NT.CFG
   ```

   This command reads the array configuration on the source servers and writes the array configuration script file to A:*DL3802K.CFG*.

Unattended Installation File

After the server profile script files are generated and modified for the target server, save a copy of the *UNATTEND.TXT* file on the server configuration diskette. See the end of this chapter for a typical unattended installation file for Windows 2000.

NOTE: Refer to the operating system documentation for a complete description of the options that can be modified in the operating system unattended installation file to customize the installation of Windows 2000.

Using a standard text editor, create the following two additional Toolkit files for Windows 2000 and store them in the \TOOLKIT\CPQW2K\ subdirectory of the server configuration diskette.

1. Create a file called *CMD.TXT* to install Support Paqs for Windows 2000.

IMPORTANT: *CMD.TXT* is a script file that is executed by the *GUICMD.EXE* SmartStart utility. *GUICMD.EXE* will be copied to the target system and executed by the Windows 2000 installer during the graphical portion of the operating system installation process.

The *CMD.TXT* is similar to the following:

```
Compaq Installation Utility
Updating Windows 2000 with the latest Compaq drivers. Please
wait...
REM *** The file names are dependant on the version of SmartStart
REM *** that is used. These files are from SmartStart version
REM *** 4.80.
waitonprocess setup50.exe 120
c:\ntcsp\setupc /f /silent c:\ntcsp\bp000032.xml
c:\cmsisu.exe
delfile c:\cmsisu.exe
delfile c:\unattend.txt
deldir c:\ntcsp
deldir c:\quicklch
```

NOTE: *CMSISU.EXE* is located in the \SSNT50\SSNT\COMPAQ\ subdirectory on SmartStart. The command does not accept any arguments and performs the following functions on Windows 2000 platforms:

- Restores the Quick Launch buttons on the Windows taskbar.
- Removes unnecessary hardware from the Windows registry.

IMPORTANT: *GUICMD.EXE* is located in the \SSNT50\SSNT\COMPAQ\ subdirectory on SmartStart for Servers. The command does not accept any arguments but expects the following structure in the *CMD.TXT* data file:

- The first line must be the progress dialog title.
- The second line must be the progress dialog message.
- Commands must have an EXE or COM extension. *GUICMD.EXE* will not run files with CMD or BAT extensions.
- *GUICMD.EXE* accepts the following internal commands in Microsoft Windows 2000:

```
DELFILE [DRIVE:][PATH]FILENAME1 [DRIVE:][PATH]FILENAME2
[DRIVE:][PATH]FILENAME3

DELDIR [DRIVE:][PATH1] [DRIVE:][PATH2] [DRIVE:][PATH3]

COPYFILE [SOURCE DRIVE:][PATH]FILENAME [DESTINATION
DRIVE:][PATH][OPTIONAL FILENAME]

RENAME [DRIVE:][PATH]OLDFILENAME NEWFILENAME

WAITONPROGRESS [PROCESS NAME] [TIMEOUT IN SECONDS]
```

- *GUICMD.EXE* does not use operating system wildcards and does not prompt when replacing or deleting information.

2. Create a file called *CMDLINES.TXT.* The format of the *CMDLINES.TXT* file is similar to the following:

```
[Commands]
"Command1"
"Command2"
```

NOTE: *CMDLINES.TXT* is an input file of commands that are run by the operating system. *CMDLINES.TXT* is not necessary in Windows 2000.

Creating the Server Batch File

In the case of network installations, the configuration batch file typically resides in the root directory of the shared network drive and launches the server deployment process.

IMPORTANT: If you want to log the console feedback of the deployment process, redirect the console feedback of the executable files run by the server batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files with the console feedback to log.

For example:

```
S:\CPQ\CONREP -L A:\DL3802K.HWR > A:\LOGS\DL3802K.LOG
```

This command creates the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command S:\CPQ\CONREP -L A:\DL3802K.HWR to the *DL3802K.LOG* file.

```
S:\CPQ\ACR /I A:\DL3802K.ARY >> A:\LOGS\DL3802K.LOG
```

This command appends any console feedback generated by the command S:\CPQ\ACR /I A:\DL3802K.ARY to the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive.

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

```
S:\CPQ\CPQDISK /W A:\DL3802K.PRT >> A:\LOGS\DL3802K.LOG
```

This command appends any console feedback generated by the command S:\CPQ\CPQDISK /R A:\DL3802K.PRT to the file *DL3802K.LOG* in the \LOGS subdirectory on the A drive.

For maximum configuration flexibility, the server batch file will execute the following steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities and the configuration script files from a shared network location is similar to the following:

```
@echo off
cls
REM *** ----------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase
REM *** ----------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ----------------------------------------------------------
pause
REM *** ----------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ----------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0


:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL3802K.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\dl380\dl3802k.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1
REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------
```

```
:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL3802K.ARY and stamping it onto the
REM *** array controllers of the target server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\dl380\dl3802k.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the
REM *** S:\SERVERS\DL380\DL3802K.PRT script file and stamping the
REM *** configuration onto the hard drive in the target server
REM *** Prepare for system partition population
REM *** Increase state variable and reboot
REM *** ----------------------------------------------------------
echo Creating Disk Partition...
s:\cpq\cpqdisk /w s:\servers\dl380\dl3802k.prt
s:\cpq\syspart /update:enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:
```

```
:State3
REM *** ----------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Populating System Partition...
c:\
cd\
s:\cpq\psyspart /s:s:
s:\cpq\syspart /update:disable
echo Setting State Information...
s:\cpq\statemgr /w Phase 4
REM *** ----------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the
REM *** DOS partition is D: If you want to remove this reboot,
REM *** use D:instead of C: when referring to the DOS partition
REM *** until a reboot is done
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State4
REM *** ----------------------------------------------------------
REM *** Fifth state
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:
REM *** ----------------------------------------------------------
REM *** Copy drivers files from the shared network drive to the
REM *** hard drive of the target server, creating subdirectories
REM *** as needed
REM *** ----------------------------------------------------------
s:\cpq\filecopy /s:s:\cpqw2k\$oem$ /d:c:\i386\$oem$ /s /e /f:*.*
REM *** ----------------------------------------------------------
REM *** Copy the customized UNATTEND.TXT file from the shared
REM *** network drive to the root directory of the target servers
REM *** hard drive
REM *** ----------------------------------------------------------
copy s:\servers\dl380\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 5
```

```
:State5
REM *** ----------------------------------------------------------
REM *** Sixth state
REM *** Copy operating system files to the boot partition
REM *** Increase the state variable
REM *** ----------------------------------------------------------
s:
cd \i386
echo Setting the state to allow diskette removal during the
installation of
echo Windows 2000...
s:\cpq\statemgr /w Phase 6
echo Starting operating system installation...
REM *** ----------------------------------------------------------
REM *** Start installation of the operating system, reading
REM *** unattended installation instructions from the
REM *** C:\UNATTEND.TXT file
REM *** ----------------------------------------------------------
winnt /s:s:\i386 /u:c:\unattend.txt

:State6
REM *** ----------------------------------------------------------
REM *** Second sixth state
REM *** Resets state variable to 6 to allow operating system
REM *** reboot without removing the diskette
REM *** ----------------------------------------------------------
s:\cpq\statemgr /w Phase 6
echo The Windows 2000 installation will continue after the
reboot...
REM *** ----------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ----------------------------------------------------------
s:\cpq\vflop /b:never /p:off
REM *** Reboot to drive c
s:\cpq\reboot c:

REM *** Unused states
REM *** Installation of other utilities and agents may be placed
REM *** here
REM *** ----------------------------------------------------------
:State7
:State8
:State9
:State10
```

Preparing the Network Software Repository

When creating the network software repository, an organized directory structure is critical.

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, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the repository with the server batch file.

1. Create an account with read-only access to the software image files in the software repository.
2. Place only configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they may also be placed in the subdirectories containing the server profiles.
3. Create an \I386 subdirectory and copy the contents of the Windows 2000 CD \I386 subdirectory into the software repository \I386 subdirectory.
4. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
5. Create a \CPQW2K\OEM subdirectory and other OEM subdirectory structures and copy all Compaq operating system files and drivers with an .OEM extension into the appropriate subdirectories.
6. Using the DOS utilities XCOPY and EXPAND, a batch file similar to the following text can be used to automate the preparation of the \I386 and \CPQW2K\OEM subdirectories:

IMPORTANT: The example batch file uses the DOS XCOPY command to copy the necessary drivers and support files. XCOPY is DOS-version dependent and will not work if there are version differences. If the DOS COPY command is used instead of XCOPY, create the destination directories before copying files to the directories. Also, ensure that the correct drive designations and paths specific to your configuration are included in the batch file.

```
REM *** ------------------------------------------------------------
REM *** \SS480 is the folder with the SmartStart for Servers
REM *** image
REM *** ------------------------------------------------------------

REM *** ------------------------------------------------------------
echo Updating OEM Boot Files: $OEM$\TEXTMODE
REM *** ------------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\adpu160m\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from
REM *** SmartStart for Servers 4.80 or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\textmode\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------------
echo Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
REM *** ------------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\adpu160m\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k

REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from SmartStart for Servers
REM *** 4.90 or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
REM *** \cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\$1\drivers\scsi\*.* /s /e /c /f /h /r /k
```

```
REM *** ------------------------------------------------------
echo Updating NET Drivers: $OEM$\$1\DRIVERS\NET
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\int100\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\int1000\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\netflx3\*.*
\cpqw2k\$oem$\$1\drivers\net\*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntcsp\*.* \cpqw2k\$oem$\$1\ntcsp\*.* /s /e
/c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Compaq Files: $OEM$\$1\$win_nt$.~ls
REM *** ------------------------------------------------------
xcopy \ss480\cpqsupsw\ntssd50\cpqarray\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpqarry2\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
xcopy \ss480\cpqsupsw\ntssd50\cpq32fs2\*.*
\cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
REM *** For support of the Compaq Smart Array 5300 controller,
REM *** copy the necessary driver from SmartStart for Servers
REM *** 4.90 or later
REM *** xcopy \ss490\cpqsupsw\ntssd50\cpqcissm\*.*
REM *** \cpqw2k\$oem$\$1\$win_nt$.~ls\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\txtsetup.oem
\cpqw2k\$oem$\$1\$win_nt$.~ls\ /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\quicklch\*.*
\cpqw2k\$oem$\$1\quicklch\*.* /s /e /c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cmsisu.exe \cpqw2k\$oem$\$1\ /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cpqbfile.exe \cpqw2k\$oem$\$1\ /s
/e /c /f /h /r /k
xcopy \toolkit\cpqw2k\cmd.txt \cpqw2k\$oem$\$1\ /s /e /c /f /h /r
/k
xcopy \ss480\ssnt50\ssnt\compaq\guicmd.exe \cpqw2k\$oem$\$1\ /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\reboot.inf \cpqw2k\$oem$\$1\ /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\cpqclean.cmd\cpqw2k\$oem$\$1 /s /e
/c /f /h /r /k
xcopy \ss480\ssnt50\ssnt\compaq\compaq.bmp \cpqw2k\$oem$\ /s /e /c
/f /h /r /k
REM *** xcopy
\ss490\cpqsupsw\ntssd50\cpqcissm\*.*\cpqw2k\$oem$\$1\drivers\scsi\
*.* /s /e /c /f /h /r /k

REM *** ------------------------------------------------------
echo Updating Windows 2000 Resource Kit Files: $OEM$\$1\W2KRK
REM *** ------------------------------------------------------
xcopy \w2krk\*.* \cpqw2k\$oem$\$1\w2krk\*.* /s /e /c /f /h /r /k
```

NOTE: Ensure that you are using the most recent version of SmartStart for Servers to obtain supported drivers for new hardware devices. Also, add lines to copy the new devices and add the new devices to the *UNATTEND.TXT* and *TXTSETUP.OEM* files.

NOTE: *CPQBFILE.EXE* is located in the \SSNT50\SSNT\COMPAQ subdirectory on SmartStart for Servers. The command removes the Microsoft Windows boot option from the Windows 2000 *BOOT.INI* file.

1. Create a \CPQSUPSW subdirectory and copy all Compaq operating system files and drivers with an .OEM extension into the subdirectory.
2. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on. Copy the three server profile script files from the server configuration diskette and the customized operating system-dependent unattended installation file into each server profile subdirectory.

NOTE: If using SYSTYPE to enable branching from the *AUTOEXEC.BAT* file, also copy the server-specific configuration batch file into each server subdirectory.

3. Create additional subdirectories to copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management.
4. If the system partition on the target server will be populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the software repository.

IMPORTANT: After the directory structure of the network software repository is determined, ensure that the server batch file runs all programs and utilities correctly from the network location.

Deploying the Target Server

To begin a new server deployment over the network:

1. Insert the bootable server configuration diskette into the target server.
2. Power up the target server and supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which connects the target server to the network share and starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Windows 2000 *UNATTEND.TXT* Sample File

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately.

NOTE: Refer to the operating system documentation for a complete description of the options that can be modified in the operating system-dependent unattended installation file to customize the installation of Microsoft Windows 2000. More information can be found in the *Microsoft Windows 2000 Server Resource Kit* or in the *MS Windows 2000 Unattended Setup Parameters Guide,* available on the Microsoft website:

www.microsoft.com/TechNet/win2000/win2ksrv/technote/unattend.asp

NOTE: Bold lines indicate modifications made to fully automate the installation of the operating system.

```
[Data]
AutoPartition=1
MsDosInitiated="0"
UnattendedInstall="Yes"

[Display]
AutoConfirm=1
BitsPerPel=16
ConfigureAtLogon=0
VRefresh=60
Xresolution=640
Yresolution=480

[Unattended]
DriverSigningPolicy=Ignore
ExtendOemPartition=1
FileSystem=ConvertNTFS
KeyboardLayout="US"
NtUpgrade=No
OemFilesPath=C:
OemPnPDriversPath=drivers\net
OemPreinstall=Yes
OemSkipEula=Yes
OverwriteOemFilesOnUpgrade=No
TargetPath=\WINNT
UnattendMode=FullUnattended
Win9xUpgrade=No

[GuiUnattended]
AdminPassword=compaq
AutoLogon=Yes
AutoLogonCount=1
OEMSkipRegional=1
OemSkipWelcome=1
TimeZone=20
```

```
[UserData]
ComputerName=Computer Name
FullName=Full Name
OrgName=Company Name

[LicenseFilePrintData]
AutoMode=PerServer
AutoUsers=16

[TapiLocation]
AreaCode=281
CountryCode=1
Dialing=Tone
LongDistanceAccess="9"

[RegionalSettings]
Language=00000409
LanguageGroup=1

[OEM_Ads]
Logo=Compaq.bmp

[GuiRunOnce]
"C:\guicmd.exe"
"C:\cpqbfile.exe"
"C:\CPQclean.cmd"
"C:\winnt\system32\rundll32.exe setupapi,InstallHinfSection
DefaultInstall 129 c:\reboot.inf"

[Identification]
JoinWorkgroup=WORKGROUP

[Networking]
InstallDefaultComponents=Yes

[OEMBootFiles]
ADPU160M.SYS
CPQ32FS2.SYS
CPQARRAY.SYS
CPQARRY2.SYS
CPQCISSM.SYS
TXTSETUP.OEM

[NetOptionalComponents]
SNMP=1
```

```
[MassStorageDrivers]
"Adaptec Ultra160 Family Manager Set"=OEM
"Compaq Drive Array Controllers"=OEM
"Compaq Integrated Dual Channel Wide Ultra2 SCSI Controller"=OEM
"Compaq Integrated Wide Ultra2 SCSI Controller"=OEM
"Compaq Smart Array Controllers"=OEM
"Compaq Smart Array 5x Controller"=OEM
"IDE CD-ROM (ATAPI 1.2)/PCI IDE Controller"=RETAIL
"Symbios Logic C8100 PCI SCSI Host Adapter"=RETAIL
"Symbios Logic C896 PCI SCSI Host Adapter"=RETAIL
"Symbios Logic C8xx PCI SCSI Host Adapter"=RETAIL

[Proxy]
Proxy_Enable=0
Use_Same_Proxy=0
```

NOTE: Ensure that you are using the most recent version of SmartStart for Servers to obtain supported drivers for new hardware devices. Also, add lines to copy the new devices and add the new devices to the *UNATTEND.TXT* and *TXTSETUP.OEM* files.

The server deployment configuration and operating system installation process is complete.

4

Novell NetWare 5.1 Deployment

This chapter provides best practice scenarios for using the Toolkit to deploy the Novell NetWare 5.1 operating system with a CD or across a network.

CD-Based Deployment

This scenario illustrates the deployment of NetWare 5.1 by using a CD that contains the files necessary to set up the target server. This CD is created by the user and includes:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

NOTE: CD-based server deployment speeds vary depending on the speed of the CD-ROM drive, the cleanliness of the CD, and the presence of CD-caching software.

Deployment Process Overview

The general CD-based server deployment process includes:

1. Creating the bootable server configuration diskette
2. Creating the server profile script files
3. Creating the server batch file
4. Creating the installation CD-ROM
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette

Create a bootable server configuration diskette (using DOS 6.22 or 7.0) to be used to initiate the server deployment process:

IMPORTANT: The Compaq Disk Formatting utility in the Toolkit is not fully compatible with Caldera DOS 7.02 or later. If Caldera DOS is used instead of DOS 6.22 or DOS 7.0, replace the Compaq Disk Formatting utility in the server batch file with the `DOS FORMAT` command.

IMPORTANT: Caldera DOS 7.02 was used for the following Novell installation example.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Create a *CONFIG.SYS* file that loads the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by
REM *** the target server
device=himem.sys
device=cpqidecd.sys /d:cpqcdrom
files=40
buffers=30
dos=high,umb
lastdrive=z:
```

   NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on your server configuration.

3. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the server configuration diskette.
4. Create an *AUTOEXEC.BAT* file that will load the drivers necessary for the CD-ROM and optionally launch the server deployment process. A typical *AUTOEXEC.BAT* file is similar to the following:

```
path=a:\;a:\novell;f:\cpq
REM *** Loads the CD-ROM driver
mscdex.exe /d:cpqcdrom  /v /m:50 /l:f
REM *** Switch to the CD drive and installation directory
f:
cd \cpq
REM *** Start the scripted server deployment by calling
REM *** the configuration batch file
call a:\dl380nw.bat
```

If SYSTYPE is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file is similar to the following:

```
path=a:\;a:\novell;f:\cpq

REM *** Loads the CD-ROM driver
mscdex.exe /d:cpqcdrom  /v /m:50 /l:f

REM *** Switch to the CD drive and installation directory
f:
cd \cpq

REM *** ------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and REM *** calling the
REM *** server-specific server batch file. Although this
REM *** example shows the server batch files in
REM *** subdirectories on the A: drive, the files can be placed
REM *** in any location that is accessible by the target
REM *** server.
REM *** ------------------------------------------------------
f:\cpq\systype ssstksys.ini
if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call a:\dl580\dl580nw.bat
goto end

:DL380
call a:\dl380\dl380nw.bat
goto end

:ML530
call a:\ml530\ml530nw.bat
goto end

:ML350
call a:\ml350\ml350nw.bat
goto end

cd \
:end
```

5. Sign the server configuration diskette with SIGNDISK by copying the utility on the diskette and typing SIGNDISK at the A:\ prompt. Signing the diskette stamps it with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

Server Configuration Files

There are four script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL380NW.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL380NW.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL380NW.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL380NW.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL380NW.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL380NW.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script File

Generate the RILOE configuration script file. For examples of the command line parameters, refer to the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

www.compaq.com/manage/remote-lightsout.html

Unattended Installation File

When the server profile script files are generated and modified for the target server, save a copy of the *RESPONSE.NI* file as *RESPONSE.TXT* on the server configuration diskette. If NetWare 5.1 is already installed on a similar server, a copy of the *RESPONSE.NI* file is found on SYS:NI\DATA. See the end of this chapter for a typical unattended installation file for NetWare 5.1.

NOTE: Refer to the NetWare document *Automating the NetWare 5 Installation with a Response File* for a complete description of how to automate the installation of NetWare 5.1. The document can be found on the following website:

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

This document is also available as Technical Information Document number 10055290.

Creating the Server Batch File

The server batch file typically resides on the server configuration diskette and launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, the console feedback of the executable files run by the server batch file must be redirected to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For example:

```
F:\CPQ\CONREP -L A:\DL380NW.HWR > A:\LOGS\DL380NW.LOG
```

This command creates the file *DL380NW.LOG* in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command F:\CPQ\CONREP -L A:\DL380NW.HWR to the *DL380NW.LOG* file.

```
F:\CPQ\ACR /I A:\DL380NW.ARY >> A:\LOGS\DL380NW.LOG
```

This command appends any console feedback generated by the command F:\CPQ\ACR /I A:\DL380NW.ARY to the file *DL380NW.LOG* in the \LOGS subdirectory on the A drive.

```
F:\CPQ\CPQDISK /R A:\DL380NW.PRT >> A:\LOGS\DL380NW.LOG
```

This command appends any console feedback generated by the command F:\CPQ\CPQDISK /R A:\DL380NW.PRT to the file *DL380NW.LOG* in the \LOGS subdirectory on the A drive.

For maximum configuration flexibility, the server batch file will execute the following steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from the server configuration diskette is similar to the following:

```
@echo off
cls
REM *** ------------------------------------------------------------
REM *** Change to the CD drive and get the current state
REM *** ------------------------------------------------------------
f:
cd \cpq
echo Retrieving State Information...
f:\cpq\statemgr /r phase

REM *** ------------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ------------------------------------------------------------
REM *** pause
REM *** ------------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ------------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0


:State0
REM *** ------------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** A:\DL380NW.HWR
REM *** Increase the state variable
REM *** ------------------------------------------------------------
echo Running Configuration Replication Utility...
f:\cpq\conrep -l a:\dl380nw.hwr
echo Setting State Information...
f:\cpq\statemgr /w Phase 1

REM *** ------------------------------------------------------------
REM *** No reboot is necessary
REM *** ------------------------------------------------------------
```

```
:State1
REM *** ------------------------------------------------------
REM *** Second state
REM *** Configure the arrays by reading the configuration
REM *** information in the script file A:\DL380NW.ARY and
REM *** stamping it onto the array controllers of the target
REM *** server.
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------------
echo Configuring the Array Controllers...
f:\cpq\acr /i a:\dl380nw.ary /o
echo Setting State Information...
f:\cpq\statemgr /w Phase 2
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
f:\cpq\reboot a:


:State2
REM *** ------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the A:\DL380NW.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server
REM *** Prepare for system partition population
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------------
echo Creating Disk Partition...
f:\cpq\cpqdisk /w a:\dl380nw.prt
f:\cpq\syspart /update:enable
echo Setting State Information...
f:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
f:\cpq\reboot a:
```

```
:State3
REM *** ------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------------
echo Populating System Partition...
c:\
cd\
f:\cpq\psyspart /s:f:
f:\cpq\syspart /update:disable
echo Setting State Information...
f:\cpq\statemgr /w Phase 4
REM *** ------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the REM
*** DOS partition is D:
REM *** If you want to remove this reboot, use D: instead of C:
REM *** when referring to the DOS partition until a reboot is
REM *** done
REM *** Reboot to drive A:
REM *** ------------------------------------------------------
f:\cpq\reboot a:


:State 4
REM *** ------------------------------------------------------
REM *** Fifth state
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
REM *** ------------------------------------------------------
REM *** If using Caldera DOS 7.02 or later, use the Caldera DOS
REM *** command FORMAT C: /X /S /QUIET /V: on the following line
REM *** instead of CPQFMT C:
REM *** ------------------------------------------------------
REM *** f:\cpq\cpqfmt c:
a:
cd \
format c: /x /s /quiet /v:
REM *** ------------------------------------------------------
REM *** Change to the root directory of drive C: to create a
REM *** drivers directory and copy files
REM *** ------------------------------------------------------
c:
cd \
echo Creating Driver Directory and Copying Drivers and Files...
echo Copying final autoexec.bat, config.sys and drivers to c:\
copy f:\cpq\rootc\*.*c:\
md dos
cd dos
copy f:\cpq\dos\*.*
cd \
md nwupdate
cd nwupdate
```

```
REM *** ------------------------------------------------------
REM *** The following copy commands are for SmartStart 4.80 to
REM *** SmartStart 5.20.
REM *** ------------------------------------------------------
copy f:\cpqsupsw\nssd\hot_plug\*.*
copy f:\cpqsupsw\nssd\ide\*.*
copy f:\cpqsupsw\nssd\network\*.*
copy f:\cpqsupsw\nssd\nwpa\*.*
copy f:\cpqsupsw\nssd\smp\*.*
copy f:\cpq\nwfiles\*.*
f:

REM *** ------------------------------------------------------
REM *** The following copy commands are for SmartStart 5.30 or
REM *** later.
REM *** ------------------------------------------------------
REM *** copy f:\cpqsupsw\nssd\nw5x\disk1\*.*
REM *** copy f:\cpqsupsw\nssd\nw5x\disk2\*.*
REM *** cd\
REM *** md CSP
REM *** cd CSP
REM *** copy f:\cpq\scripts\extra.ics
REM *** copy f:\cpqsupsw\nwcsp\*.*
REM *** f:
REM *** ------------------------------------------------------

REM *** ------------------------------------------------------
REM *** Copy the customized RESPONSE.TXT file from the system
REM *** configuration diskette to the \NWUPDATE directory on the
REM *** target server
REM *** ------------------------------------------------------
copy a:\response.txt c:\nwupdate
echo Setting State Information...
f:\cpq\statemgr /w Phase 5:

REM *** If using the Remote Insight Lights-Out Edition, this
REM *** command ensures that the server reboots to the C drive
REM *** instead of the virtual floppy drive
REM *** ------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ------------------------------------------------------
f:\cpq\vflop /b:never /p:offm
```

```
:State5
REM *** ------------------------------------------------------
REM *** Sixth state
REM *** Start the installation process by reading the RESPONSE.TXT
REM *** file
REM *** Increase the state variable
REM *** ------------------------------------------------------
f:
cd \
f:\cpq\statemgr /w Phase 6
echo Starting operating system installation…
install /rf=c:\nwupdate\response.txt

REM *** ------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents software may be
REM *** placed here
REM *** ------------------------------------------------------
:State6

f:\cpq\reboot c:
:State7
:State8
:State9
:State10
```

Creating the Installation CD-ROM

Creating an installation CD for a NetWare 5.1 server deployment is optional. However, this step provides full control over installation of the operating system and Compaq utilities on the target server. When creating the CD, an organized directory structure is critical.

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 creating a custom installation CD, refer to the terms of the software license agreement.

NOTE: If using an international version of a Netware 5.1 CD to create an installation CD, there will not be sufficient disk space to include the Compaq system partition files and Toolkit utilities. It may be necessary to delete some files from the installation CD.

The following guidelines provide a means of creating, maintaining, and using the CD with the server batch file.

1. Ensure that the volume label of the installation CD is NW51.
2. Avoid placing unnecessary files in the root directory of the installation CD. The root directory should only contain two marker files required by the NetWare 5.1 operating system.

3. For SmartStart 4.80 to SmartStart 5.2, place the marker files *CPQSMST* and *COMPAQ.PEZ* in the root directory, to avoid prompting for Compaq SmartStart for Servers and Compaq Management CD.

   Marker files are not needed when using files from SmartStart 5.30 or later.

   IMPORTANT: *CPQSMST* and *COMPAQ.PEZ* must be present in the root directory. The content of the files does not matter.

4. Copy the contents of the NetWare 5.1 CD into the installation CD root directory.
5. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
6. Create a \CPQ\ROOTC subdirectory and copy the files to be placed in the root directory of the target server C drive. For example, copy the *AUTOEXEC.BAT, CONFIG.SYS, CPQIDECD.SYS, FW2ASPI.SYS,* and *FW2CD.SYS* files.
7. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
8. For SmartStart 4.80 to SmartStart 5.2, create a \CPQ\NWFILES subdirectory and copy the *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* files from the \SSNW\INTVDLL\NETWARE\NIS\NW51 subdirectory on the SmartStart and Support Software CD.

   IMPORTANT: Copying the *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* files integrates the installation of Compaq Support Software for Novell products and Compaq Insight Management Agents. The following section must be included in the *RESPONSE.TXT* file:

   ```
   [NWI:Install Script]
   Script Location=c:\nwupdate\other.ics
   ```

   For a totally automated installation, ensure that appropriate sections to select these nodes are also included in the *RESPONSE.TXT* file. See the section "Novell NetWare 5.1 *RESPONSE.NI* Sample File" that begins with "[Compaq:CompaqNSSD_Destination_Volume:1.0.0_Location]" at the end of this chapter for more information about the sections to include.

   Also, ensure that the sections [Settings] and [Selected Nodes] in the *RESPONSE.TXT* file contain information specific to Compaq. See the "Novell NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 4.80 to SmartStart 5.20" and "Novell NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 5.30 or Later" under "[Settings]" and "[Selected Nodes]" at the end of this chapter for examples of the information specific to Compaq.

9. For SmartStart 5.30 or later, create a \CPQ\SCRIPT subdirectory and copy the *EXTRA.ICS* file from \SSNW\INSTALL\NW51 on SmartStart for Servers CD 5.30 or later.

   Create a \CPQSUPSW\NSSD subdirectory and copy the \CPQSUPSW\NSSD subdirectory contents from the SmartStart for Servers CD 5.30 or later.

   Create a \CPQSUPSW\NWCSP subdirectory and copy the \CPQSUPSW\NWCSP subdirectory contents from the SmartStart for Servers CD 5.30 or later.

Make sure that the response file has the following section:

```
[NWI: Install Script]
Close script=c:\CSP\extra.ics e:\cpqerr.log
```

NOTE: The *EXTRA.ICS* file is used to launch the Compaq Support Paq at the end of the network installation.

10. If multiple server profiles form part of the installation CD, create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on. Copy the three server profile script files and the customized operating system unattended installation file into each server profile subdirectory.

    NOTE: If using SYSTYPE to enable branching from the *AUTOEXEC.BAT* file, also copy the server-specific server batch file into each server subdirectory.

11. For SmartStart 4.80 to SmartStart 5.20, if *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* are used to automate the installation process of Compaq Support Software for Novell products and Compaq Insight Management Agents, create additional subdirectories in the root directory of the installation CD. Copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management to those subdirectories.

    Examples of additional subdirectories include:

    — \CPQSUPSW\NSSD for Novell support software files copied from the SmartStart for Servers

    — \SSNW\CIMU for Compaq Integration Maintenance utility files copied from SmartStart for Servers

    — \SURVEY\NETWARE for the Survey utility files copied from Compaq Management

    — \AGENTS\NETWARE for Compaq Insight Management Agent files copied from Compaq Management

12. If the system partition on the target server will be populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the installation CD.

    IMPORTANT: When the directory structure of the installation CD is determined, ensure that the server batch file runs all programs and utilities correctly from the CD.

Deploying the Target Server

To begin a new server deployment with the installation CD:

1. Insert the server configuration diskette into the target server.
2. Power up the target server and insert the CD.
3. Supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which then starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Network-Based Deployment

This best practice scenario focuses on the deployment of NetWare 5.1 over the network. A shared network drive that contains the files necessary to set up the target server must be available to the target server. This shared drive includes:

- Operating system files
- Compaq drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

NOTE: Network-based server deployment can be lengthy. Because performance decreases dramatically over a 10-Mb/s network, Compaq recommends network-based deployments over 100-Mb/s (or faster) networks only.

Deployment Process Overview

The general network-based server deployment process includes:

1. Creating the bootable server configuration diskette with network software
2. Creating the server profile script files
3. Creating the server batch file
4. Preparing the network software repository
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette with Network Software

Create a bootable server configuration diskette (with DOS 6.22 or 7.0) to be used to boot the target server and load the Novell Client for DOS and Windows 3.1x. Loading the Novell DOS client network protocol stack allows the target server to connect to a network share and to initiate the server deployment process over the network.

The Novell Client for DOS and Windows 3.1x is an IPX-only application. For more information about the DOS and Windows client, refer to *DOSWIN.TXT* on the Novell NetWare 5.1 Client CD. For IP-only network connections, refer to the *DOS_IP.TXT* file located in the \PRODUCTS\DOSWIN32\NLS\ENGLISH directory on the NetWare 5.1 Client CD.

NOTE: The Disk Formatting utility in the Toolkit is not fully compatible with Caldera DOS 7.02 or later. If Caldera DOS is used instead of DOS version 6.22 or 7.0, replace the Disk Formatting utility in the server batch file with the DOS FORMAT command.

NOTE: Caldera DOS 7.02 was used for the following NetWare installation example.

1. Format a 1.44-MB diskette using the DOS FORMAT /S command. This command transfers the system files that make the diskette bootable.
2. Ensure that the latest NIC drivers are available for the server on which NetWare 5.1 will be installed. These drivers are on the NetWare 5.1 Client CD.

   NOTE: In this case, an Ethernet NIC is installed.

3. Install the Novell Client for DOS and Windows 3.1x on a workstation and, when prompted, supply the required Novell network information.

   NOTE: For information about the Novell Client for DOS and Windows 3.1x, refer to the software documentation.

4. Create a \NOVELL subdirectory on the server configuration diskette and copy the following files in the \NOVELL\CLIENT32 subdirectory on the Novell DOS Client workstation into the subdirectory.

   ```
   CLIENT32.NLM
   CMSM.NLM
   ETHERTSM.NLM
   IPX.NLM
   LSLC32.NLM
   N100.LAN
   NBIC32.NLM
   NIOS.EXE
   SPX_SKTS.NLM
   STARTNET.BAT
   TRANNTA.NLM
   NET.CFG
   ```

5. Ensure that the correct NIC driver for the target server NIC is in the \NOVELL subdirectory. This example uses the *N100.LAN* NIC driver.

6. Edit the *STARTNET.BAT* file on the bootable server configuration diskette so that it loads the appropriate NIC driver, frame, and slot parameter. A typical *STARTNET.BAT* file is similar to the following.

```
cls
set nwlanguage=english
if exist a:\nbihw.cfg del a:\nbihw.cfg
a:\novell\nios.exe
load a:\novell\nbic32.nlm
load a:\novell\lslc32.nlm
load a:\novell\cmsm.nlm
load a:\novell\ethertsm.nlm
load a:\novell\n100.lan frame=ethernet_ii slot=10008
load a:\novell\trannta.nlm
load a:\novell\ipx.nlm
load a:\novell\spx_skts.nlm
load a:\novell\client32.nlm
```

NOTE: Editing the *STARTNET.BAT* file ensures that there will be no prompts for the slot when the target server reboots.

7. Verify that the network information in the *NET.CFG* file on the bootable server configuration diskette is correct. A typical *NET.CFG* file is similar to the following:

```
NetWare DOS Requester
FIRST NETWORK DRIVE G
NETWARE PROTOCOL NDS BIND
PREFERRED SERVER=USERSELECTED
PREFERRED TREE=USERSELECTED_TREE
NAME CONTEXT=OU=COMPAQ.O=ADMIN
MAX CACHE SIZE=0
FILE CACHE LEVEL=0

Protocol IPX
IPX SOCKETS 40
BIND N100
```

8. Create a \LICENSE subdirectory on the server configuration diskette and copy the NetWare licenses into the subdirectory.

NOTE: Ensure that the Novell NetWare *RESPONSE.TXT* file has a license section that points to the location of the license files.

9. Edit the *CONFIG.SYS* file on the server configuration diskette so that it loads the drivers required for the target server devices. A typical *CONFIG.SYS* file may be similar to the following text:

```
REM *** Load special memory and DOS devices required by the
REM *** target server
device=himem.sys /testmem:off
device=cpqidecd.sys /d:cpqcdrom
files=40
buffers=30
dos=high,umb
lastdrive=z:
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file, depending on your server configuration.

10. Ensure that all files referenced in the *CONFIG.SYS* file are copied to the appropriate subdirectories on the server configuration diskette.

11. Modify the *AUTOEXEC.BAT* file in the A:\ directory so that it contains the following:

```
call a:\novell\startnet
g:
login nwserver/username
map h:=vol1:\
REM *** where nwserver is a NetWare server, username is the
REM *** server login name, h: is a specified drive, and vol1:\ is
REM *** a NetWare volume where NWSERVER is an example NetWare
REM *** server and USERNAME is the user name used to log on to
REM *** the server. H is an example drive letter mapped to the
REM *** NetWare volume VOL1:\.
```

A typical edited *AUTOEXEC.BAT* file is similar to the following text:

```
@echo off
path=a:\;a:\novell
REM *** Load CD-ROM driver
mscdex /d:cpqcdrom /v /m:50 /l:f

REM *** Start the network software
call a:\novell\startnet

REM *** Log in to the server and NetWare share
g:
login nwserver/username

REM *** Map a shared network drive to a drive letter
map h:=vol1:\
h:

REM *** Start the scripted server deployment by calling the
REM *** configuration batch file that resides in the network
REM *** directory
call h:\servers\dl380\dl380nw.bat
```

If SYSTYPE is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file is similar to the following:

```
@echo off
path=a:\;a:\novell
REM *** Load CD-ROM driver
mscdex /d:cpqcdrom /v /m:50 /l:f

REM *** Start the network software
call a:\novell\startnet

REM *** Log in to the server and NetWare share
g:
login nwserver/username

REM *** Map a shared network drive to a drive letter
map h:=vol1:\
h:
cd \cpq

REM *** ------------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and calling the
REM *** server-specific configuration batch file.
REM *** ------------------------------------------------------

h:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call h:\dl580nw.bat
goto end

:DL380
call h:\dl830nw.bat
goto end

:ML530
call h:\ml530nw.bat
goto end

:ML350
call h:\ml350nw.bat
goto end

cd \
:end
```

12. Sign the server configuration diskette with SIGNDISK by copying the SIGNDISK utility to the diskette and typing SIGNDISK at the A:\ prompt. Signing the diskette stamps IT with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

Server Configuration Files

There are four script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL380NW.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL380NW.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL380NW.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL380NW.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL380NW.PRT
   ```

   This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL380NW.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script File

Generate the RILOE configuration script file. For examples of the command line parameters, refer to the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

www.compaq.com/manage/remote-lightsout.html

Unattended Installation File

When the server profile script files are generated and modified for the target server, save a copy of the *RESPONSE.NI* file as *RESPONSE.TXT* onto the server configuration diskette or network directory. If NetWare 5.1 is already installed on a similar server, a copy of the *RESPONSE.NI* file is found in SYS:NI\DATA. See the end of this chapter for a typical unattended installation file for NetWare 5.1.

NOTE: Refer to the NetWare document *Automating the NetWare 5 Installation with a Response File* for a complete description of how to automate the installation of NetWare 5.1. The document is located at

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

This document is also available as Technical Information Document number 10055290.

Creating the Server Batch File

In the case of network installations, the server batch file typically resides in the root directory of the shared network drive and launches the server deployment process.

To log the console feedback of the deployment process, redirect the console feedback of the executable files run by the server batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For example:

```
H:\CPQ\CONREP -L A:\DL380NW.HWR > A:\LOGS\DL380NW.LOG
```

This command creates the file DL380NW.LOG in the \LOGS subdirectory on the A drive and sends any console feedback generated by the command H:\CPQ\CONREP -L A:\DL380NW.HWR to the DL380NW.LOG file.

```
H:\CPQ\CPQDISK /R A:\DL380NW.PRT >> A:\LOGS\DL380NW.LOG
```

This command appends any console feedback generated by the command H:\CPQ\CPQDISK /R A:\DL380NW.PRT to the file DL380NW.LOG in the \LOGS subdirectory on the A drive.

To allow for maximum configuration flexibility, the server batch file will execute the following steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

A typical server batch file that runs the Toolkit utilities and the configuration script files from a shared network location is similar to the following:

```
@echo off
cls
REM *** ------------------------------------------------------------
REM *** Change to the mapped shared network drive and get the
REM *** current state
REM *** ------------------------------------------------------------
h:
cd \cpq
echo Retrieving State Information...
h:\cpq\statemgr /r phase

REM *** ------------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ------------------------------------------------------------
REM *** pause
REM *** ------------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ------------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0
```

```
:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** H:\SERVERS\DL380\DL380NW.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
h:\cpq\conrep -l h:\servers\dl380\dl380nw.hwr
echo Setting State Information...
h:\cpq\statemgr /w Phase 1
REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------


:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the arrays by reading the configuration
REM *** information in the script file
REM *** H:\SERVERS\DL380\DL380NW.ARY and stamping it onto
REM *** the array controllers of the target server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
h:\cpq\acr /i h:\servers\dl380\dl380nw.ary /o
echo Setting State Information...
h:\cpq\statemgr /w Phase 2
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
h:\cpq\reboot a:


:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Create partitions by reading content of the
REM *** H:\SERVERS\DL380\DL380NW.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server
REM *** Prepare for system partition population
REM *** Increase state variable and reboot
REM *** ----------------------------------------------------------
echo Creating Disk Partitions...
h:\cpq\cpqdisk /w h:\servers\dl380\dl380nw.prt
h:\cpq\syspart /update:enable
echo Setting State Information...
h:\cpq\statemgr /w Phase 3
REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
h:\cpq\reboot a:
```

```
:State3
REM *** ----------------------------------------------------------
REM *** Fourth state
REM *** Populate system partition
REM *** ----------------------------------------------------------
echo Populating system partition…
c:\
cd\
h:\cpq\psyspart /s:h:
h:\cpq\syspart /update:disable
echo Setting State Information...
h:\cpq\statemgr /w Phase 4
REM *** ----------------------------------------------------------
REM *** Before this reboot, the system partition is C: and the
REM *** DOS partition is D:
REM *** If you want to remove this reboot, use D: instead of C:
REM *** when referring to the DOS partition until a reboot is
REM *** done
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
h:\cpq\reboot a:


:State4
REM *** ----------------------------------------------------------
REM *** Fifth State
REM *** Format the boot partition and populate
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Formatting the First Disk Partition as DOS...
REM *** If using Caldera DOS 7.02 or later, use the Caldera DOS
REM *** command
REM *** FORMAT C: /X /S /QUIET /V: on the following line instead
REM *** of CPQFMT C:
REM *** h:\cpq\cpqfmt c:
a:
cd \
format c: /x /s /quiet /v:
REM *** ----------------------------------------------------------
REM *** Change to the root directory of drive C: to create a
REM *** drivers directory and copy files
REM *** ----------------------------------------------------------
c:
cd \
echo Creating Driver Directory and Copying Drivers and Files...
echo Copying final autoexec.bat, config.sys, and driver file to
c:\
copy h:\cpq\rootc\*.* c:\
md dos
cd dos
copy h:\cpq\dos\*.*
cd \
md nwupdate
cd nwupdate
```

```
REM *** ----------------------------------------------------------
REM *** The following copy commands are for SmartStart 4.80 to
REM *** SmartStart 5.20.
REM *** ----------------------------------------------------------
copy h:\nw51\cpqsupsw\nssd\hot_plug\*.*
copy h:\nw51\cpqsupsw\nssd\ide\*.*
copy h:\nw51\cpqsupsw\nssd\network\*.*
copy h:\nw51\cpqsupsw\nssd\nwpa\*.*
copy h:\nw51\cpqsupsw\nssd\smp\*.*
copy h:\cpq\nwfiles\*.*
h:

REM *** ----------------------------------------------------------
REM *** The following copy commands are for SmartStart 5.30 or
REM *** later.
REM *** ----------------------------------------------------------
REM *** copy h:\cpqsupsw\nssd\nw5x\disk1\*.*
REM *** copy h:\cpqsupsw\nssd\nw5x\disk2\*.*
REM *** cd\
REM *** md CSP
REM *** cd CSP
REM *** copy h:\cpq\scripts\extra.ics
REM *** copy h:\cpqsupsw\nwcsp\*.*
REM *** h:
REM *** ----------------------------------------------------------

REM *** ----------------------------------------------------------
REM *** Copy the customized RESPONSE.TXT file from the shared
REM *** network location to the \NWUPDATE directory on the target
REM *** server
REM *** ----------------------------------------------------------
copy h:\servers\dl380\response.txt c:\nwupdate
echo Setting State Information...
h:\cpq\statemgr /w Phase 5

REM *** ----------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ----------------------------------------------------------
h:\cpq\vflop /b:never /p:off


:State5
REM *** ----------------------------------------------------------
REM *** Sixth state
REM *** Start the installation process by reading the
REM *** RESPONSE.TXT file
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
h:
cd \
h:\cpq\statemgr /w Phase 6
echo Starting operating system installation...
h:
cd h:\nw51
install /rf=c:\nwupdate\response.txt
```

```
REM *** ------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents software may
REM *** be placed here
REM *** ------------------------------------------------------
:State6

h:\cpq\reboot c:
:State7
:State8
:State9
:State10
```

Preparing the Network Software Repository

It is important when creating the repository to organize the directory structure.

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, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the repository with the server batch file.

1. Create an account with read-only access to the software image files in the repository.
2. Place the server batch files for each type of server in the root directory. Because these files are server specific, they may also be placed in the subdirectories containing the server profiles.
3. Create a \NW51 subdirectory and copy the contents of the Novell NetWare 5.1 CD into the subdirectory.
4. For SmartStart 4.80 to SmartStart 5.2, place the marker files *CPQSMST* and *COMPAQ.PEZ* in the \NW51 subdirectory, to avoid prompting for Compaq SmartStart for Servers and Compaq Management CD.

   Marker files are not needed when using files from SmartStart 5.30 or later.

   IMPORTANT: *CPQSMST* and *COMPAQ.PEZ* must be present in the \NW51 subdirectory. The content of the files does not matter.
5. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
6. Create a \CPQ\ROOTC subdirectory and copy the files to be placed in the root directory of the target server C drive. For example, copy the *AUTOEXEC.BAT, CONFIG.SYS, CPQIDECD.SYS, FW2ASPI.SYS,* and *FW2CD.SYS* files.
7. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
8. For SmartStart 4.80 to SmartStart 5.2, create a \CPQ\NWFILES subdirectory and copy the *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* files from the SmartStart for Servers \SSNW\INTVDLL\NETWARE\NIS\NW51 subdirectory.

   IMPORTANT: Copying the *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* files integrates the installation of Compaq support software for Novell products and Compaq Insight Management agents. The following section must be included in the *RESPONSE.TXT* file:

   ```
   [NWI:Install Script]
   Script Location=c:\nwupdate\other.ics
   ```

   For a totally automated installation, ensure that appropriate sections to select these nodes are also included in the *RESPONSE.TXT* file. See the "Novell NetWare 5.1 *RESPONSE.NI* Sample File" that begins with "[Compaq:CompaqNSSD_Destination_Volume:1.0.0_Location]" at the end of this chapter for more information about the sections to include.

Also ensure that the sections [Settings] and [Selected Nodes] in the *RESPONSE.TXT* file contain information specific to Compaq. See the "Novell NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 4.80 to SmartStart 5.20" and "Novell NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 5.30 or Later" under "[Settings]" and "[Selected Nodes]" at the end of this chapter for examples of the information specific to Compaq to include.

9. For SmartStart 5.30 or later, create a \CPQ\SCRIPT subdirectory and copy the *EXTRA.ICS* file from \SSNW\INSTALL\NW51 on SmartStart for Servers CD 5.30 or later.

   Create a \CPQSUPSW\NSSD subdirectory and copy the \CPQSUPSW\NSSD subdirectory contents from the SmartStart for Servers CD 5.30 or later.

   Create a \CPQSUPSW\NWCSP subdirectory and copy the \CPQSUPSW\NWCSP subdirectory contents from the SmartStart for Servers CD 5.30 or later.

   Make sure that the response file has the following section:

   ```
   [NWI: Install Script]
   Close script=c:\CSP\extra.ics e:\cpqerr.log
   ```

   NOTE: The *EXTRA.ICS* file is used to launch the Compaq Support Paq at the end of the network installation.

10. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380 and \SERVERS\ML330. Copy the three server profile script files from the server configuration diskette and the customized operating system-dependent unattended installation file into each server profile subdirectory.

11. For SmartStart 4.80 to SmartStart 5.20, if using *COMPAQ0.JAR, COMPAQ1.JAR,* and *OTHER.ICS* to automate the installation process of Compaq Support Software for Novell products and Compaq Insight Management Agents, create additional subdirectories in the \NW51 subdirectory. Copy all other user-selected utilities and Management Agents available on SmartStart for Servers and Compaq Management to those subdirectories.

    Examples of additional subdirectories include:

    — \CPQSUPSW\NSSD for Novell support software files copied from SmartStart for Servers

    — \SSNW\CIMU for Compaq Integration Maintenance utility files copied from SmartStart for Servers

    — \SURVEY\NETWARE for the Survey utility files copied from Compaq Management

    — \AGENTS\NETWARE for Compaq Insight Management Agent files copied from Compaq Management

12. If the system partition on the target server will be populated, copy the subdirectories \SYSCFG, \DIAGS, \DIFDATA, and \CPQSUPSW\ROMPAQ from SmartStart for Servers to the root directory of the software repository.

    IMPORTANT: When the directory structure of the network software repository is determined, ensure that the server batch file runs all programs and utilities correctly from the network location.

Deploying the Target Server

Complete the following steps to begin a new server deployment over the network:

1. Insert the bootable server configuration diskette into the target server.
2. Power up the target server and supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which then connects the target server to the network share and starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 4.80 to SmartStart 5.20

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately.

NOTE: For a complete description of how to automate the installation of Novell NetWare 5.1, refer to the Novell NetWare document *Automating the NetWare 5 Installation with a Response File,* available at

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

This document is also available as Technical Information Document number 10055290.

NOTE: Bold lines indicate modifications made to fully automate the installation of the operating system.

```
[NWI:Product Information]
Major Version=NetWare 5
Minor Version=10

[NWI:NDS]
Admin Password=admin
Schema Extensions=sys:/system/schema/NLS.SCH,
   sys:/system/schema/AUDITING.SCH,
   sys:/system/schema/NWADMIN.SCH,
   sys:/system/schema/NRD.SCH,sys:system/schema/SAS.SCH,
   sys:/system/schema/NDSPKI.SCH,sys:/system/schema/MASV.SCH,
   sys:/system/schema/SLP.SCH,sys:system/schema/CATALOG.SCH,
   sys:system/schema/WANMAN.SCH,sys:system/schema/SMS.SCH,
   sys:system/schema/NDPS100.SCH,sys:system/schema/NDPS200.SCH,
   sys:system/schema/SVC.SCH
Schema Extensions Pre DS=sys:/system/schema/NDS500.SCH,
   sys:/system/schema/NLS.SCH
Schema Extensions LDAP=sys:system/schema/LDAP.SCH,
   sys:system/schema/LDAPUPDT.SCH
Schema Extensions LDAP NDS8=sys:system/schema/nds8/LDAP.SCH
Schema Extensions LDAP
   NDSJUL99=sys:system/schema/ndsjul99/LDAP.SCH,
   sys:system/schema/ndsjul99/LDAPUPDT.SCH,
   sys:sys:system/schema/ndsjul99/NDSPKI.SCH
Schema Extensions LDAP
   NDSAPR99=sys:system/schema/ndsapr99/LDAP.SCH,
   sys:system/schema/ndsapr99/LDAPUPDT.SCH
Admin Language=4
Tree Name=MICRO_TREE
Server Context=O=compaq
New Tree=true
Admin Login Name=admin
Admin Context=O=compaq
Display Summary=false
Prompt=false
```

```
[Settings]
Novell:NOVELL_ROOT:1.0.0=NONE
Novell:NetWare5OS:5.0.0=Novell:DST:1.0.0
Novell:PROTOCOLS:1.0.0=Novell:DST:1.0.0
Novell:DS_INSTALL:1.0.0=Novell:DST:1.0.0
Novell:Disk Carver:1.0.0=Novell:DST:1.0.0
Compaq:CompaqNSSD_Product:5.0.1=
Compaq:CompaqNSSD_Module_HOT_PLUG_Code:1.0.0=
Compaq:CompaqCIMU_Product:4.2.0=
Compaq:CompaqCIMAgents_Product:5.0.0=
Compaq:CompaqSURVEY_Product:2.0.6=
Compaq:CompaqLAST_Product:4.2.0=

[NWI:Server Settings]
Prompt=FALSE
Load Server at Reboot=FALSE
NDS Version=8
CD-ROM Driver=NetWare

[Selected Nodes]
prompt=false
Novell:NetWare5:1.0.0=Novell:NetWare5OS:5.1.0,
   Novell:Products:1.0.0,Novell:NWUpdateGroup:1.0.0

Novell:NetWare5OS:5.1.0=Novell:Disk Carver:1.0.0,
   Novell:Protocols:1.0.0,Novell:TimeZone:1.0.0,
   Novell:DS_Install:1.0.0,Novell:LicensePrompt:1.0.0,
   Novell:NICI:1.0.0,Novell:NW:1.0.0

Novell:NW:1.0.0=Novell:Startup:1.0.0,Novell:SYS:1.0.0,
   Novell:DriverFiles:1.0.0,Novell:Rconjzip:1.0.0,
   Novell:Perl5zip:1.0.0,Novell:beanszip:1.0.0,
   Novell:nscriptzip:1.0.0,Novell:scripteszip:1.0.0,
   Novell:Console1:1.0.0,Novell:console1zip:1.0.0,
   Novell:ldapzip:1.0.0,Novell:nwadminzip:5.1.9,
   Novell:wanmanzip:1.0.0

Novell:Startup:1.0.0=Novell:StartupDirectory:1.0.0
Novell:SYS:1.0.0=Novell:SYSDirectory:1.0.0,
   Novell:ConfigDirectory:1.0.0,Novell:PROFINST_NODE:1.0.0

Novell:DriverFiles:1.0.0=Novell:LANFiles:1.0.0,
   Novell:SBDFiles:1.0.0

Novell:Products:1.0.0=Novell:Novell Certificate
   Server:2.0.0,Novell:LdapInstall:1.0.0,
   NOVELL:Portal:1.0.1,Novell:SMS:1.0.4,
   Compaq:Compaq_Bundle:1.0.0

Novell:Novell Certificate Server:2.0.0=Novell:CertServ System
   Files:2.0.0,Novell:CertServ Public Files:2.0.0

Novell:LdapInstall:1.0.0=Novell:Ldap8:3.16.0
NOVELL:Portal:1.0.1=Novell:portalzip:1.0.0
Novell:SMS:1.0.4=Novell:SMSSystemFiles:1.0.4,
   Novell:SMSPublicFiles:1.0.4
```

```
Compaq:Compaq_Bundle:1.0.0=Compaq:CompaqNSSD_Product:5.0.1,
   Compaq:CompaqCIMU_Product:4.2.0,
   Compaq:CompaqCIMAgents_Product:5.0.0,
   Compaq:CompaqSURVEY_Product:2.0.6,
   Compaq:CompaqLAST_Product:4.2.0

Compaq:CompaqNSSD_Product:5.0.1=Compaq:CompaqNSSD_Module_LOCAL_
   Files:1.0.0,Compaq:CompaqNSSD_Module_SERVER_Files:1.0.0

Compaq:CompaqNSSD_Module_LOCAL_Files:1.0.0=Novell:CompaqNSSD_
   Directory_IDE:1.0.0,Novell:CompaqNSSD_Directory_NWPA:1.0.0,
   Novell:CompaqNSSD_Directory_SMP:1.0.0

Compaq:CompaqNSSD_Module_SERVER_Files:1.0.0=Compaq:CompaqNSSD_
   Module_HOT_PLUG_Code:1.0.0,
   Novell:CompaqNSSD_Directory_HOTPLUG:
   1.0.0,Novell:CompaqNSSD_Directory_NETWORK:1.0.0,
   Novell:CompaqNS   SD_Directory_ONLINE:1.0.0,
   Novell:CompaqNSSD_Directory_SRV_MGMT:1.0.0,
   Novell:CompaqNSSD_Directory_NSSU:1.0.0

Compaq:CompaqCIMU_Product:4.2.0=Compaq:CompaqCIMU_Module_CIMU:
   1.0.0

Compaq:CompaqCIMU_Module_CIMU:1.0.0=Novell:CompaqCIMU_FileGroup_
   CIMU:1.0.0

Compaq:CompaqCIMAgents_Product:5.0.0=Compaq:CompaqCIMAgents_
   Module:5.0.0

Compaq:CompaqCIMAgents_Module:5.0.0=Novell:CompaqCIMAgents_
   FileGroup_Web_Cqmghost:1.0.0,Novell:CompaqCIMAgents_FileGroup_
   Web_Cqmgserv:1.0.0,Novell:CompaqCIMAgents_FileGroup_Web_
   Cqmgstor:1.0.0,Novell:CompaqCIMAgents_FileGroup_Web_Cqmgnics:
   1.0.0

Compaq:CompaqSURVEY_Product:2.0.6=Compaq:CompaqSURVEY_Module_
   SURVEY:2.0.6,Compaq:CompaqSURVEY_Module_LOCAL_Files:1.0.0,
   Compaq:CompaqSURVEY_Module_DIRECTORY_Files:1.0.0

Compaq:CompaqSURVEY_Module_SURVEY:2.0.6=Novell:CompaqSURVEY_
   FileGroup_SURVEY:1.0.0

Compaq:CompaqSURVEY_Module_LOCAL_Files:1.0.0=Compaq:CompaqSURVEY_
   Module_SYSTEMFILES:1.0.0

Compaq:CompaqSURVEY_Module_DIRECTORY_Files:1.0.0=Compaq:
   CompaqSURVEY_Module_SURVEYDIRECTORY:1.0.0

Novell:NWUpdateGroup:1.0.0=Novell:NWUpdate:1.0.0

[NWI:Install Script]
Script Location=c:\nwupdate\other.ics

[Compaq:CompaqNSSD_Filter_PCI_HP:1.0.0]
CompaqNSSD_FilterItem_PCI_HP_YES=false
CompaqNSSD_FilterItem_PCI_HP_NO=true
prompt=False

[NWI:Product Information]
Major Version=NetWare 5
Minor Version=10
```

```
[NWI:Language]
Server Language=4
Prompt=FALSE

[NWI:NDS]
Schema Extensions=sys:/system/schema/NLS.SCH,
   sys:/system/schema/AUDITING.SCH,
   sys:/system/schema/NWADMIN.SCH,
   sys:/system/schema/NRD.SCH,
   sys:/system/schema/SAS.SCH,
   sys:/system/schema/NDSPKI.SCH,
   sys:/system/schema/MASV.SCH,
   sys:/system/schema/SLP.SCH,
   sys:/system/schema/CATALOG.SCH,
   sys:/system/schema/WANMAN.SCH,
   sys:/system/schema/SMS.SCH,
   sys:/system/schema/NDPS100.SCH,
   sys:/system/schema/NDPS200.SCH,
   sys:/system/schema/SVC.SCH,
   sys:/system/schema/NDPS201.SCH
Schema ExtensionsPreDS=sys:/system/schema/NDS500.SCH,
   sys:/system/schema/NLS.SCH
Schema ExtensionsLDAP=sys:system/schema/LDAP.SCH,
   sys:system/schema/LDAPUPDT.SCH
Schema Extensions LDAP NDS8=sys:system/schema/nds8/LDAP.SCH
Schema Extensions LDAP NDSJUL99=sys:system/schema/ndsjul99/
   LDAP.SCH,sys:system/schema/ndsjul99/LDAPUPDT.SCH,
   sys:sys:system/schema/ndsjul99/NDSPKI.SCH
Schema Extensions LDAP NDSAPR99=sys:system/schema/ndsapr99/
   LDAP.SCH,
   sys:system/schema/ndsapr99/LDAPUPDT.SCH

[NWI:Old Products]
Product 1=NWSB411
Product 2=IWSB411

[Settings]
Novell:NOVELL_ROOT:1.0.0=NONE
Novell:NetWare5OS:5.0.0=Novell:DST:1.0.0
Novell:PROTOCOLS:1.0.0=Novell:DST:1.0.0
Novell:DS_INSTALL:1.0.0=Novell:DST:1.0.0
Novell:Disk Carver:1.0.0=Novell:DST:1.0.0

[Selected Nodes]
Prompt=false
Novell:NetWare5:1.0.0=ALL

[NOVELL:NOVELL_ROOT:1.0.0]
showWelcomeScreen=false
LogLevel=DEBUG_DETAIL
welcomeScreen=com.novell.application.install.Welcome
choiceScreen=com.novell.application.install.ChoicePanel
summaryScreen=com.novell.application.install.Summary
licenseAgreementScreen=com.novell.application.install.
   ProductLicenseAgreement
languageScreen=com.novell.application.install.SelectLanguage
customChoiceScreen=com.novell.application.install.
   CustomChoicePanel
wizardScreen=com.novell.application.install.WizardFrame
```

```
licenseEnvelopeScreen=com.novell.application.install.
   LicenseEnvelope
;closeScreen=NWICloseScreen
closeScreen=SilentCloseScreen
silent=false
installSilentModeOverwrite=true
installSilentModeOverwriteConfigFile=true
allowCustomization=true
allowSummary=true
allowReadme=true
allowCloseScreen=true
allowStatusBar=true
allowLicenseAgreement=true
welcomeScreenText=Welcome to the Novell installation. This program
installs the following selected programs on your computer.
welcomeScreenTitle=Novell Product Installation
customizeScreenTitle=Product Customization
defaultImage=Novell.gif
licenseAgreeFile=license.txt
readmeFile=readme.html
licensePath=none
welcomeScreenHelp=welcome.html
summaryScreenHelp=summary.html
licAgreeScreenHelp=licAgree.html
choiceScreenHelp=choice.html
filterScreenHelp=filter.html
licEnvScreenHelp=license.html
customizeScreenHelp=custom.html
locationScreenHelp=location.html
licEnvScreenTitle=Licenses
summaryScreenTitle=Summary
licAgreeScreenTitle=License Agreement
locationScreenTitle=Location
choiceScreenTitle=Components
installMode=1
overWriteNewerFile=false
overWriteNewerFilePrompt=false
reboot=true

[Initialization]
Version=Novell:NetWare5:1.0.0
SPLocation=SYS:/ni/update/bin\../data/local.db
NISubdirectory=update
DisplayLanguage=en_US
InstallationMode=Silent
SummaryPrompt=false

[NWI:Install Script]
Support Pack Script=c:/spack/silent.ics

[Locations]
Novell:DST%Startup:1.0.0=

[NWI:Locale]
Uses Vgadisp=false
Code Page=437
Country Code=001
```

```
Keyboard=United States
Prompt=FALSE

[Novell:SRC:1.0.0]
path=H:\NW51

[NWI:File Server]
Prompt=false
Servername=MICRO
Server Id Number=B37287E

[NWI:Mouse and Video]
Mouse=PS/2
Use Super Vga=TRUE
Prompt=FALSE

[NWI:Hardware]
PSM Detection=FALSE
Storage Detection=FALSE
Network Detection=FALSE
Prompt=FALSE
Client Logical Name=N100_1_EII

[NWI:License]
prompt=false
Display License Agreement=FALSE
NICI Foundation Key File=a:\license\86419866.nfk
License File=a:\license\86419866.nlf

[NWI:Add To Startup]

NWI:Install Options]
Upgrade=FALSE
Prompt=FALSE
Startup Directory=C:\NWSERVER
Allow User Response File=TRUE

[Novell:DST%Startup:1.0.0_Location]
Path=file:///C:\NWSERVER
User=

[NWI:Multi-Processor System]
Driver File=CPQMPK.PSM
Driver Name=BELIZE/MPS_SUPPORT_500_SMP
File Type=PSM
Device Name=Platform Support Module for Compaq Systems
Driver Description 1=Platform Support Module for Compaq Systems
Load Line=LOAD CPQMPK.PSM

[NWI:Storage Adapter 1]
Driver File=CPQARRAY.HAM
Driver Name=CPQARRAY
File Type=HAM
Device Name=Compaq~Integrated Smart Array Controller
SLOT=10003
Driver Description 1=COMPAQ 32-Bit Array Controller Driver
Load Line=LOAD CPQARRAY.HAM SLOT=10003

[NWI:Storage Adapter 2]
Driver File=IDEATA.HAM
Driver Name=IDEATA
```

```
File Type=HAM
Device Name=Generic~ATA/IDE/ATAPI Adapter
PORT=1F0
INT=E
ParameterStamp=YES
Driver Description 1=Novell IDE (ATA/ATAPI Compatible) Host
Adapter Module
Load Line=LOAD IDEATA.HAM PORT=1F0 INT=E

[NWI:Storage Adapter 3]
Driver File=IDEATA.HAM
Driver Name=IDEATA
File Type=HAM
Device Name=Generic~ATA/IDE/ATAPI Adapter
PORT=170
INT=F
ParameterStamp=YES
Driver Description 1=Novell IDE (ATA/ATAPI Compatible) Host
Adapter Module
Load Line=LOAD IDEATA.HAM PORT=170 INT=F

[NWI:Storage Device 1]
Driver File=CPQSHD.CDM
Driver Name=CPQSHD
File Type=CDM
Device Name=Compaq~SCSI Hard Disk Devices
Driver Description 1=Compaq NWPA SCSI Disk Driver
Load Line=LOAD CPQSHD.CDM

[NWI:Storage Device 2]
Driver File=IDECD.CDM
Driver Name=IDECD
File Type=CDM
Device Name=Generic~ATAPI CD-ROM or DVD Drive
Driver Description 1=Novell ATA/IDE/ATAPI CD-ROM/DVD Custom
   Device Module
Load Line=LOAD IDECD.CDM
```

```
[NWI:Network Adapter 1]
Driver File=N100.LAN
Driver Name=N100_3163
File Type=LAN
Device Name=Compaq~NC3163 Fast Ethernet NIC
SLOT=10008
SPEED=0
FORCEDUPLEX=0
IOMAPMODE=0
CPUSPEED=1536
Adapter Name=N100_1
Driver Description 1=Compaq NC3163 Fast Ethernet NIC
Frame Type 1=Ethernet_802.2
Logical Name 1=N100_1_E82
Load Line 1=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_802.2  NAME=N100_1_E82
Frame Type 2=Ethernet_802.3
Logical Name 2=N100_1_E83
Load Line 2=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_802.3  NAME=N100_1_E83
Frame Type 3=Ethernet_SNAP
Logical Name 3=N100_1_ESP
Load Line 3=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_SNAP  NAME=N100_1_ESP
Frame Type 4=Ethernet_II
Logical Name 4=N100_1_EII
Load Line 4=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_II  NAME=N100_1_EII

[NWI:Network Adapter 2]
Driver File=N100.LAN
Driver Name=N100_3163
File Type=LAN
Device Name=Compaq~NC3163 Fast Ethernet NIC
SLOT=10009
SPEED=0
FORCEDUPLEX=0
IOMAPMODE=0
CPUSPEED=1536
Adapter Name=N100_2
Driver Description 1=Compaq NC3163 Fast Ethernet NIC
Frame Type 1=Ethernet_802.2
Logical Name 1=N100_2_E82
Load Line 1=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_802.2  NAME=N100_2_E82
Frame Type 2=Ethernet_802.3
Logical Name 2=N100_2_E83
Load Line 2=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_802.3  NAME=N100_2_E83
Frame Type 3=Ethernet_SNAP
Logical Name 3=N100_2_ESP
Load Line 3=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_SNAP  NAME=N100_2_ESP
Frame Type 4=Ethernet_II
Logical Name 4=N100_2_EII
Load Line 4=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_II  NAME=N100_2_EII
```

```
[System Hardware 1]
ProdID=PCI.1166.0009.0000.0000.05
ClassID=CLASS.PCI.06.00.00
HINName=PCI.INSTANCE_A
HIN=10001

[System Hardware 2]
ProdID=PCI.1166.0009.0000.0000.05
ClassID=CLASS.PCI.06.00.00
HINName=PCI.INSTANCE_B
HIN=10002

[System Hardware 3]
ProdID=PCI.1000.0010.0E11.4040.02
ClassID=CLASS.PCI.01.04.00
HINName=PCI.EMBEDDED
HIN=10003

[System Hardware 4]
ProdID=PCI.1002.4756.1002.4756.7A
ClassID=CLASS.PCI.03.00.00
HINName=PCI.EMBEDDED_DISPLAY
HIN=10004

[System Hardware 5]
ProdID=PCI.0E11.A0F0.0E11.B0F3.00
ClassID=CLASS.PCI.08.80.00
HINName=PCI.INSTANCE_C
HIN=10005

[System Hardware 6]
ProdID=PCI.1166.0200.1166.0200.4F
ClassID=CLASS.PCI.06.01.00
HINName=PCI.INSTANCE_D
HIN=10006

[System Hardware 7]
ProdID=PCI.1166.0211.0000.0000.00
ClassID=CLASS.PCI.01.01.8A
HINName=PCI.INSTANCE_E
HIN=10007
IOPort0=1F0
IOLen0=8
IOPort1=170
IOLen1=8
INT0=E
INT1=F

[System Hardware 8]
ProdID=PCI.8086.1229.0E11.B134.08
ClassID=CLASS.PCI.02.00.00
HINName=PCI.EMBEDDED_ETHERNET_A
HIN=10008

[System Hardware 9]
ProdID=PCI.0000.0000.0E11.B134.00
ClassID=CLASS.PCI.07.00.00
HINName=PCI.
HIN=10014
```

```
[System Hardware 10]
ProdID=PCI.8086.1229.0E11.B134.08
ClassID=CLASS.PCI.02.00.00
HINName=PCI.EMBEDDED_ETHERNET_B
HIN=10009

[System Hardware 11]
ProdID=PCI.0000.0000.0E11.B134.00
ClassID=CLASS.PCI.07.00.00
HINName=PCI.
HIN=10015

[System IO Device 1]
IODeviceType=0
IOBusType=256
IODeviceProdID=SCSI.00.COMPAQ.ARRAY CONTROLLER.1.40

[System IO Device 2]
IODeviceType=5
IOBusType=512
IODeviceProdID=IDE.05.CD-224E.9.0B

[NWI:File System]
Prompt=FALSE
ALLOW VOLUME PROPERTIES=TRUE
GUI Prompt=false

[NWI:Partition 0]
Device Name=[V503-A0-D0:0] Compaq Integrated Smart Slot 0 Disk 1
NFT
PARTITION TYPE=NETWARE
PARTITION SIZE=3884
PARTITION HOTFIX SIZE=4
START SECTOR=416160

[NWI:Volume 0]
VOLUME NAME=SYS
SEGMENT 1 SIZE=3880
SEGMENT 1 PARTITION=0
FILE SYSTEM TYPE=NETWARE
COMPRESSION=TRUE
BLOCK SIZE=64
SUBALLOCATION=TRUE
DATA MIGRATION=FALSE

[LDAP]
adminID=.CN=admin.O=compaq
prompt=false

[Novell:DST:1.0.0_Location]
Path=file:///SYS:
User=
```

```
[Novell:Languages:1.0.0]
LangID1=false
LangID4=true
LangID6=false
LangID7=false
LangID8=false
LangID9=false
LangID10=false
LangID12=false
LangID13=false
LangID14=false
LangID16=false
LangID99=false
LangID100=false

[Advertisement]
AD ID#0=SYS:\NI\DATA\ad1.gif,60
AD ID#1=SYS:\NI\DATA\ad2.gif,60
AD ID#2=SYS:\NI\DATA\ad3.gif,60
AD ID#3=SYS:\NI\DATA\ad4.gif,60
AD ID#4=SYS:\NI\DATA\ad5.gif,60
AD ID#5=SYS:\ni\data\NSSDad1.GIF,60
AD ID#6=SYS:\ni\data\NSSDad2.GIF,60
AD ID#7=SYS:\ni\data\NSSDad3.GIF,60

[Licenses]
Novell:FCLLic:1.0.0=

[Novell:FCLLic:1.0.0_License]
fileName0=sys:\ni\update\lic0001.lic
activationKey0=7DDAE9F75969E5F8
context0=O=compaq
fileName1=sys:\ni\update\lic0002.lic
activationKey1=7DDAE9F75969E5F8
context1=O=compaq
licCnt=2

[NWI:PROTOCOLS]
Prompt=false

[NWI:TCPIP]
Logical Name 1=N100_1_EII
IP Address 1=172.25.69.55
Subnet Mask 1=255.255.255.0

[NWI:IPCMD]
IPX Compatibility=True

[NWI:IPX]
Logical Name 1=N100_1_EII
IPX Address 1=2

[NWI:DNS]
Prompt=false

[NWI:Host Name]
Prompt=false
IP Address 1=172.25.69.55
```

```
[NWI:Time Zone]
Use Daylight Saving Time=true
Time Zone=CST
Prompt=false

[Novell:Novell Certificate Server:2.0.0]
Prompt=False
Create Organizational CA=True
Organizational CA Name=MICRO_TREE Organizational CA
Create Server Certificates=True
IP Server Certificate Name=SSL CertificateIP
DNS Server Certificate Name=SSL CertificateDNS
Export Trusted Root=True
Trusted Root Name=sys:/public/RootCert.der

[Novell:SMS:1.0.4]
treeName=MICRO_TREE
queueVolume=CN=MICRO.O=compaq
queueContext=CN=MICRO Backup Queue.O=compaq
smdrContext=O=compaq

[NWI:MISC]
relogin password= ""
```

IMPORTANT: The relogin password specifies the password for the user connection used when installing the file across the network. When the password section of this file is used correctly, the installation bypasses an authentication screen after loading the LAN driver and before installing the file copy. The double quotes specify a user connection without a password. If a password is required, it should be relogin password=pwsd where pwsd is the password.

```
[Compaq:CompaqNSSD_Destination_Volume:1.0.0_Location]
Path=file:///SYS:
User=

[Compaq:CompaqNSSD_Product:5.0.1]
location=null

[Compaq:CompaqNSSD_Filter_NSSD:1.0.0]
prompt=true
CompaqNSSD_FilterItem_HEALTH=true
CompaqNSSD_FilterItem_ONLINE=false
CompaqNSSD_FilterItem_IML=false
CompaqNSSD_FilterItem_RIB=false
CompaqNSSD_FilterItem_RSO=false
CompaqNSSD_FilterItem_POWER=false
CompaqNSSD_FilterItem_NSSU=true

[Compaq:CompaqNSSD_Destination_Local:1.0.0_Location]
Path=file:///C:
User=

[Compaq:CompaqNSSD_Module_HOT_PLUG_Code:1.0.0]
location=null

[Compaq:CompaqCIMU_Destination_Volume:1.0.0_Location]
Path=file:///SYS:
User=

[Compaq:CompaqCIMU_Product:4.2.0]
location=null
```

```
[Compaq:CompaqCIMAgents_Destination_System:1.0.0_Location]
Path=file:///SYS:\SYSTEM
User=

[Compaq:CompaqCIMAgents_Product:5.0.0]
Monitor Community String=public
Control Community String=public

[Compaq:CompaqCIMAgents_Filter:1.0.0]
prompt=true
CompaqCIMAgents_FilterItem_SETS=true
CompaqCIMAgents_FilterItem_REBOOT=false

[Compaq:CompaqCIMAgents_Destination_System_CpqMgmt_WebAgent:1.0.0_
Location]
Path=file:///SYS:\SYSTEM\CPQMGMT\WEBAGENT
User=

[Compaq:CompaqSURVEY_Destination_Volume:2.0.6_Location]
Path=file:///SYS:
User=

[Compaq:CompaqSURVEY_Product:2.0.6]
location=null

[Compaq:CompaqSURVEY_Destination_Local:1.0.0_Location]
Path=file:///SYS:
User=

[Compaq:CompaqLAST_Product:4.2.0]
location=null
prompt=false
```

The server deployment configuration and operating system installation process is complete.

NetWare 5.1 *RESPONSE.NI* Sample File for SmartStart 5.30 or Later

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately.

NOTE: For a complete description of how to automate the installation of Novell NetWare 5.1, refer to the Novell NetWare document *Automating the NetWare 5 Installation with a Response File,* available at

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

This document is also available as Technical Information Document number 10055290.

NOTE: Bold lines indicate modifications made to fully automate the installation of the operating system.

```
[NWI:Product Information]
Major Version=NetWare 5
Minor Version=10

[NWI:NDS]
Admin Password=admin
Schema Extensions=sys:/system/schema/NLS.SCH,
   sys:/system/schema/AUDITING.SCH,
   sys:/system/schema/NWADMIN.SCH,
   sys:/system/schema/NRD.SCH,sys:system/schema/SAS.SCH,
   sys:/system/schema/NDSPKI.SCH,sys:/system/schema/MASV.SCH,
   sys:/system/schema/SLP.SCH,sys:system/schema/CATALOG.SCH,
   sys:system/schema/WANMAN.SCH,sys:system/schema/SMS.SCH,
   sys:system/schema/NDPS100.SCH,sys:system/schema/NDPS200.SCH,
   sys:system/schema/SVC.SCH
Schema Extensions Pre DS=sys:/system/schema/NDS500.SCH,
   sys:/system/schema/NLS.SCH
Schema Extensions LDAP=sys:system/schema/LDAP.SCH,
   sys:system/schema/LDAPUPDT.SCH
Schema Extensions LDAP NDS8=sys:system/schema/nds8/LDAP.SCH
Schema Extensions LDAP
   NDSJUL99=sys:system/schema/ndsjul99/LDAP.SCH,
   sys:system/schema/ndsjul99/LDAPUPDT.SCH,
   sys:sys:system/schema/ndsjul99/NDSPKI.SCH
Schema Extensions LDAP
   NDSAPR99=sys:system/schema/ndsapr99/LDAP.SCH,
   sys:system/schema/ndsapr99/LDAPUPDT.SCH
Admin Language=4
Tree Name=MICRO_TREE
Server Context=O=compaq
New Tree=true
Admin Login Name=admin
Admin Context=O=compaq
Display Summary=false
Prompt=false
```

```
[Settings]
Novell:NOVELL_ROOT:1.0.0=NONE
Novell:NetWare5OS:5.0.0=Novell:DST:1.0.0
Novell:PROTOCOLS:1.0.0=Novell:DST:1.0.0
Novell:DS_INSTALL:1.0.0=Novell:DST:1.0.0
Novell:Disk Carver:1.0.0=Novell:DST:1.0.0

[NWI:Server Settings]
Prompt=FALSE
Load Server at Reboot=FALSE
NDS Version=8
CD-ROM Driver=NetWare

[Selected Nodes]
prompt=false
Novell:NetWare5:1.0.0=Novell:NetWare5OS:5.1.0,
   Novell:Products:1.0.0,Novell:NWUpdateGroup:1.0.0

Novell:NetWare5OS:5.1.0=Novell:Disk Carver:1.0.0,
   Novell:Protocols:1.0.0,Novell:TimeZone:1.0.0,
   Novell:DS_Install:1.0.0,Novell:LicensePrompt:1.0.0,
   Novell:NICI:1.0.0,Novell:NW:1.0.0

Novell:NW:1.0.0=Novell:Startup:1.0.0,Novell:SYS:1.0.0,
   Novell:DriverFiles:1.0.0,Novell:Rconjzip:1.0.0,
   Novell:Perl5zip:1.0.0,Novell:beanszip:1.0.0,
   Novell:nscriptzip:1.0.0,Novell:scripteszip:1.0.0,
   Novell:Console1:1.0.0,Novell:console1zip:1.0.0,
   Novell:ldapzip:1.0.0,Novell:nwadminzip:5.1.9,
   Novell:wanmanzip:1.0.0

Novell:Startup:1.0.0=Novell:StartupDirectory:1.0.0
Novell:SYS:1.0.0=Novell:SYSDirectory:1.0.0,
   Novell:ConfigDirectory:1.0.0,Novell:PROFINST_NODE:1.0.0

Novell:DriverFiles:1.0.0=Novell:LANFiles:1.0.0,
   Novell:SBDFiles:1.0.0

Novell:Products:1.0.0=Novell:Novell Certificate
   Server:2.0.0,Novell:LdapInstall:1.0.0,
   NOVELL:Portal:1.0.1,Novell:SMS:1.0.4,
   Compaq:Compaq_Bundle:1.0.0

Novell:Novell Certificate Server:2.0.0=Novell:CertServ System
   Files:2.0.0,Novell:CertServ Public Files:2.0.0

Novell:LdapInstall:1.0.0=Novell:Ldap8:3.16.0
NOVELL:Portal:1.0.1=Novell:portalzip:1.0.0
Novell:SMS:1.0.4=Novell:SMSSystemFiles:1.0.4,
   Novell:SMSPublicFiles:1.0.4
```

```
Novell:NWUpdateGroup:1.0.0=Novell:NWUpdate:1.0.0

[NWI:Install Script]
Close Script=c:\Compaq\extra.ics e=c:\cpqerr.log

[NWI:Product Information]
Major Version=NetWare 5
Minor Version=10

[NWI:Language]
Server Language=4
Prompt=FALSE

[NWI:NDS]
Schema Extensions=sys:/system/schema/NLS.SCH,sys:
   /system/schema/AUDITING.SCH,sys:/system/schema/NWADMIN.SCH,
   sys:/system/schema/NRD.SCH,sys:system/schema/SAS.SCH,
   sys:/system/schema/NDSPKI.SCH,sys:/system/schema/MASV.SCH,
   sys:/system/schema/SLP.SCH,sys:system/schema/CATALOG.SCH,
   sys:system/schema/WANMAN.SCH,sys:system/schema/SMS.SCH,
   sys:system/schema/NDPS100.SCH,sys:system/schema/NDPS200.SCH,
   sys:system/schema/SVC.SCH,sys:system/schema/NDPS201.SCH
Schema Extensions PreDS=sys:/system/schema/NDS500.SCH,sys:/system/
   schema/NLS.SCH
Schema ExtensionsLDAP=sys:system/schema/LDAP.SCH,sys:system/
   schema/LDAPUPDT.SCH
Schema Extensions LDAP NDS8=sys:system/schema/nds8/LDAP.SCH
Schema Extensions LDAP NDSJUL99=sys:system/schema/ndsjul99/
   LDAP.SCH,sys:system/schema/ndsjul99/LDAPUPDT.SCH,sys:sys:
   system/schema/ndsjul99/NDSPKI.SCH
Schema Extensions LDAP NDSAPR99=sys:system/schema/ndsapr99/
   LDAP.SCH,sys:system/schema/ndsapr99/LDAPUPDT.SCH

[NWI:Old Products]
Product 1=NWSB411
Product 2=IWSB411

[Settings]
Novell:NOVELL_ROOT:1.0.0=NONE
Novell:NetWare5OS:5.0.0=Novell:DST:1.0.0
Novell:PROTOCOLS:1.0.0=Novell:DST:1.0.0
Novell:DS_INSTALL:1.0.0=Novell:DST:1.0.0
Novell:Disk Carver:1.0.0=Novell:DST:1.0.0

[Selected Nodes]
Prompt=false
Novell:NetWare5:1.0.0=ALL

[NOVELL:NOVELL_ROOT:1.0.0]
showWelcomeScreen=false
LogLevel=DEBUG_DETAIL
welcomeScreen=com.novell.application.install.Welcome
choiceScreen=com.novell.application.install.ChoicePanel
summaryScreen=com.novell.application.install.Summary
licenseAgreementScreen=com.novell.application.install.
   ProductLicenseAgreement
languageScreen=com.novell.application.install.SelectLanguage
customChoiceScreen=com.novell.application.install.
   CustomChoicePanel
wizardScreen=com.novell.application.install.WizardFrame
```

```
licenseEnvelopeScreen=com.novell.application.install.
   LicenseEnvelope
;closeScreen=NWICloseScreen
closeScreen=SilentCloseScreen
silent=false
installSilentModeOverwrite=true
installSilentModeOverwriteConfigFile=true
allowCustomization=true
allowSummary=true
allowReadme=true
allowCloseScreen=true
allowStatusBar=true
allowLicenseAgreement=true
welcomeScreenText=Welcome to the Novell installation. This program
installs the following selected programs on your computer.
welcomeScreenTitle=Novell Product Installation
customizeScreenTitle=Product Customization
defaultImage=Novell.gif
licenseAgreeFile=license.txt
readmeFile=readme.html
licensePath=none
welcomeScreenHelp=welcome.html
summaryScreenHelp=summary.html
licAgreeScreenHelp=licAgree.html
choiceScreenHelp=choice.html
filterScreenHelp=filter.html
licEnvScreenHelp=license.html
customizeScreenHelp=custom.html
locationScreenHelp=location.html
licEnvScreenTitle=Licenses
summaryScreenTitle=Summary
licAgreeScreenTitle=License Agreement
locationScreenTitle=Location
choiceScreenTitle=Components
installMode=1
overWriteNewerFile=false
overWriteNewerFilePrompt=false
reboot=true

[Initialization]
Version=Novell:NetWare5:1.0.0
SPLocation=SYS:/ni/update/bin\../data/local.db
NISubdirectory=update
DisplayLanguage=en_US
InstallationMode=Silent
SummaryPrompt=false

[NWI:Install Script]
Support Pack Script=c:/spack/silent.ics

[Locations]
Novell:DST%Startup:1.0.0=

[NWI:Locale]
Uses Vgadisp=false
Code Page=437
Country Code=001
```

```
Keyboard=United States
Prompt=FALSE

[Novell:SRC:1.0.0]
path=H:\NW51

[NWI:File Server]
Prompt=false
Servername=MICRO
Server Id Number=B37287E

[NWI:Mouse and Video]
Mouse=PS/2
Use Super Vga=TRUE
Prompt=FALSE

[NWI:Hardware]
PSM Detection=FALSE
Storage Detection=FALSE
Network Detection=FALSE
Prompt=FALSE
Client Logical Name=N100_1_EII

[NWI:License]
prompt=false
Display License Agreement=FALSE
NICI Foundation Key File=a:\license\86419866.nfk
License File=a:\license\86419866.nlf

[NWI:Add To Startup]

NWI:Install Options]
Upgrade=FALSE
Prompt=FALSE
Startup Directory=C:\NWSERVER
Allow User Response File=TRUE

[Novell:DST%Startup:1.0.0_Location]
Path=file:///C:\NWSERVER
User=

[NWI:Multi-Processor System]
Driver File=CPQMPK.PSM
Driver Name=BELIZE/MPS_SUPPORT_500_SMP
File Type=PSM
Device Name=Platform Support Module for Compaq Systems
Driver Description 1=Platform Support Module for Compaq Systems
Load Line=LOAD CPQMPK.PSM

[NWI:Storage Adapter 1]
Driver File=CPQARRAY.HAM
Driver Name=CPQARRAY
File Type=HAM
Device Name=Compaq~Integrated Smart Array Controller
SLOT=10003
Driver Description 1=COMPAQ 32-Bit Array Controller Driver
Load Line=LOAD CPQARRAY.HAM SLOT=10003

[NWI:Storage Adapter 2]
Driver File=IDEATA.HAM
Driver Name=IDEATA
```

```
File Type=HAM
Device Name=Generic~ATA/IDE/ATAPI Adapter
PORT=1F0
INT=E
ParameterStamp=YES
Driver Description 1=Novell IDE (ATA/ATAPI Compatible) Host
Adapter Module
Load Line=LOAD IDEATA.HAM PORT=1F0 INT=E

[NWI:Storage Adapter 3]
Driver File=IDEATA.HAM
Driver Name=IDEATA
File Type=HAM
Device Name=Generic~ATA/IDE/ATAPI Adapter
PORT=170
INT=F
ParameterStamp=YES
Driver Description 1=Novell IDE (ATA/ATAPI Compatible) Host
Adapter Module
Load Line=LOAD IDEATA.HAM PORT=170 INT=F

[NWI:Storage Device 1]
Driver File=CPQSHD.CDM
Driver Name=CPQSHD
File Type=CDM
Device Name=Compaq~SCSI Hard Disk Devices
Driver Description 1=Compaq NWPA SCSI Disk Driver
Load Line=LOAD CPQSHD.CDM

[NWI:Storage Device 2]
Driver File=IDECD.CDM
Driver Name=IDECD
File Type=CDM
Device Name=Generic~ATAPI CD-ROM or DVD Drive
Driver Description 1=Novell ATA/IDE/ATAPI CD-ROM/DVD Custom
   Device Module
Load Line=LOAD IDECD.CDM
```

```
[NWI:Network Adapter 1]
Driver File=N100.LAN
Driver Name=N100_3163
File Type=LAN
Device Name=Compaq~NC3163 Fast Ethernet NIC
SLOT=10008
SPEED=0
FORCEDUPLEX=0
IOMAPMODE=0
CPUSPEED=1536
Adapter Name=N100_1
Driver Description 1=Compaq NC3163 Fast Ethernet NIC
Frame Type 1=Ethernet_802.2
Logical Name 1=N100_1_E82
Load Line 1=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_802.2  NAME=N100_1_E82
Frame Type 2=Ethernet_802.3
Logical Name 2=N100_1_E83
Load Line 2=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_802.3  NAME=N100_1_E83
Frame Type 3=Ethernet_SNAP
Logical Name 3=N100_1_ESP
Load Line 3=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_SNAP  NAME=N100_1_ESP
Frame Type 4=Ethernet_II
Logical Name 4=N100_1_EII
Load Line 4=LOAD N100.LAN SLOT=10008
   FRAME=Ethernet_II  NAME=N100_1_EII

[NWI:Network Adapter 2]
Driver File=N100.LAN
Driver Name=N100_3163
File Type=LAN
Device Name=Compaq~NC3163 Fast Ethernet NIC
SLOT=10009
SPEED=0
FORCEDUPLEX=0
IOMAPMODE=0
CPUSPEED=1536
Adapter Name=N100_2
Driver Description 1=Compaq NC3163 Fast Ethernet NIC
Frame Type 1=Ethernet_802.2
Logical Name 1=N100_2_E82
Load Line 1=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_802.2  NAME=N100_2_E82
Frame Type 2=Ethernet_802.3
Logical Name 2=N100_2_E83
Load Line 2=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_802.3  NAME=N100_2_E83
Frame Type 3=Ethernet_SNAP
Logical Name 3=N100_2_ESP
Load Line 3=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_SNAP  NAME=N100_2_ESP
Frame Type 4=Ethernet_II
Logical Name 4=N100_2_EII
Load Line 4=LOAD N100.LAN SLOT=10009
FRAME=Ethernet_II  NAME=N100_2_EII
```

```
[System Hardware 1]
ProdID=PCI.1166.0009.0000.0000.05
ClassID=CLASS.PCI.06.00.00
HINName=PCI.INSTANCE_A
HIN=10001

[System Hardware 2]
ProdID=PCI.1166.0009.0000.0000.05
ClassID=CLASS.PCI.06.00.00
HINName=PCI.INSTANCE_B
HIN=10002

[System Hardware 3]
ProdID=PCI.1000.0010.0E11.4040.02
ClassID=CLASS.PCI.01.04.00
HINName=PCI.EMBEDDED
HIN=10003

[System Hardware 4]
ProdID=PCI.1002.4756.1002.4756.7A
ClassID=CLASS.PCI.03.00.00
HINName=PCI.EMBEDDED_DISPLAY
HIN=10004

[System Hardware 5]
ProdID=PCI.0E11.A0F0.0E11.B0F3.00
ClassID=CLASS.PCI.08.80.00
HINName=PCI.INSTANCE_C
HIN=10005

[System Hardware 6]
ProdID=PCI.1166.0200.1166.0200.4F
ClassID=CLASS.PCI.06.01.00
HINName=PCI.INSTANCE_D
HIN=10006

[System Hardware 7]
ProdID=PCI.1166.0211.0000.0000.00
ClassID=CLASS.PCI.01.01.8A
HINName=PCI.INSTANCE_E
HIN=10007
IOPort0=1F0
IOLen0=8
IOPort1=170
IOLen1=8
INT0=E
INT1=F

[System Hardware 8]
ProdID=PCI.8086.1229.0E11.B134.08
ClassID=CLASS.PCI.02.00.00
HINName=PCI.EMBEDDED_ETHERNET_A
HIN=10008

[System Hardware 9]
ProdID=PCI.0000.0000.0E11.B134.00
ClassID=CLASS.PCI.07.00.00
HINName=PCI.
HIN=10014
```

```
[System Hardware 10]
ProdID=PCI.8086.1229.0E11.B134.08
ClassID=CLASS.PCI.02.00.00
HINName=PCI.EMBEDDED_ETHERNET_B
HIN=10009

[System Hardware 11]
ProdID=PCI.0000.0000.0E11.B134.00
ClassID=CLASS.PCI.07.00.00
HINName=PCI.
HIN=10015

[System IO Device 1]
IODeviceType=0
IOBusType=256
IODeviceProdID=SCSI.00.COMPAQ.ARRAY CONTROLLER.1.40

[System IO Device 2]
IODeviceType=5
IOBusType=512
IODeviceProdID=IDE.05.CD-224E.9.0B

[NWI:File System]
Prompt=FALSE
ALLOW VOLUME PROPERTIES=TRUE
GUI Prompt=false

[NWI:Partition 0]
Device Name=[V503-A0-D0:0] Compaq Integrated Smart Slot 0 Disk 1
NFT
PARTITION TYPE=NETWARE
PARTITION SIZE=3884
PARTITION HOTFIX SIZE=4
START SECTOR=416160

[NWI:Volume 0]
VOLUME NAME=SYS
SEGMENT 1 SIZE=3880
SEGMENT 1 PARTITION=0
FILE SYSTEM TYPE=NETWARE
COMPRESSION=TRUE
BLOCK SIZE=64
SUBALLOCATION=TRUE
DATA MIGRATION=FALSE

[LDAP]
adminID=.CN=admin.O=compaq
prompt=false

[Novell:DST:1.0.0_Location]
Path=file:///SYS:
User=
```

```
[Novell:Languages:1.0.0]
LangID1=false
LangID4=true
LangID6=false
LangID7=false
LangID8=false
LangID9=false
LangID10=false
LangID12=false
LangID13=false
LangID14=false
LangID16=false
LangID99=false
LangID100=false

[Advertisement]
AD ID#0=SYS:\NI\DATA\ad1.gif,60
AD ID#1=SYS:\NI\DATA\ad2.gif,60
AD ID#2=SYS:\NI\DATA\ad3.gif,60
AD ID#3=SYS:\NI\DATA\ad4.gif,60
AD ID#4=SYS:\NI\DATA\ad5.gif,60
AD ID#5=SYS:\ni\data\NSSDad1.GIF,60
AD ID#6=SYS:\ni\data\NSSDad2.GIF,60
AD ID#7=SYS:\ni\data\NSSDad3.GIF,60

[Licenses]
Novell:FCLLic:1.0.0=

[Novell:FCLLic:1.0.0_License]
fileName0=sys:\ni\update\lic0001.lic
activationKey0=7DDAE9F75969E5F8
context0=O=compaq
fileName1=sys:\ni\update\lic0002.lic
activationKey1=7DDAE9F75969E5F8
context1=O=compaq
licCnt=2

[NWI:PROTOCOLS]
Prompt=false

[NWI:TCPIP]
Logical Name 1=N100_1_EII
IP Address 1=172.25.69.55
Subnet Mask 1=255.255.255.0

[NWI:IPCMD]
IPX Compatibility=True

[NWI:IPX]
Logical Name 1=N100_1_EII
IPX Address 1=2

[NWI:DNS]
Prompt=false

[NWI:Host Name]
Prompt=false
IP Address 1=172.25.69.55
```

```
[NWI:Time Zone]
Use Daylight Saving Time=true
Time Zone=CST
Prompt=false

[Novell:Novell Certificate Server:2.0.0]
Prompt=False
Create Organizational CA=True
Organizational CA Name=MICRO_TREE Organizational CA
Create Server Certificates=True
IP Server Certificate Name=SSL CertificateIP
DNS Server Certificate Name=SSL CertificateDNS
Export Trusted Root=True
Trusted Root Name=sys:/public/RootCert.der

[Novell:SMS:1.0.4]
treeName=MICRO_TREE
queueVolume=CN=MICRO.O=compaq
queueContext=CN=MICRO Backup Queue.O=compaq
smdrContext=O=compaq

[NWI:MISC]
relogin password= ""
```

IMPORTANT: The relogin password specifies the password for the user connection used when installing the file across the network. When the password section of this file is used correctly, the installation bypasses an authentication screen after loading the LAN driver and before installing the file copy. The double quotes specify a user connection without a password. If a password is required, it should be relogin password=pwsd where pwsd is the password.

The server deployment configuration and operating system installation process is complete.

5

Red Hat Linux 6.2 or 7.x Deployment

This chapter provides best practice scenarios for using the Toolkit to deploy the Red Hat Linux 6.2 or 7.x operating system to a target server across a network connection.

Network-Based Deployment

This scenario illustrates the deployment of Red Hat Linux 6.2 or 7.x over the network. A shared network directory on a Linux-based server must contain the files necessary to set up the target server and must be available to the target server across a network connection. This shared directory must include:

- Red Hat Linux 6.2 or 7.x operating system files
- Customized Red Hat Linux boot image file
- Toolkit utilities
- Server profile script files arranged in directories

IMPORTANT: Some hardware may require that specific parameters and/or patches be applied to the Linux kernel. For more information, visit the Linux website at

www.compaq.com/products/servers/linux/linux-drivers.html

NOTE: Network-based server deployments can be lengthy. Because performance decreases dramatically over a 10-Mb/s network, Compaq recommends network-based deployments over 100-Mb/s (or faster) networks only.

Deployment Process Overview

The general network-based server deployment process consists of the following steps:

1. Creating the bootable server configuration diskette with network software
2. Creating the server profile script files
3. Customizing the Linux boot image file
4. Creating the server batch file
5. Preparing the network software repository
6. Deploying the target server

Each of these steps is described in more detail in the following sections.

NOTE: For more information, refer to the *README.TXT* file on the Red Hat Linux CD.

Creating the Bootable Server Configuration Diskette with Network Software

Create a bootable server configuration diskette (using DOS 6.22 or 7.0) for booting the target server and loading the Microsoft Networking protocol stack. Loading the protocol stack allows the target server to connect to a shared network directory and initiate the server deployment process over the network.

NOTE: See Appendix A for an alternate procedure to create a basic network boot diskette using a Microsoft Network Client 3.0 set of diskettes for DOS.

1. Format a 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the diskette bootable.
2. Ensure that the latest NIC drivers are available for the server on which Red Hat Linux 6.2 or 7.x will be installed.

   NOTE: For information about using the Network Client Administrator, refer to the online documentation for the utility.

3. Using a Windows NT Server 4.0 server, start the Network Client Administrator tool and select **Make Network Installation Startup Disk.**
4. Select **Network Client version 3.0 for MS-DOS and Windows.**
5. Select any of the NICs from the list, for example, **NE2000-compatible.**
6. When prompted, supply the Computer name, User name, Domain, and Network protocol. In this case, TCP/IP and DHCP are being used.
7. Copy the proper DOS Network Device Interface Specification (NDIS) driver into the A:\NET directory of the server configuration diskette.
8. Modify the *SYSTEM.INI* file in the A:\NET directory so that it contains the following:

```
NETCARD=FILENAME.DOS
PREFERREDREDIR=BASIC
AUTOSTART=BASIC
REM *** where FILENAME.DOS=DOS NDIS driver file name copied to the
REM *** server configuration diskette.
REM *** For example, N100.DOS.
```

9. Modify the *PROTOCOL.INI* file in the A:\NET directory so that it contains the following:

```
DRIVERNAME=FILENAME$
REM *** FILENAME$ is the DOS NDIS driver file name.
REM *** For example, N100$.
```

10. Edit the *CONFIG.SYS* file on the server configuration diskette so that it loads all of the drivers required for the target server devices. A typical *CONFIG.SYS* file is similar to the following:

```
REM *** Load special memory and DOS devices required by the
REM *** target server
device=a:\dos\himem.sys/testmem:off
device=a:\dos\setver.exe
device=a:\net\ifshlp.sys
REM *** Loading RAMDRIVE is necessary for Linux installations
devicehigh=a:\dos\ramdrive.sys /E 2048
dos=high,umb
buffers=30
files=40
stacks=9,256
switches=/f
lastdrive=z:
```

NOTE: Refer to the server documentation for information about which devices to load through the *CONFIG.SYS* file for your server configuration.

11. Edit the *AUTOEXEC.BAT* file to remove the line that runs *SETUP.EXE* and add a line that maps a drive letter to the network share. For example, add:

```
NET USE S: \\DEPLOY\SHAREVOL /YES
REM *** where S=mapped drive, DEPLOY=server name, and
REM *** SHAREVOL=network share on the server
```

A typical *AUTOEXEC.BAT* file is similar to the following:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\umb.com
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start
set path=a:\;a:\dos;a:\net;s:\cpq;s:\dosutils

REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:

REM *** Start the scripted server deployment by calling the
REM *** configuration batch file that resides in the shared
REM *** network directory
call s:\dl380lnx.bat
```

If SYSTYPE is used to allow branching from within the *AUTOEXEC.BAT* file, a typical startup file is similar to the following:

```
@echo off

set wattcp.cfg =a:\net
set hard_reset=-hr
set path=a:\;a:\dos;a:\net

REM *** Login
REM *** Change to the \net subdirectory and load network stacks
cd a:\net
a:\net\net initialize
a:\net\umb.com
a:\net\netbind.com
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\net\net start
set path=a:\;a:\dos;a:\net;s:\cpq;s:\dosutils

REM *** Map a shared network drive to a drive letter
net use s: \\deploy\sharevol /yes
s:
cd \cpq

REM *** -----------------------------------------------------
REM *** Start the scripted server deployment by determining the
REM *** target system and REM *** calling the server-specific
REM *** configuration batch file.
REM *** -----------------------------------------------------

s:\cpq\systype ssstksys.ini

if errorlevel 53 goto DL580
if errorlevel 50 goto DL380
if errorlevel 49 goto ML530
if errorlevel 47 goto ML350

:DL580
call s:\dl580lnx.bat
goto end

:DL380
call s:\dl830lnx.bat
goto end

:ML530
call s:\ml530lnx.bat
goto end

:ML350
call s:\ml350lnx.bat
goto end

cd \

:end
```

12. Sign the server configuration diskette with SIGNDISK by copying the utility onto the diskette and typing SIGNDISK at the A:\ prompt. Signing the server configuration diskette stamps the diskette with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Server Profile Script Files

The Toolkit utilities require a server profile consisting of three generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system.

IMPORTANT: The server profile scripts cannot be generated on a Linux source system running an MS-DOS emulator such as dosemu**.** The server profile scripts must always be generated on a source system running DOS 6.22 or 7.0.

Server Configuration Files

There are four script files that can be generated, depending on your system. Generate the three primary script files on the source server by following these steps:

IMPORTANT: The Toolkit requires that all script file names follow the DOS 8.3 file naming convention. No other restrictions are placed on script file naming. However, if script files for various servers are placed on an installation CD-ROM, store each server profile in its own directory and standardize the script file naming. For example:

- *SERVER.HWR*—Hardware configuration script file generated by CONREP or CF_REP
- *SERVER.ARY*—Array configuration script file generated by ACR
- *SERVER.PRT*—Partition configuration script file generated by CPQDISK
- *SERVER.RLO*—RILOE configuration file generated by CPQLODOS (optional)

Primary Configuration Script Files

1. Generate the hardware configuration script data file with the following command:

   ```
   CONREP /S A:\DL380LNX.HWR
   ```

   This command reads the current configuration on the source server and writes the hardware configuration script file to A:*DL380LNX.HWR*.

2. Generate the array configuration script file with the following command:

   ```
   ACR /C A:\DL380LNX.ARY
   ```

   This command reads the array configuration on the source server and writes the array configuration script file to A:*DL380LNX.ARY*.

3. Generate the partition configuration script file with the following command:

   ```
   CPQDISK /R A:\DL380LNX.PRT
   ```

This command reads the partition configuration on the source server and writes the partition configuration script file to A:*DL380LNX.PRT*.

If necessary, use any text editor to make changes to the configuration script files so that they conform to the target server.

Optional Configuration Script File

Generate the RILOE configuration script file. For examples of the command line parameters, refer to the Compaq Lights-Out DOS Utility Appendix of the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

www.compaq.com/manage/remote-lightsout.html

IMPORTANT: Ensure that only the system partition is defined in the partition configuration script file.

If any DOS partitions are defined, remove the additional [Partition#] section headings and partition definition entries. Leave only the system partition section heading and its partition definition entries and rename the system partition section heading.

The following is an example of a partition configuration script file for deployment on a Linux-based target server:

```
; Note: The active partition has been changed to Primary DOS
; Note: partition.
; Note: Partitions over 4 GB have been changed to 4 GB.


[General Parameters]
Overwrite=True

; This is the system partition
; For Linux deployments, the heading can be [Partition1],
; [Partition2], or [Partition3].
; The heading cannot be [Partition0]

[Partition3]
Size=40
Type=12
Active=False
```

Unattended Installation Files

When the server profile script files are generated and modified for the target server, save a copy of the Red Hat Linux 6.2 or 7.x kickstart file (*ks.cfg*) on the server configuration diskette. See the end of this chapter for a typical unattended installation file for Red Hat Linux 6.2 or 7.x.

NOTE: The *ks.cfg* file is generated on a Red Hat Linux 6.2 or 7.x system by using the installable **mkkickstart** utility. Refer to the operating system documentation or to *RedHat Linux KickStart HOWTO* for a complete description of options that can be modified in the *ks.cfg* unattended installation file to customize the installation of Red Hat Linux 6.2 or 7.x. This document is located at

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

Customizing the Linux Boot Image File

By default, the installation of Red Hat Linux 6.2 or 7.x requires two diskettes. The first is the DOS-based diskette that launches the deployment process. The second is a Linux boot diskette that loads the Red Hat Linux 6.2 or 7.x operating system.

During the deployment process, avoid swapping between DOS-based and Linux-based diskettes by adding steps in the server batch file to replace the contents of the DOS-based diskette with a customized Linux boot image file stored in the software repository. Because the file replacement process is destructive, create an image file of the DOS-based bootable server configuration diskette with network software before using the diskette the first time.

On Red Hat Linux 6.2- or 7.x-based systems, use the `dd` command to create an image file of the DOS-based bootable server configuration diskette with network software. Additional information about the `dd` command is available by referring to the operating system documentation or consulting the *man* pages.

For creating image files in Windows NT 4.0 or Windows 2000, see "Creating the Bootable Server Configuration Diskette Image File" in Chapter 7 of this document.

Use a system running Linux to create the customized Linux boot image file. Follow these steps to create the image file:

1. Create a Linux boot diskette using the Linux `dd` command to write the image file *bootnet.img* on the Red Hat Linux 6.2 or 7.x media to a standard 1.44-MB diskette.

   If using a DOS-based system to create the Linux boot diskette, use the Linux RaWrite utility for DOS to write the image file *bootnet.img* on the Red Hat Linux 6.2 or 7.x media to a standard 1.44-MB diskette. The RaWrite utility for DOS cannot be used to create the customized Linux boot image file from the data on the diskette.

   NOTE: Additional information about the RaWrite utility is available by referring to the operating system documentation or by using the –h argument on the command line.

2. Recover space on the diskette by deleting all .MSG files from the diskette.
3. Edit the *sysLinux.cfg* file on the diskette with any Linux text editor so that it is similar to the following text:

```
default ks
prompt 1
timeout 15
label ks
kernel vmlinuz
append ks=floppy initrd=initrd.img network
```

4. Copy the *ks.cfg* file modified under "Unattended Installation Files" of the "Creating the Server Profile Script Files" section onto the diskette.
5. Using the Linux `dd` command, create the customized Linux boot image file from the data on the diskette.

IMPORTANT: On DOS-based and Windows-based systems, other diskette imaging utilities are used to create the customized Linux boot image file from the data on the diskette. Do not use the Compaq Remote Insight Diskette Image utility to create the customized Linux boot image file.

Creating the Server Batch File

In the case of network installations, the server batch file typically resides in the root directory of the shared network drive and launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, redirect the console feedback of the executable files run by the configuration batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For example:

```
S:\CPQ\CONREP -L A:\DL380LNX.HWR > D:\LOGS\DL380LNX.LOG
```

This command creates the file *DL380LNX.LOG* in the \LOGS subdirectory on the D drive and sends any console feedback generated by the command S:\CPQ\CONREP -L A:\DL380LNX.HWR to the *DL380LNX.LOG* file.

```
S:\CPQ\ACR /I A:\DL380LNX.ARY >> D:\LOGS\DL380LNX.LOG
```

This command appends any console feedback generated by the command S:\CPQ\ACR /I A:\DL380LNX.ARY to the file *DL380LNX.LOG* in the \LOGS subdirectory on the D drive.

```
S:\CPQ\CPQDISK /R A:\DL380LNX.PRT >> D:\LOGS\DL380LNX.LOG
```

This command appends any console feedback generated by the command S:\CPQ\CPQDISK /R A:\DL380LNX.PRT to the file *DL380LNX.LOG* in the \LOGS subdirectory on the D drive.

For maximum configuration flexibility, the server batch file will execute the following steps:

1. Read a server state variable.
2. Check the error level that is returned by the server state variable and branch to the appropriate configuration process.

3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1.

NOTE: This sample server batch file shows how to convert the DOS-based bootable server configuration diskette with network software to a customized Linux boot diskette for installation of the Red Hat Linux 6.2 or 7.0 operating system.

IMPORTANT: Because this is a destructive process, ensure that you have created an image file of the DOS-based bootable server configuration diskette with network software before attempting to use the diskette for the first time.

For creating image files in Windows NT 4.0 or Windows 2000, refer to "Creating the Bootable Server Configuration Diskette Image File" in Chapter 7 of this document.

Alternatively, on Red Hat Linux 6.2- or 7.x-based systems, use the `dd` command to create an image file of the DOS-based bootable server configuration diskette with network software. Additional information about the `dd` command is available by referring to the operating system documentation or consulting the *man* pages.

A typical server batch file that runs the Toolkit utilities and the configuration script files from a shared network location is similar to the following:

```
@echo off
cls
REM *** ------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** Samba and NFS services must have been started on the
REM *** Linux server
REM *** ------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase

REM *** ------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ------------------------------------------------------
pause
REM *** ------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0
```

```
:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL380LNX.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\dl380\dl380lnx.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------

:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL380LNX.ARY and stamping it onto
REM *** the array controllers of the target server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\dl380\dl380lnx.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2

REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:
```

```
:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Create partition by reading content of the
REM *** S:\SERVERS\DL380\DL380LNX.PRT
REM *** script file and stamping the configuration onto the hard
REM *** drive in the target server
REM *** Prepare for system partition population
REM *** Increase state variable and reboot
REM *** ----------------------------------------------------------
echo Creating Disk Partition...
s:\cpq\cpqdisk /w s:\servers\dl380\dl380lnx.prt
s:\cpq\syspart /update:enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3

REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State3
REM *** ----------------------------------------------------------
REM *** Fourth state
REM *** Populate the system partition
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Populating System Partition...
c:\
cd\
s:\cpq\syspart /update:disable
s:\cpq\psyspart /s:s:
 echo Setting State Information...
s:\cpq\statemgr /w Phase 4
s:\cpq\reboot a:

:State4
REM *** ----------------------------------------------------------
REM *** Fifth state
REM *** There is no operating system partition at this point
REM *** The ramdrive is labeled C: by default
REM *** Operating system files are copied to the ramdrive from
REM *** the diskette and the shared network directory to prepare
REM *** the Linux boot diskette
REM *** ----------------------------------------------------------
c:
REM *** Copy COMMAND.COM to c:\
copy a:\command.com
REM *** Reassign the COMSPEC environment variable to C:\
set comspec=c:\command.com
REM *** Copy files in the shared network directory to the
REM *** ramdrive
copy s:\tools\rawrite.exe
copy s:\servers\dl380\cpqboot.img
```

```
REM *** ------------------------------------------------------
REM *** This process creates the Linux boot diskette
REM *** The process is destructive because it replaces the
REM *** content of the configuration diskette with the content of
REM *** a Linux image file
REM *** Ensure that an image file of the original configuration
REM *** diskette exists
REM *** The Linux boot diskette is created by using the RaWrite
REM *** Linux utility on the ramdrive
REM *** ------------------------------------------------------
rawrite -f cpqboot.img -d a: -n
REM *** Boot to drive A: from the network location
s:\cpq\reboot a:

REM *** ------------------------------------------------------
REM *** Unused states
REM *** ------------------------------------------------------
:State5
:State6
:State7
:State8
:State9
:State10
```

In the server batch file example, the name of the customized Linux boot image file is *cpqboot.img*. Because *ks.cfg* in the *cpqboot.img* file is typically server specific, a copy of the *cpqboot.img* file is stored for each server profile in the server profile subdirectories of the network software repository.

Preparing the Network Software Repository

In this sample, the software repository is located on a Linux-based server. The Server Message Block (SMB) and Network File Service (NFS) protocols must be started on the Linux-based server before the repository can be accessed by the DOS-based bootable server configuration diskette.

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, refer to the terms of the software license agreement. SMB shares are provided by Samba software.

Organizing the Repository

It is important to organize the directory structure when creating the repository.

The following guidelines provide a means of creating, maintaining, and using the repository with the server batch file.

1. Create an account with access to the software image files in the software repository.
2. Place only configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they may also be placed in the subdirectories containing the server profiles.
3. Create a master SMB directory to organize all of the files required for deployment. For example, create a master SMB directory called /SHAREVOL.

   IMPORTANT: Ensure that ownership of the /SHAREVOL directory and all subdirectories under the directory is set to the account that will be used to access the directories.

4. Under the Linux /SHAREVOL subdirectory, create a /RedHatCD subdirectory and copy the contents of the Red Hat Linux 6.2 or 7.x CD into the directory.

   IMPORTANT: The /SHAREVOL/RedHatCD subdirectory must be shared as an NFS volume.

   Refer to the *README* file on the Red Hat Linux 6.2 or 7.x CD1 for directions about how to copy the necessary files from both the Linux CDs to the network share.

5. Create Linux configuration files for Samba and NFS and place both files in the Linux/etc subdirectory.

   NOTE: Using the Linux/etc subdirectory for the Samba and NFS configuration files follows standard Linux conventions. Using this subdirectory is not a requirement.

6. Create the /SHAREVOL/CPQ subdirectory and copy all of the Toolkit utilities into the subdirectory.

7. Create the /SHAREVOL/SERVERS subdirectory containing a subdirectory for each server profile. For example, create /SHAREVOL/SERVERS/DL380, /SHAREVOL/SERVERS/ML330, and so on.
8. Copy the three server profile script files from the server configuration diskette and the customized Linux boot image *cpqboot.img* file into each server profile subdirectory.
9. Create additional subdirectories under /SHAREVOL to copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management.
10. If the system partition on the target server will be populated, copy the subdirectories /SYSCFG, /DIAGS, /DIFDATA, and /CPQSUPSW/ROMPAQ from SmartStart for Servers to the /SHAREVOL subdirectory of the software repository.

IMPORTANT: After the directory structure of the network software repository is determined, ensure that the server batch file runs all programs and utilities correctly from the network location.

Samba Configuration File

The configuration file for Samba is called *smb.conf* and is similar to the following:

```
[global]
workgroup=WORKGROUP
# Samba can only belong to one workgroup at a time
netbios name=NETBIOSNAME
client code page=437
guest account=sambauser
browseable=yes
guest ok=yes

[SHAREVOL]
comment=SmartStart Scripting Toolkit Share
path=/SHAREVOL
valid users=sambauser, otheruser1, otheruser2
read only=No
guest ok=Yes
```

NOTE: For additional information and configuration parameters of the *smb.conf* file, refer to the Samba website at

www.samba.org

or, refer to the *SMB HOWTO* document, available at

www.Linux.org/docs/ldp/howto/SMB-HOWTO.html

NFS Configuration File

The configuration file for NFS is called *exports* and must contain the following text:

```
/SHAREVOL/RedHatCD *(ro)
```

NOTE: For additional information and configuration parameters of the *exports* file, refer to the NFS *HOWTO* document, available at

www.Linux.org/docs/ldp/howto/NFS-HOWTO.html

Deploying the Target Server

To begin a new server deployment over the network:

1. Ensure that Samba and NFS services are started on the Linux server containing the software repository.
2. Insert the bootable server configuration diskette into the target server.
3. Power up the target server and supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file. The *AUTOEXEC.BAT* file connects the target server to the network share, then starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Red Hat Linux 6.2 or 7.x *ks.cfg* Sample File

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately.

The *ks.cfg* file is generated on a Red Hat Linux 6.2 or 7.x system with the installable mkkickstart utility. The *ks.cfg* file duplicates the operating system installation of one system on another system.

Refer to the operating system documentation or the *Red Hat Linux KickStart HOWTO* document for a complete description of the options that can be modified in the *ks.cfg* unattended installation file to customize the installation of Red Hat Linux 6.2 or 7.x. The *HOWTO* document is located at

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

NOTE: Bolded lines indicate modifications made to fully automate installation of the operating system.

```
lang en_US

REM *** Modify the network settings to reflect required network
REM *** settings.

network --bootproto dhcp

REM *** The IP address should be the address of the Linux
REM *** repository server. The /SHAREVOL/RedHatCD must be shared
REM *** as an NFS volume.

nfs --server 192.1.1.3 --dir /SHAREVOL/RedHatCD

device ethernet eepro100

keyboard "us"

zerombr yes
clearpart --Linux
part /boot --size 30
part swap --size 128
part / --size 100 --grow
install

mouse genericps/2

timezone Etc/GMT-6

#xconfig --server "Mach64" --monitor "generic monitor"
skipx

rootpw iscrypted $1$ltK6jzho$7pPbE8WPNAeg44UlXqG27

auth --useshadow --enablemd5

lilo --location partition

%packages
ElectricFence
setup
filesystem
basesystem
ldconfig
```

```
glibc
shadow-utils
mkkickstart
mktemp
termcap
libtermcap
bash
MAKEDEV
SysVinit
XFree86-Mach64
ncurses
info
grep
XFree86-libs
chkconfig
XFree86-xfs
anacron
anonftp
fileutils
mailcap
textutils
apache
apmd
arpwatch
ash
at
authconfig
autoconf
automake
```

NOTE: The preceding example contains a limited list of packages to be installed. Add to this section any other packages to be installed.

```
yp-tools
ypbind
ypserv
zlib
zlib-devel
%post
```

The server deployment configuration and operating system installation process is complete.

6

Deployment Using Third-Party Imaging Software

This chapter provides best practices for using the Toolkit to deploy a target server across a network connection using Symantec Ghost or Altiris RapiDeploy imaging software.

Network-Based Deployment Using Symantec Ghost

This best practice scenario focuses on using the Toolkit utilities in conjunction with Ghost images to deploy a target server over a network connection.

A slightly modified procedure can be used when deploying with a CD that you create. The user-generated installation CD must contain the files necessary to set up the target server. See the information in this section along with the procedures in the CD installation sections of the other chapters in this document to set up the installation CD containing Ghost and to structure the server batch file.

CAUTION: Because of the potential risk of data loss, only individuals experienced with Ghost should perform deployments. Before using Ghost with the Toolkit utilities, take all necessary precautions to ensure that mission-critical systems are not disrupted if a failure occurs.

For additional information about using this product to create image files of source system software, refer to the software documentation for each product or to the Symantec website at

www.symantec.com

Because a Ghost image is used to duplicate the operating system and other software of an optimally configured source server on a target server, the shared network drive must contain:

- Toolkit utilities
- Server profile script files and the Ghost image files arranged in folders
- Ghost software

NOTE: Network-based server deployments can be lengthy. Because performance decreases dramatically over a 10-Mb/s network, Compaq recommends network-based deployments over 100-Mb/s (or faster) networks only.

Deployment Process

The general network-based server deployment process includes:

1. Creating the bootable server configuration diskette with network software
2. Creating the server profile script files
3. Creating the server batch file
4. Preparing the network software repository
5. Deploying the target server

Each of these steps is described in more detail in the following sections.

Creating the Bootable Server Configuration Diskette with Network Software

Create a bootable server configuration diskette for booting the target server and loading the Microsoft Networking protocol stack by following the specific directions provided in this section for Windows NT 4.0 and Windows 2000. Loading the network protocol stack allows the target server to connect to a network share and to initiate the server deployment process across the network.

Creating the Server Profile Script Files

When using Ghost, the Toolkit utilities require a server profile consisting of three generated script files and a Ghost image file to fully configure the target server and deploy the operating system.

The required script files are:

- Hardware configuration script file generated by CONREP or CF_REP
- Array configuration script file generated by the ACR utility

NOTE: The partition configuration script file generated by the Disk Partition Creation utility is not necessary. Ghost duplicates the source system partition configuration, operating system, and other software on the target system.

Follow these steps to create the server profile:

1. Generate the required script files on the source server by following the specific directions provided in Chapters 2 or 3.

   The server profile files include:

   — *DL3802K.HWR*—Hardware configuration script file generated by CONREP or CF_REP

   — *DL3802K.ARY*—Array configuration script file generated by ACR

2. After the server profile script files are created and modified for the target server, generate the Ghost image file (*DL3802K.GHO*) of the partition information, the operating system, and other software duplicated on the target server.

Creating the Server Batch File

In this sample, Windows 2000 is being deployed on the target server.

In the case of network installations, the server batch file typically resides in the root directory of the shared network drive and launches the server deployment process.

IMPORTANT: To log the console feedback of the deployment process, redirect the console feedback of the executable files run by the server batch file to a log file.

To create the log file, use the DOS ">" redirection character followed by the destination log file name after the first executable file whose console feedback you want to log. If the file already exists, ">" replaces the file.

To append to an existing log, use the DOS ">>" redirection character followed by the destination log file name after the subsequent executable files whose console feedback you want to log.

For maximum configuration flexibility, the server batch file will execute the following steps:

1. Read a server state variable.
2. Check the error level returned by the server state variable and branch to the appropriate configuration process.
3. Run the commands in the configuration process and increase the server state variable, rebooting if necessary.
4. Repeat step 1 until the process is complete.

A typical server batch file that runs the Toolkit utilities and the configuration script files from a shared network location is similar to the following:

```
@echo off
cls

REM *** ----------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase

REM *** ----------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ----------------------------------------------------------
pause

REM *** ----------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ----------------------------------------------------------
if errorlevel 10 goto State10
if errorlevel 9 goto State9
if errorlevel 8 goto State8
if errorlevel 7 goto State7
if errorlevel 6 goto State6
if errorlevel 5 goto State5
if errorlevel 4 goto State4
if errorlevel 3 goto State3
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0

:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL3802K.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\dl380\dl3802k.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------
```

```
:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL3802K.ARY and stamping it onto the
REM *** array controllers of the target server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\dl380\dl3802k.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2

REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Create the necessary partitions on the target system's
REM *** hard drive  and copy the operating system
REM *** and other software onto the target server using Norton
REM *** Ghost with unattended parameters from the Ghost
REM *** documentation. The Norton Ghost image used is:
REM *** S:\SERVERS\DL380\DL3802K.GHO.
REM *** The system automatically reboots when the imaging is
REM *** complete.
REM *** ----------------------------------------------------------
echo Preparing to Image the System...
s:\cpq\statemgr /w Phase 3
s:\ghost\ghost.exe –
clone,mode=load,src=s:\servers\dl380\dl3802k.gho,
         dst=1 –rb –sure –quiet –fx


:State3
REM *** ----------------------------------------------------------
REM *** Second third state
REM *** Resets state variable to 3 to allow the operating system
REM *** on the target to reboot without removing the diskette
REM *** ----------------------------------------------------------
s:\cpq\statemgr /w Phase 3
echo The installation finishes after a reboot...

REM *** ----------------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ----------------------------------------------------------
s:\cpq\vflop /b:never /p:off

REM *** ----------------------------------------------------------
REM *** Reboot to drive C:
REM *** ----------------------------------------------------------
s:\cpq\reboot c:\
```

```
REM *** ------------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents may be placed
REM *** here
REM *** ------------------------------------------------------
:State4
:State5
:State6
:State7
:State8
:State9
:State10
```

Preparing the Network Software Repository

When creating the network software repository, an organized directory structure is critical.

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, refer to the terms of the software license agreement.

The following guidelines provide a means of creating, maintaining, and using the repository with the server batch file.

1. Create an account with read-only access to the software image files in the software repository.
2. Place only server batch files for each type of server in the root directory of the software repository. Because these files are server specific, they may also be placed in the subdirectories containing the server profiles.
3. Create a \GHOST subdirectory that contains all files required to run the Ghost program over a network connection.
4. Create a \CPQ subdirectory and copy all of the Toolkit utilities into the subdirectory.
5. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on.
6. Copy the two server profile script files from the server configuration diskette and the Ghost image file into each server profile subdirectory.
7. Create additional subdirectories to copy all other user-selected utilities and management agents available on SmartStart for Servers and Compaq Management.

IMPORTANT: When the directory structure of the network software repository is determined, ensure that the server batch file runs all programs and utilities correctly from the network location.

Deploying the Target Server

To begin a new server deployment over the network:

1. Insert the server configuration diskette into the target server.
2. Power up the target server and supervise the deployment process.

The target server boots from drive A and runs the *AUTOEXEC.BAT* file, which connects the target server to the network share then starts the server batch file. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

Network-Based Deployment Using Altiris RapiDeploy

This best practice scenario focuses on using the Toolkit utilities in conjunction with RapiDeploy images to deploy a target server over a network connection. In this case, a network server is configured with RapiDeploy software and Altiris Boot Disk Creator is used to create a bootable diskette.

RapiDeploy is a tool for creating and sending disk partition images to recreate or replicate configurations quickly. As with any imaging tool, disk images are not intended for use on hardware dissimilar from the hardware on which the image was captured. That is, an assumption should not be made that an image from a ProLiant ML330 will work on a ProLiant DL360.

This sample describes how to use the command line functionality of RapiDeploy with the Toolkit.

For a detailed explanation of the RapiDeploy command-line switches, refer to the "RapiDeploy Technical Reference" on the Altiris website at

www.altiris.com\support\documentation\index.asp

Creating the Server Configuration Diskette

If a bootable server configuration diskette is not already created, use the Altiris Boot Disk Creator to create the diskette. Ensure that the Network Boot Disk option is used so that the Bootwork program is not loaded as a hidden partition on the hard drive.

Creating a Disk Image

Because the disk image created contains all the partition sizes, structure, and contents, CPQDISK is not required to gather the partition configuration information. Instead, run the IBMASTER program to create the image.

Edit the *AUTOEXEC.BAT* file as shown in the following text In this sample, the RapiDeploy server is named **DEPLOY,** the share is named **ALTIRIS,** and the RapiDeploy images are stored on the DEPLOY server.

```
@echo off
cls

REM *** ----------------------------------------------------------
REM *** Insert the commands necessary to load the network stack
REM *** and connect to the S: drive (Toolkit share) here.
REM *** ----------------------------------------------------------

REM *** ----------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...

REM ***----------------------------------------------------------
REM *** Get the Array configuration data and save it to a file
REM ----------------------------------------------------------
S:\CPQ\ACR /C S:\DL380\DL380NT.ARY

REM *** ----------------------------------------------------------
REM *** Get the Hardware configuration data and save it to a file
REM *** ----------------------------------------------------------
S:\CPQ\CONREP /SH S:\DL380\DL380NT.HWR

REM *** ----------------------------------------------------------
REM *** Create the image using RapiDeploy
REM *** ----------------------------------------------------------
net use R: \\deploy\altiris /yes
R:
ibmaster –mu -fR:\DL380\DL380NT.IMG
s:\cpq\reboot C:
```

Deploying a Disk Image

Copying a disk image (which already has partition information) on the server does not require CPQDISK, SYSPART, or any other partition-related Toolkit utilities. After the system configuration and array configuration are set with CONREP (or CF_REP) and ACR, copy the image to the target server.

Edit the *AUTOEXEC.BAT* file as shown in the following text. In this sample, the RapiDeploy server is named **DEPLOY,** the share is named **ALTIRIS,** and the RapiDeploy images are stored on the DEPLOY server.

```
@echo off
cls

REM *** ----------------------------------------------------------
REM *** Insert the commands necessary to load the network stack
REM *** and connect to the S: drive (Toolkit share) here.
REM *** ----------------------------------------------------------

REM *** ----------------------------------------------------------
REM *** Ensure that the shared network directory is used and get
REM *** the current state
REM *** ----------------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase

REM *** ----------------------------------------------------------
REM *** Remove this initial pause when the batch file has been
REM *** full tested and debugged
REM *** ----------------------------------------------------------
pause

REM *** ----------------------------------------------------------
REM *** Establish DOS error levels and branching in declining
REM *** order
REM *** ----------------------------------------------------------
if errorlevel 2 goto State2
if errorlevel 1 goto State1
if errorlevel 0 goto State0

:State0
REM *** ----------------------------------------------------------
REM *** First state
REM *** Configure the target server hardware by reading the
REM *** configuration information in the script file
REM *** S:\SERVERS\DL380\DL380NT.HWR
REM *** Increase the state variable
REM *** ----------------------------------------------------------
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\dl380\dl380nt.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

REM *** ----------------------------------------------------------
REM *** No reboot is necessary
REM *** ----------------------------------------------------------
```

```
:State1
REM *** ----------------------------------------------------------
REM *** Second state
REM *** Configure the array controllers by reading the
REM *** configuration information
REM *** in the script file S:\SERVERS\DL380\DL380NT.ARY and
REM *** stamping it onto the array controllers of the target
REM *** server
REM *** Increase the state variable and reboot
REM *** ----------------------------------------------------------
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\dl380\dl380nt.ary /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2

REM *** ----------------------------------------------------------
REM *** Reboot to drive A:
REM *** ----------------------------------------------------------
s:\cpq\reboot a:

:State2
REM *** ----------------------------------------------------------
REM *** Third state
REM *** Land the RapiDeploy image file R:\DL380\DL380NT.IMG.
REM *** The image includes all partition information so creating
REM *** and formatting a partition is not necessary.
REM *** Reboot when done
REM *** ----------------------------------------------------------
echo Landing Disk image...
net use R: \\deploy\altiris /yes
R:
ibmaster –md –rc –rb -fR:\DL380\DL380NT.IMG

REM *** ----------------------------------------------------------
REM *** Reboot to drive C:
REM *** ----------------------------------------------------------
s:\cpq\reboot C:
```

NOTE: A significant portion of the typical Toolkit *AUTOEXEC.BAT* file is not required with RapiDeploy.

7

Deployment Using the Compaq Remote Insight Lights-Out Edition

This best practice scenario focuses on using the Toolkit with the latest version of the Compaq Remote Insight Lights-Out Edition (RILOE) firmware to deploy a target server remotely. For the latest firmware, visit the Compaq website at

www.compaq.com/manage/remote-lightsout.html

IMPORTANT: This procedure is to be used for Windows-based and NetWare-based deployments. The procedure cannot be used for Linux-based deployments.

The following RILOE features are used during the operating system installation process:

- Virtual Floppy Drive, to upload the server configuration diskette image to the remote server
- Reset Server, to force hardware-level remote server resets
- Remote Console, to remotely monitor the deployment process of the operating system
- Compaq RILOE DOS Utility (CPQLODOS)

Installation Prerequisites

Successful remote server deployment using the Toolkit and the Virtual Floppy Drive requires:

- A target server with a RILOE board (RIB) installed and accessible to the administrative console over an IP connection.

  NOTE: Refer to the RILOE documentation for information about correctly configuring the RIB.

- A network share available to the remote target server. During the installation process, the target server accesses the network share to obtain the operating system files and the Compaq drivers required to achieve full installation of the operating system.
- A DHCP server at the remote location so that the RIB can automatically obtain an IP address from the DHCP server.

  NOTE: If a DHCP server is not available at the remote location, the RIB can be configured to use a static IP address.

- An IP connection between the Web browser and the RIB.
- A remote target server and source server of an identical ProLiant brand with similar internal hardware.

Deployment Process Overview

The general deployment process includes:

1. Configuring the RIB on the target server by using CPQLODOS
2. Creating the bootable server configuration diskette with network software
3. Creating the server profile script files
4. Creating the server batch file
5. Creating the shared network drive

   NOTE: Steps 6 and 7 are described in more detail in the following sections.

6. Creating the bootable server configuration diskette image file for use with the Virtual Floppy Drive
7. Using the RIB to access the remote target server and launch the server deployment process using the Toolkit utilities

Because remote deployment with the RIB occurs over a network connection for steps 1 through 5, see the “Network-Based Deployment” section of any of the chapters specific to the operating system to be installed on the target server.

Configuring the RILOE Board on the Target Server Using CPQLODOS

For examples of CPQLODOS scripting, refer to the *Compaq Remote Insight Lights-Out Edition User Guide* on the Compaq website at

www.compaq.com/manage/remote-lightsout.html

Creating the Bootable Server Configuration Diskette Image File

When the bootable server configuration diskette with network software is ready, create a Virtual Floppy image file of the diskette using the Compaq Remote Insight Board (RIB) Diskette Image utility available on the Compaq website at

www.compaq.com/manage/lightsout-downloads.html

Unpack the Compaq Remote Insight Diskette Image utility download to a directory on the administrative console and run the file *CPQIMAGE.EXE.* A window similar to Figure 7-1 is displayed.

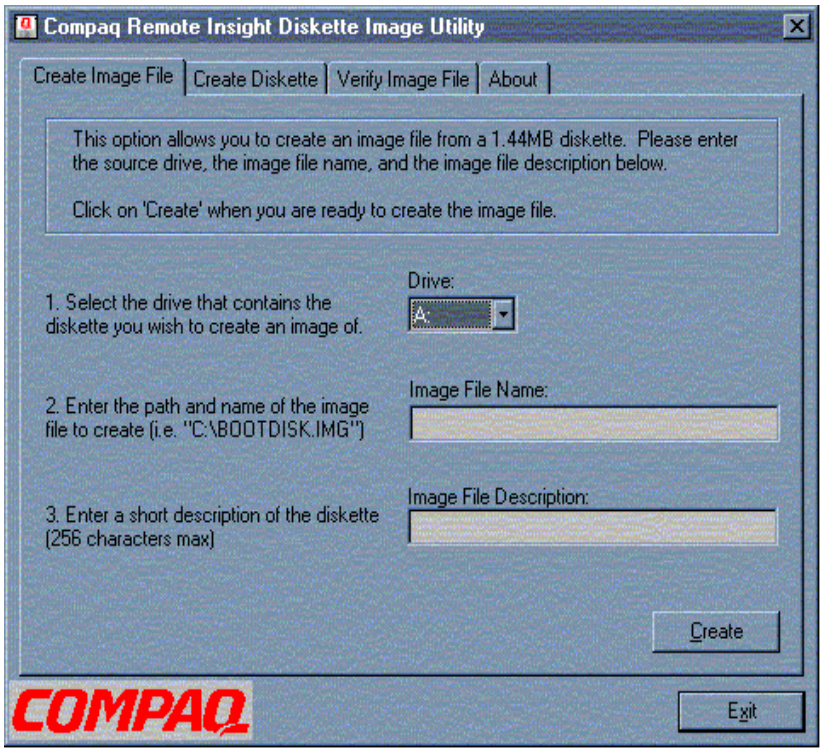

Figure 7-1: Compaq Remote Insight Diskette Image Utility main screen

Enter the necessary information in each field and save the diskette image on the system used to access the RIB. The diskette image is downloaded to the Virtual Floppy Drive of the remote server through a Web browser, and the image is used to start the server deployment process with the Toolkit utilities.

IMPORTANT: If present, remove the following line from the *CONFIG.SYS* file on the server configuration diskette:

DEVICE=EMM386.EXE

The Virtual Floppy Drive works correctly with an operating system that only accesses diskette drives through standard BIOS Interrupt 13 calls. The Virtual Floppy Drive is not compatible with protected-paging mode applications such as EMM386.

Using RILOE to Access and Deploy the Remote Server

Every RIB is preconfigured to use DHCP by default, with a preset user name, password, and domain name system (DNS) name. This configuration provides Web-enabled administrative functions on every board. A tag with the following preset values is attached to every board:

- User name: Administrator
- Password: The last four digits of the serial number
- DNS name: RIBxxxxxxxxxxxx where the 12 x's are the MAC address of the RIB

Perform the following steps to access the RIB using a Web browser:

IMPORTANT: If the RILOE board is already configured and the name and password are changed, use the new user name and password instead of the default information in the following steps.

1. Open any Web browser and enter the factory-preset DNS name of the RIB. For example, enter http://RIB00508BA33C7D in the address bar of the Web browser. If the name is not recognized, enter the IP address of the RIB.
2. Enter the factory-preset user name and password, then click **OK.**

   IMPORTANT: The user name and password are case-sensitive.

3. After the user name and password are verified, the RILOE summary home page and navigation frame open.
4. Scroll down the RIB navigation frame on the left side of the screen to locate the Virtual Floppy Drive section.
5. Click **Insert Virtual Floppy** and enter the name and path of the server configuration diskette image file that is uploaded to the Virtual Floppy Drive.
6. When the image file name and path are in the field, click **Insert Virtual Floppy** to begin uploading the image file to the Virtual Floppy Drive.
7. Select **Boot Always** on the **Virtual Floppy Status** screen and ensure that the Virtual Floppy Drive is not write protected.

8. Click Submit Changes.
9. Click **Reset Server** in the Power section in the RIB navigation frame.
10. Click **Reboot Server**, then click **Confirm** to reset the remote server. The remote server reboots and the **Remote Console** screen displays to the right of the RIB navigation frame.

When the remote server completes the reboot cycle, the remote target server boots from the Virtual Floppy Drive and runs the *AUTOEXEC.BAT* file, which then connects the target server to the network share, which then starts the server batch file in the root directory of the share. Control then passes to the server batch file and the Toolkit utilities run from the batch file.

NOTE: Deployment of the remote target server can be monitored and controlled through the RIB graphical Remote Console window.

The remote target server deployment configuration and operating system installation process is complete.

A

Creating a Network Boot Diskette with the Microsoft Network Client 3.0 for DOS

Introduction

When a Windows NT 4.0 Server system is unavailable for creating a network boot diskette for network-based Windows NT 4.0, Windows 2000, and Red Hat Linux 6.2 or 7.x deployments, this appendix provides alternate instructions for creating a basic network boot diskette using the Microsoft Network Client 3.0 files.

After the network boot diskette is created, additional files must be added to the diskette and modified to fully configure the diskette for use with the Toolkit. The network-based configuration sections for Windows NT 4.0, Windows 2000, and Red Hat Linux 6.2 or 7.x in this document provide the additional information required to fully configure the boot diskette.

IMPORTANT: For network-based NetWare 5.1 deployments, follow the instructions in the "Network Based Deployment" section in Chapter 4 of this guide.

NOTE: Configure the network boot diskette at a standard DOS 6.22 or 7.0 prompt. This procedure also works in Windows 95 or Windows 98 DOS emulation.

The Network Client 3.0 files are self-extracting executable files available on the Microsoft FTP website at

ftp.microsoft.com/bussys/clients/msclient

The file set consists of two files: *DSK3-1.EXE* and *DSK3-2.EXE*.

NOTE: These files can also be found on the Windows NT 4.0 Server CD in the \CLIENTS\MSCLIENT directory.

After the files are downloaded, copy each file to a standard 1.44-MB diskette and update the files with the latest NDIS2 drivers available on SmartStart for Servers 4.80 or later.

IMPORTANT: The Network Client 3.0 file set provides only a limited selection of network card drivers and must be updated to support new network cards.

NOTE: The *DSK3-1.EXE* and *DSK3-2.EXE* files may also be copied to separate subdirectories on a hard drive.

Updating the Network Client 3.0 Files

To add an updated NDIS2 driver to the Network Client 3.0 files:

1. Obtain and open the *SoftPaq*™ containing updated DOS NDIS2 drivers for your network card from the Compaq website:

   www.compaq.com/support

2. Open the *OEMSETUP.INF* file of the NDSI2 driver using any text editor.

3. Copy the information in the [netcard] section from the *OEMSETUP.INF* file to the [netcard] section of the *WCNET.INF* file on the first diskette of the Microsoft Network Client 3.0 set of diskettes.

For example, Figure A-1 and Figure A-2 show the information that is copied from the [netcard] section of the *OEMSETUP.INF* file to the [netcard] section of the *WCNET.INF* file for the Compaq Fast Ethernet NIC driver.

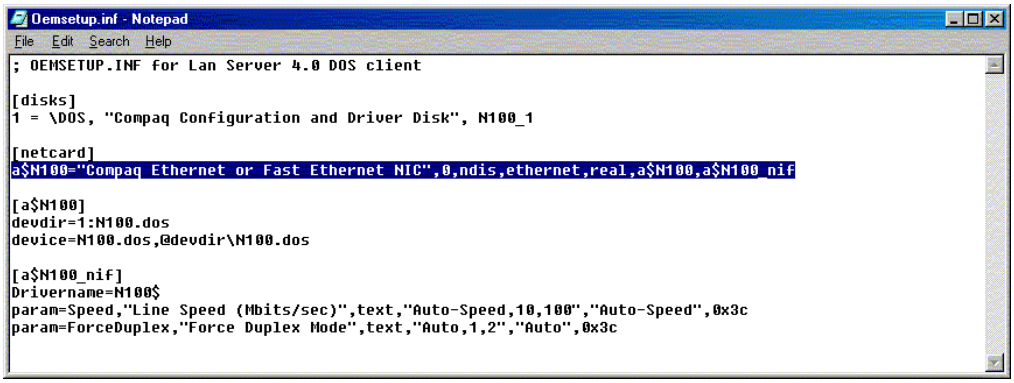

Figure A-1: [netcard] information in *OEMSETUP.INF*

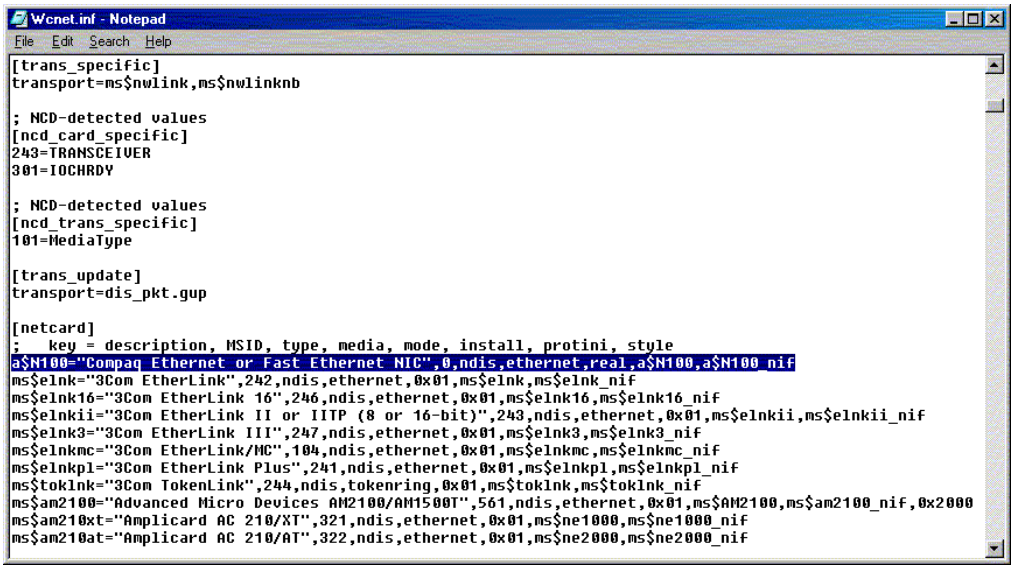

Figure A-2: [netcard] information in *WCNET.INF*

4. Append the NDIS2 driver header and NIF sections from the *OEMSETUP.INF* file to the end of the *WCNET.INF* file.

   For example, Figure A-3 and Figure A-4 show the information appended from the driver header and nif sections of the *OEMSETUP.INF* file to the *WCNET.INF* file for the Fast Ethernet NIC driver.

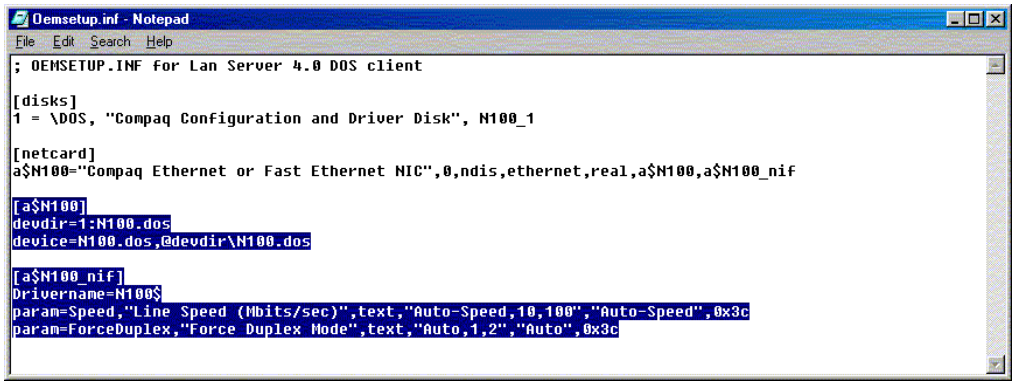

Figure A-3: Driver header and nif sections in *OEMSETUP.INF*

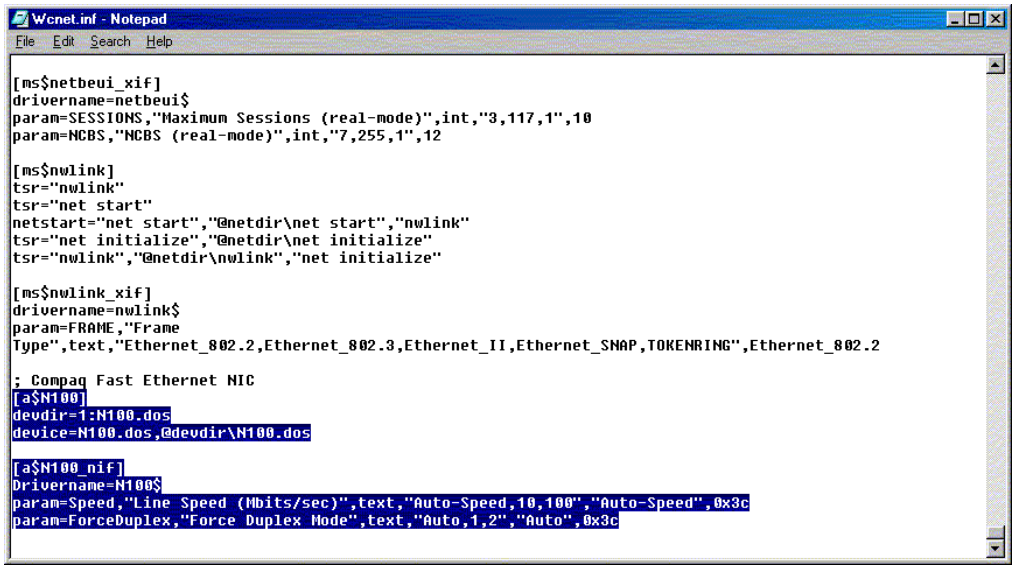

Figure A-4: Driver header and nif sections appended to *WCNET.INF*

5. Remove the devdir= and device= lines in the appended driver header section of the *WCNET.INF* file, then add the line `ndis2=1:Drivername.dos` in the driver header section as shown in Figure A-5, and save the *WCNET.INF* file.

   NOTE: *DRIVERNAME.DOS* is the DOS file name of the NDIS2 driver.

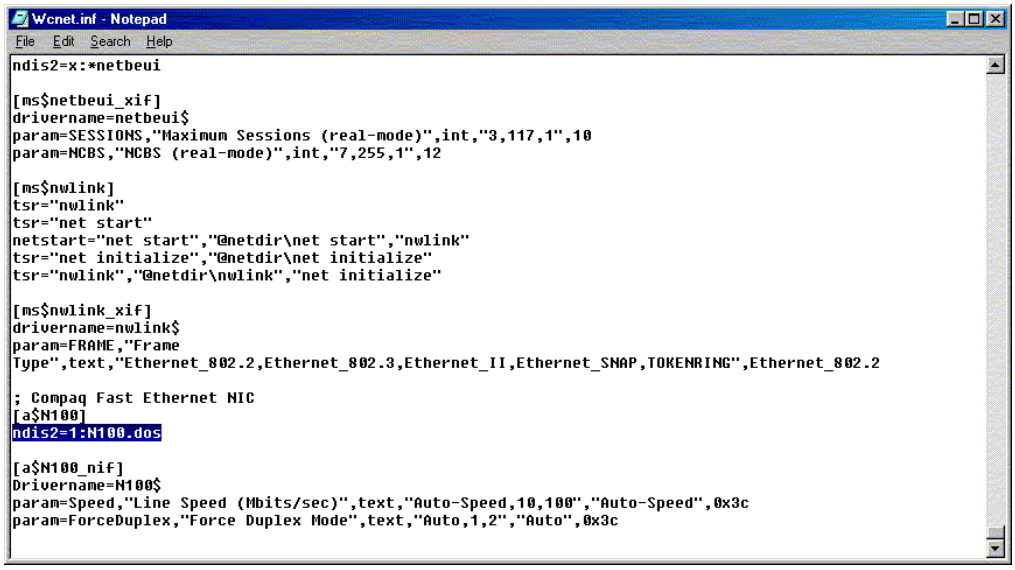

Figure A-5: NDIS2 DOS file name specified in the driver header section of *WCNET.INF*

6. Copy the NDIS2 driver and NIF files to the first diskette of the Network Client 3.0 set of diskettes. For example, for the Fast Ethernet NIC, copy the *N100.DOS* and *N100EDS.NIF* files to the first diskette of the Network Client 3.0 set of diskettes.

The Network Client 3.0 files are now updated with a new NDIS2 driver. The driver is an available option when the Network Client 3.0 setup program is started.

Creating a Network Boot Diskette

Perform the following steps after the Network Client 3.0 files are updated with the latest NDIS2 drivers to create a basic network boot diskette that uses TCP/IP as the network protocol:

IMPORTANT: Because the default Network Client 3.0 file selection does not fit entirely on a standard 1.44-MB diskette, this procedure uses the local hard drive of the system on which the procedure is run as temporary storage for the \NET directory, *AUTOEXEC.BAT,* and *CONFIG.SYS* files. If a \NET directory already exists on the local hard drive, ensure that it is temporarily renamed so that files in the existing subdirectory are not replaced.

Also, back up any existing *AUTOEXEC.BAT* and *CONFIG.SYS* files before starting this procedure so that the original *AUTOEXEC.BAT* and *CONFIG.SYS* files can be restored when this procedure is completed.

1. Format a standard 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the network boot diskette bootable.
2. Insert the first diskette of the Network Client 3.0 set of diskettes.
3. Change to the diskette drive and launch the setup file from the diskette drive by entering `SETUP` at the DOS prompt. A screen similar to Figure A-6 is displayed.

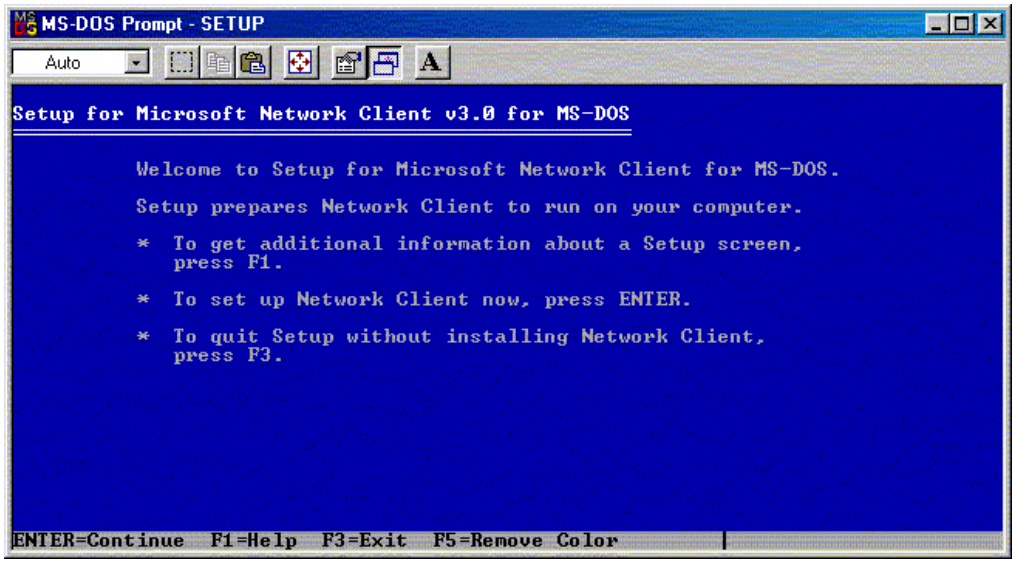

Figure A-6: Initial Network Client 3.0 installation screen

4. Press the **Enter** key to continue. A screen that indicates the default installation directory for network files is displayed, as shown in Figure A-7. The network files default installation directory is \NET on the local hard drive.

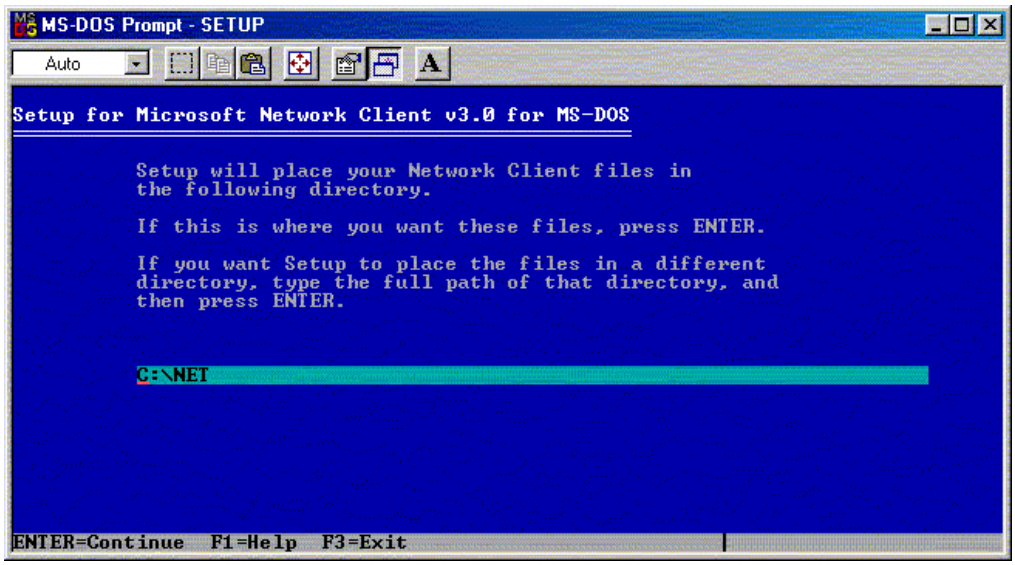

Figure A-7: Default installation directory for network files

5. Accept the default installation directory and press the **Enter** key to continue. The Network Client 3.0 determines the drivers that are available for installation and displays a selection screen similar to Figure A-8.

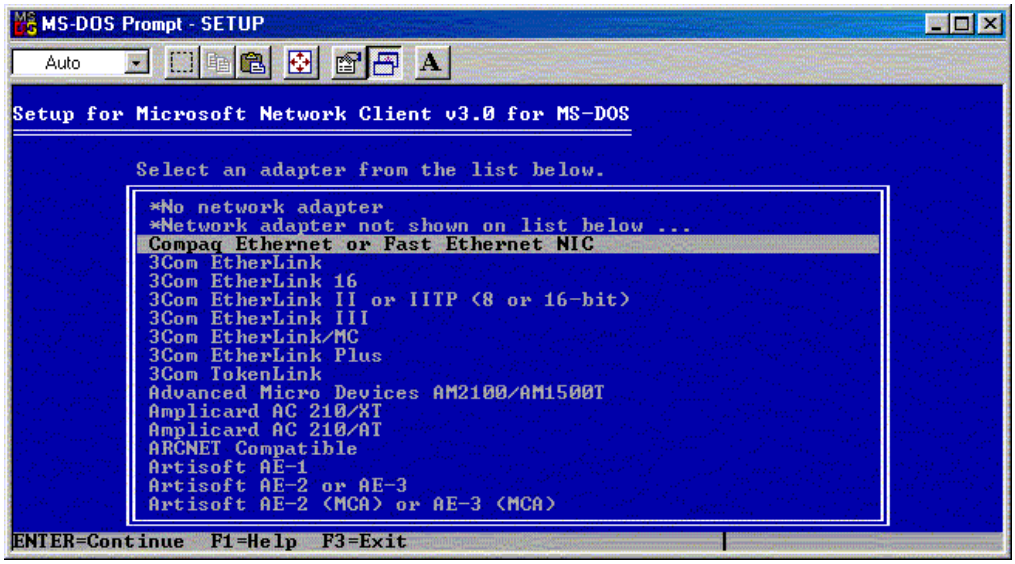

Figure A-8: Network adapter selection

6. Select the network driver that is appropriate for the system and press the **Enter** key to continue. A screen that sets network buffers is displayed.

7. Press the **Enter** key to set the network buffers for optimal performance. A screen similar to Figure A-9 is displayed and prompts for the network logon user name.

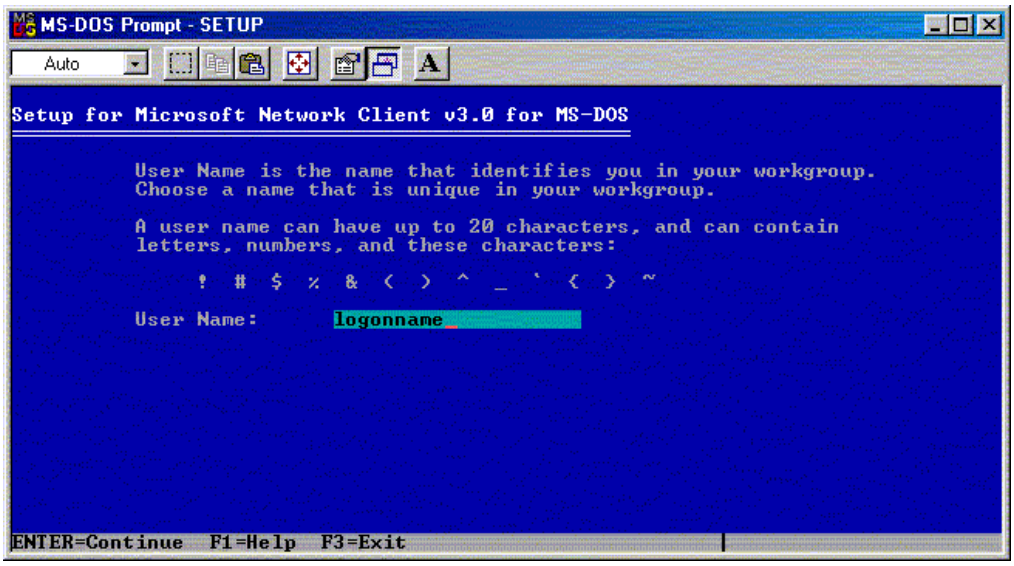

Figure A-9: User name specification

8. Enter the network logon user name. A screen similar to Figure A-10 displays the default Network Client 3.0 settings.

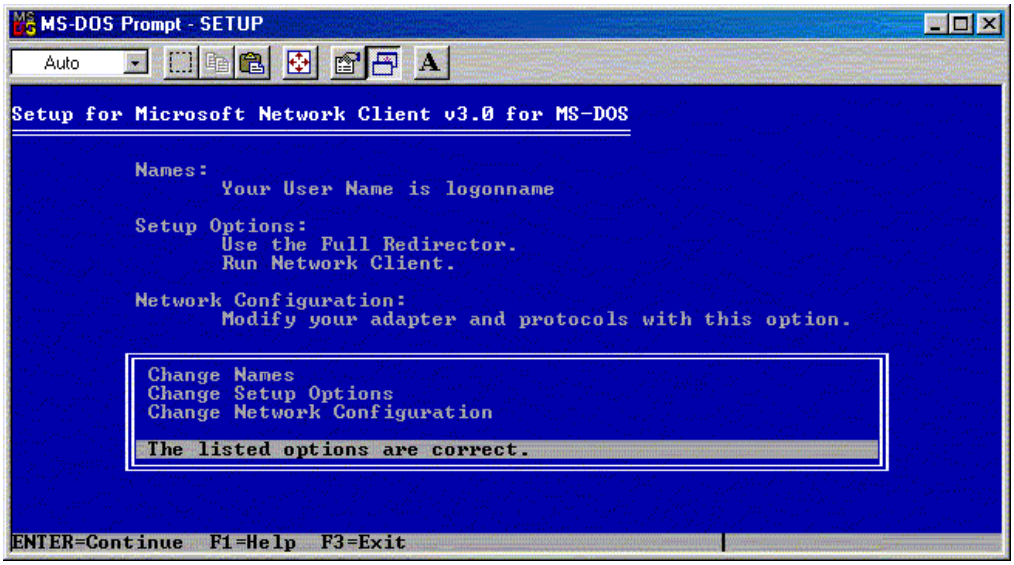

Figure A-10: Default Network Client 3.0 settings

9. Highlight **Change Network Configuration** and press the **Enter** key. A screen similar to Figure A-11 is displayed and shows the network protocols that are currently bound to the network driver.

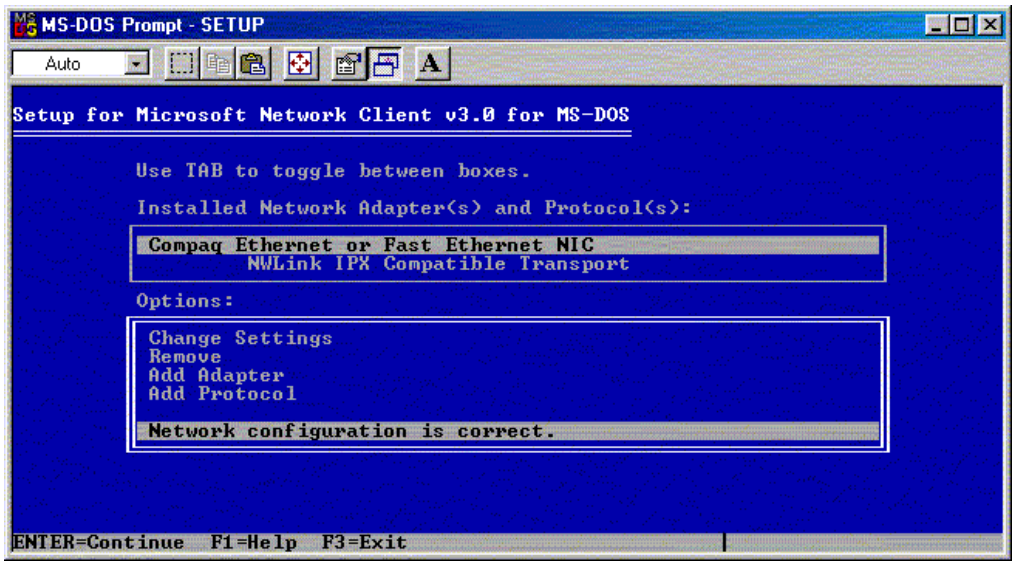

Figure A-11: Network protocols bound to the network driver

10. To add the TCP/IP protocol, select **Add Protocol,** then press the **Enter** key. A screen similar to Figure A-12 is displayed and shows all available network protocols.

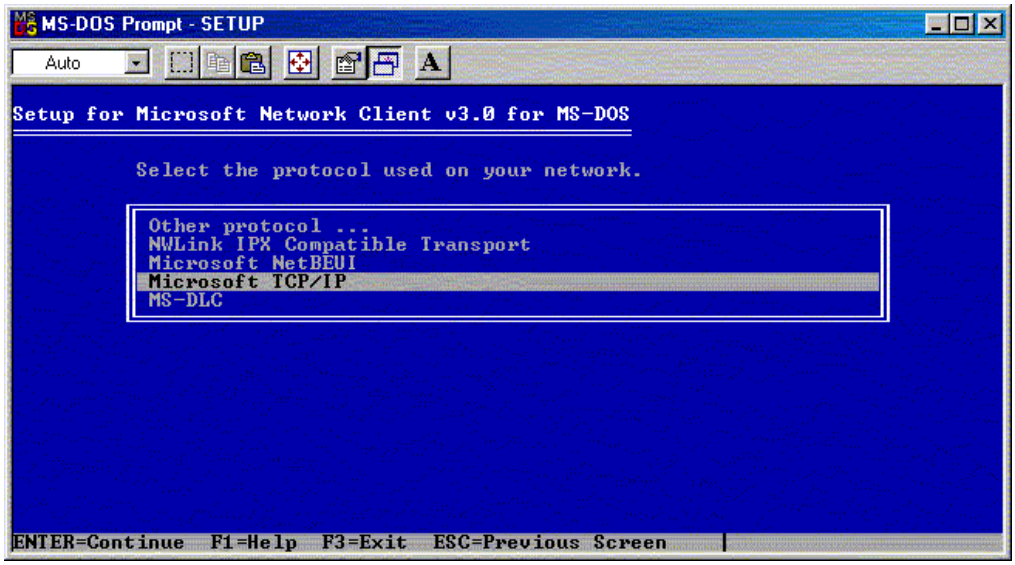

Figure A-12: Available network protocols

11. Highlight **Microsoft TCP/IP** and press the **Enter** key to add the protocol. A screen similar to Figure A-13 is displayed and shows the recently added protocol.

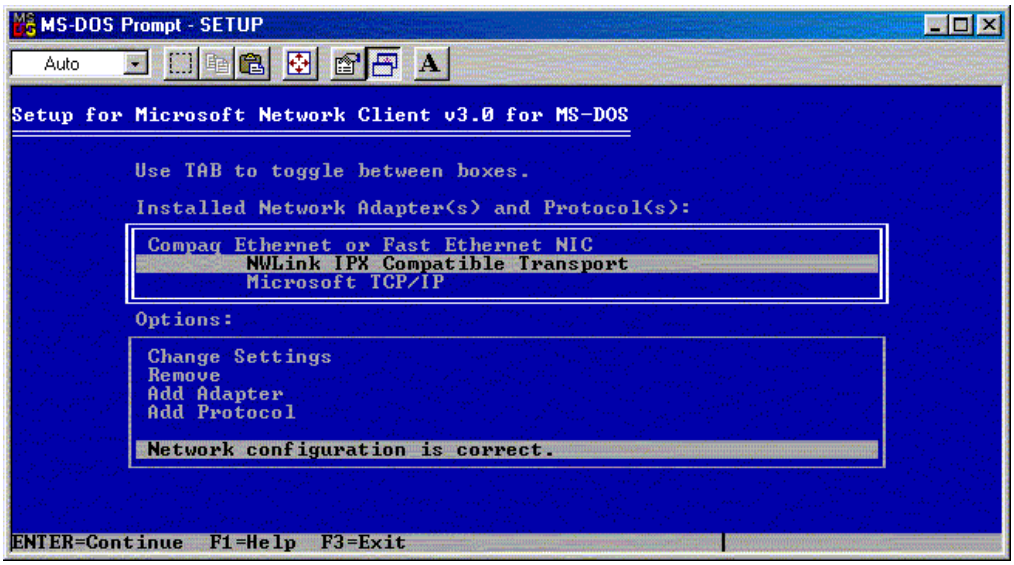

Figure A-13: Protocol adapter bindings

12. Perform the following to remove the NWLink IPX Compatible Transport protocol from the Installed Network Adapter(s) and Protocol(s) list:
    a. Press the **TAB** key to move the highlight from the Options list to the Installed Network Adapter(s) and Protocol(s) list.
    b. Highlight the **NWLink IPX Compatible Transport** protocol.
    c. Press the **TAB** key to move the highlight from the Installed Network Adapter(s) and Protocol(s) list to the Options list.
    d. Highlight **Remove** and press the **Enter** key.
13. If specific IP addresses must be assigned for network connectivity, modify the TCP/IP settings using the Change Settings option in the Options list. Follow the instructions on the screen that are displayed when this option is highlighted and the **Enter** key is pressed.
14. Otherwise, highlight **Network configuration is correct** and press the **Enter** key.

15. Press the **Enter** key again at the Network Client 3.0 settings screen (Figure A-10), and a prompt for the OEM Driver Disk is displayed, similar to Figure A-14.

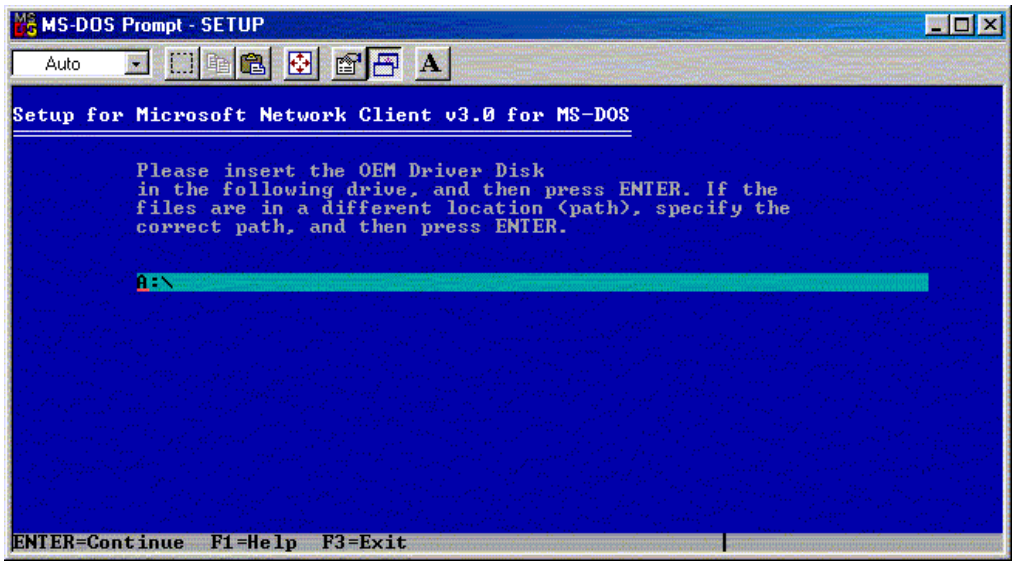

Figure A-14: Default location prompt for the OEM Driver Disk

16. Insert the second diskette of the Network Client 3.0 set of diskettes into the specified drive and press the **Enter** key. Required TCP/IP files are copied into the \NET subdirectory of the local hard drive and network drivers are configured. After all necessary files are copied, another screen prompts to insert the Network Client for MS-DOS Disk into the diskette drive.

17. Reinsert the first diskette and press the **Enter** key. A progress bar similar to Figure A-15 is displayed.

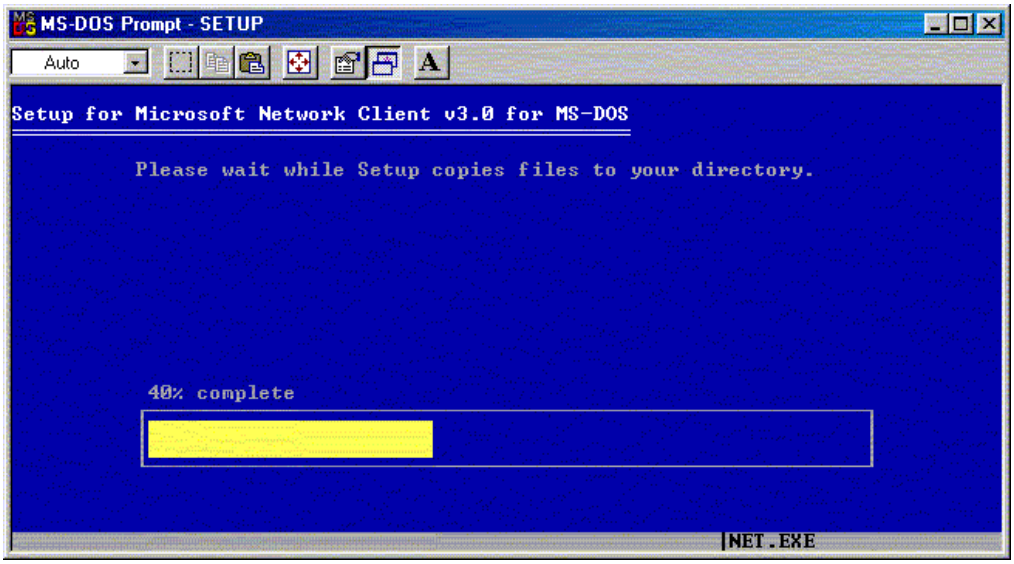

Figure A-15: File copy progress bar

18. Press the **F3** key to return to the DOS prompt after the file copy and configuration processes complete. A final status screen similar to Figure A-16 is displayed.

> **CAUTION:** Do not press the **Enter** key at this point. Configuration of the network boot diskette is not complete. Pressing the **Enter** key causes the system to reboot and use the newly created *AUTOEXEC.BAT* and *CONFIG.SYS* files, which can jeopardize system integrity.

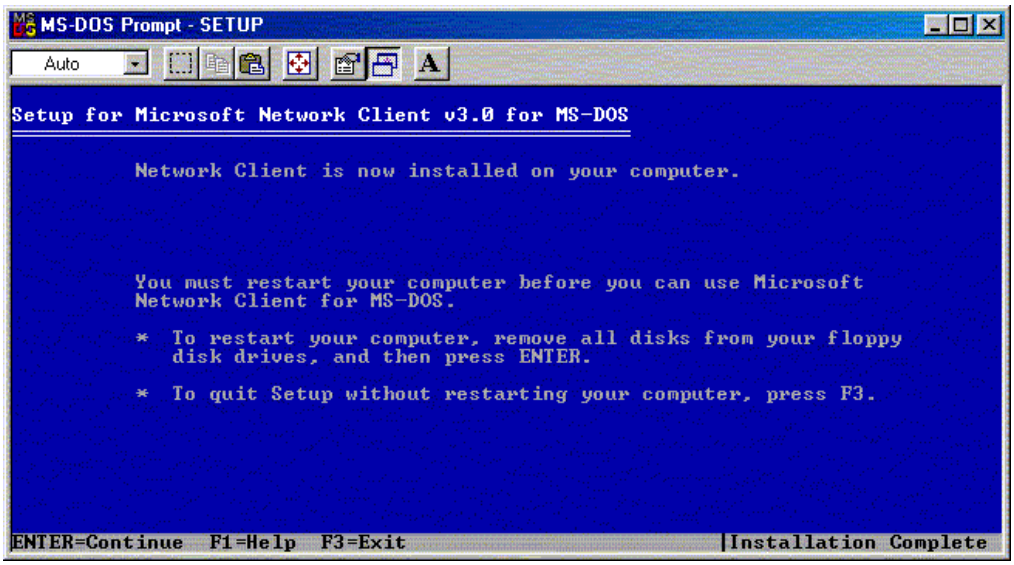

Figure A-16: Final Network Client 3.0 status screen

19. Insert the network boot diskette prepared in step 1 into the diskette drive.

20. Copy the *AUTOEXEC.BAT* and *CONFIG.SYS* files from the local hard drive root directory to the root directory of the network boot diskette.
21. Restore the *AUTOEXEC.BAT* and *CONFIG.SYS* files on the local hard drive with the previously made backup copies. If these two files are not required on the local hard drive, delete the files after they are copied to the root directory of the network boot diskette.
22. Create a \NET subdirectory on the network boot diskette and change to that subdirectory.
23. Copy the following files from the \NET subdirectory on the local hard drive to the \NET subdirectory on the network boot diskette.

    Required network files:

    EMSBFR.EXE
    IFSHLP.SYS
    LMHOSTS
    NEMM.DOS
    NET.EXE
    NET.MSG
    NETBIND.COM
    NETH.MSG
    NETWORKS
    NMTSR.EXE
    PROTMAN.DOS
    PROTMAN.EXE
    PROTOCOL
    PROTOCOL.INI
    SETUP.INF
    SYSTEM.INI
    TCPDRV.DOS
    TCPTSR.EXE
    TCPUTILS.INI
    TINYRFC.EXE
    UMB.COM
    WCSETUP.INF
    WFWSYS.CFG

    Required NDIS2 driver files and NIF files:

    N100.DOS
    N100EDS.NIF

    NOTE: Files with the NIF extension are obtained from the first diskette of the Network Client 3.0 set of diskettes or from the downloaded SoftPaq.

24. Delete the \NET subdirectory on the network boot subdirectory after all required files are copied from the \NET subdirectory on the local hard drive.
25. If a previously existing \NET subdirectory on the local hard drive was renamed, ensure that the subdirectory is renamed to its original name.

26. Open the *AUTOEXEC.BAT* file on the network boot diskette with any text editor, replace all instances of C:\NET\ with \NET\ and save the file. The final basic *AUTOEXEC.BAT* file should be similar to the following:

```
SET PATH=\NET
\NET\net initialize
\NET\netbind.com
\NET\umb.com
\NET\tcptsr.exe
\NET\tinyrfc.exe
\NET\nmtsr.exe
\NET\emsbfr.exe
\NET\net start
```

27. Open the *CONFIG.SYS* file on the network boot diskette with any text editor, replace all instances of C:\NET\ with \NET\ and save the file. The final basic *CONFIG.SYS* file should be similar to the following:

```
FILES=20
device=\NET\ifshlp.sys
LASTDRIVE=Z
```

28. Open the *SYSTEM.INI* file on the network boot diskette with any text editor, replace all instances of C:\NET\ with \NET\ and save the file. Depending on network options chosen during the configuration of the Network Client 3.0, the final basic *SYSTEM.INI* file may be similar to the following:

```
[network]
sizworkbuf=1498
filesharing=no
printsharing=no
autologon=yes
computername=LOGONNAME
lanroot=\NET
username=LOGONNAME
workgroup=WORKGROUP
reconnect=yes
dospophotkey=N
lmlogon=0
logondomain=WORKGROUP
preferredredir=BASIC
autostart=BASIC
maxconnections=8

[network drivers]
netcard=N100.dos
transport=tcpdrv.dos,nemm.dos
devdir=\NET
LoadRMDrivers=yes

[386enh]
TimerCriticalSection=5000
UniqueDosPSP=TRUE
PSPIncrement=2
```

The basic network boot diskette is now ready. However, additional operating system device files must be copied to the basic network boot diskette to allow the target system to access its storage and memory devices.

Common additional operating system files copied to the basic network boot diskette include:

HIMEM.SYS
RAMDRIVE.SYS
FWS2ASPI.SYS
CPQIDECD.SYS
FWS2CD.SYS
SETVER.EXE
MSCDEX.EXE
SMARTDRV.EXE

Complete the configuration of the network boot diskette for Windows NT 4.0, Windows 2000, and Red Hat Linux 6.2 or 7.x by editing the startup and configuration files on the diskette. For additional information, see the "Creating the Bootable Server Configuration Diskette with Network Software" section appropriate to each operating system in this document.

B

Flashing the Target Server ROM

Before deploying a target server, the ROM on the server can be flashed by adding the *ROMPaq*™ firmware upgrade to the system configuration diskette. Although not described in this document, similar scripts can be developed for array ROM flashing.

CAUTION: Using the ROMPaq firmware upgrade utility with the Toolkit can produce unexpected results, including data loss, if used incorrectly. Because of this risk, take all necessary precautions to ensure that mission-critical systems are not disrupted if a failure occurs.

This procedure is intended for use by network administrators with advanced skills in unattended and automated software installation methods. The procedure is not intended to be a one-stop solution for the complete line of server products supported by the Toolkit. Instead, the procedure is intended to illustrate steps generally required if ROMPaq and SmartStart Scripting technologies are combined. The procedure must be customized to fit your server environment.

IMPORTANT: Every ROMPaq download provides full instructions for upgrading system ROMs. ROMPaq instructions can be used independently of the Toolkit to upgrade target server system ROMs. Read all instructions provided with ROMPaq before starting system ROM upgrade procedures or before combining ROMPaq with the Toolkit.

ROMpaq Firmware Upgrade Procedure

Follow these steps to add the ROMPaq firmware upgrade to the system configuration diskette:

IMPORTANT: Use DOS 6.22 or 7.0 when creating the bootable system configuration diskette for Windows NT 4.0, Windows 2000 Server, Windows 2000 Advanced Server, and Red Hat Linux 6.2 or 7.x deployments. For NetWare 5.1 deployments, use Caldera DOS 7.02 or later.

1. Use the SmartStart for Servers Diskette Builder utility to create the ROMPaq diskette, then go to step 7. Otherwise, download the latest version of the system ROMPaq from the Compaq website at

   www.compaq.com/support/files

2. The ROMPaq files are bundled as a Compaq SoftPaq for system upgrade. Run the SoftPaq executable (for example, *SP12345.EXE*), which unbundles the ROMPaq files, and follow the on-screen instructions.
3. When prompted, place a formatted 1.44-MB diskette into the diskette drive to create the ROMPaq firmware upgrade diskette.

4. After creating the diskette, delete the SoftPaq file from the original directory.
5. Ensure that the upgrade diskette includes the *ROMPAQ.EXE* file for the firmware upgrade. If not, copy the file from the SmartStart for Servers CD in the SmartStart/ROMPAQ subdirectory.

   NOTE: If memory problems occur during the upgrade, copy and use the *ROMPAQP.EXE* file from the SmartStart/ROMPAQ subdirectory. *ROMPAQP.EXE* uses high and low memory when running a firmware upgrade.

6. Determine the system ROM image file to use in the server batch file:
   a. Refer to *Determining System ROM Family Code and Version* at

      www.compaq.com/support/files/server/softpaqs/Rompaq/ROMhowto.html

   b. Consult the *README.TXT* file on the ROMPaq firmware upgrade diskette for a list of ROM images on the upgrade diskette. For example, the *README.TXT* may display the following content:

Product Name	System ROM	Image Name
Compaq PrioLiant 8000	P41	CPQP4100.XXX
Compaq PrioLiant 8500	P42	CPQP4200.XXX

   NOTE: To find the image files, view the CPQSUPSW\ROMPAQ directory from the SmartStart for Servers CD (or from the network share or the custom CD if the directory structure is copied). The *NEWQERPQ.TXT* file in each ROMPAQ diskette subdirectory documents which servers or array controllers the diskette supports. For example, the *NEWQERPQ.TXT* file in the CPQSUPSW\ROMPAQ\SYS9 indicates that the diskette supports the ProLiant 8500, then the \SYRP9 subdirectory will always contain the latest image files for that server.

   c. Use the ROM family to determine which image file is required to upgrade the ROM. For example, if the ROM family of the target server is P42 and the available system ROM image files on the upgrade diskette are *CPQP4101.250* and *CPQP4201.250, CPQP4201.250* must be used in the server batch file.

7. Determine the ROMPaq CPU driver to use in the batch file. The ROMPaq CPU driver file name to use depends on whether the target server includes a redundant ROM, as shown in the following table. The correct ROMPaq CPU driver is on the upgrade diskette and should match the CPU driver on the network share or CD.

File Name	System ROM
CPQ15_06.CPU	Non-redundant ROM
CPQ150R6.CPU	Redundant ROM

NOTE: Refer to your server documentation to determine if your server includes redundant ROM.

8. Create the server batch file by following the instructions in the "Creating the Server Batch File" section of the appropriate chapter in the *Compaq SmartStart Scripting Toolkit User Guide.*
9. Ensure that the first state in the server batch file runs ROMPaq on the target server and reboots the system.

   The first state in the server batch file is similar to the following:

```
REM *** This script file is called from the AUTOEXEC.BAT file

:State0
REM *** ------------------------------------------------------
REM *** First state
REM *** Target is a Compaq ProLiant 8500 server, ROM family P42
REM *** with redundant ROM
REM *** Flash the target system ROM in unattended mode with the
REM *** driver file cpq1506r.cpu and system ROM file cpqp4201.250
REM *** Increase the state variable and force a cold reboot to
REM *** the A: drive
REM *** The file is the system ROM image file for Compaq ProLiant
REM *** 8500 servers
REM *** ------------------------------------------------------
s:\cpq\statemgr /w Phase 1
s:
cd \cpqsupsw\rompaq\sys9
rompaq /u cpq1506r.cpu cpqp4201.250
s:\cpq\Reboot A: /cold
```

IMPORTANT: The /u argument runs ROMPaq in unattended mode. The /u argument requires a correct CPU driver and system ROM image file string for the target server. When using a firmware upgrade diskette in the unattended mode, ROMPaq does not save a backup image of the original system ROM.

IMPORTANT: Power to the target server must be cycled before running any portion of the upgrade process. For successful deployments using the Toolkit, the target server must be booted from a fully configured server configuration diskette.

For complete descriptions of all the arguments recognized by ROMPaq, enter ROMPAQ /? at a command line prompt.

Index

D

E

F

O

P

Q

R

S

T

U

V

W