HP SmartStart Scripting Toolkit DOS Edition
Best Practices

January 2005 (Third Edition)
Part Number 365759-003

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Contents

Deployment Overview

In This Section

New Features in the Toolkit

For a complete list of new features in the SmartStart Scripting Toolkit DOS Edition, refer to the "What's New" section of the SmartStart website (http://www.hp.com/servers/sstoolkit).

Minimum Requirements

IMPORTANT: Before beginning the deployment process, be sure 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:

- *HP SmartStart Scripting Toolkit DOS Edition User Guide*
- SmartStart 6.00 or later (kit or CDs)
- Management CD 6.00 or later
- Network operating system software and documentation
- Bootable MS-DOS version 6.22 or 7.0 and documentation

IMPORTANT: Be sure 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 might create situations where there is not enough memory to execute the Toolkit utilities.

NOTE: For more information about basic DOS commands, refer to the DOS documentation.

Server Deployment Strategies

The best practices for the SmartStart Scripting Toolkit are operational procedures that help reduce errors by standardizing deployment procedures. These procedures include planning and designing the operating system deployment to minimize problems before they occur, organizing installation files into folders, editing and commenting the server batch file, and performing the deployment.

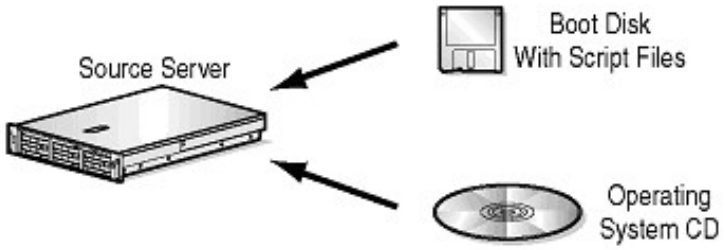
CAUTION: Because of the potential risk of data loss, take all necessary precautions to prevent mission-critical systems from being disrupted if a failure occurs.

All examples presented assume that the target servers are ProLiant ML, DL, or BL servers. The CONREP utility is used to build the hardware configuration script file for these servers.

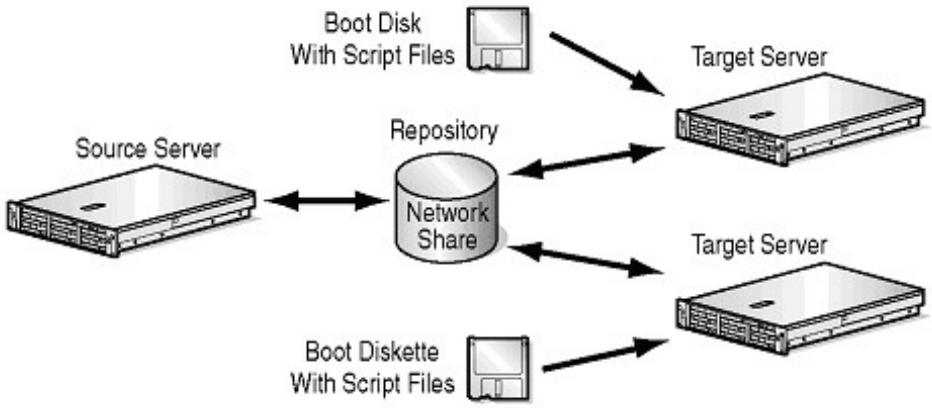
Each section provides examples of best practices for implementing the Toolkit utilities, along with the sample script files and server batch files that launch the server deployment by using a CD or across a network. The sample files are intended to illustrate the server configuration and operating system installation process. They are tested on specific server configurations and should not be used in a general sense. Using these examples without modifications for a specific environment will result in failed installations. The sample files described in this document are available in the /toolkit/samples directory that is created when you download and expand the Toolkit. For more information, refer to the Toolkit website (http://www.hp.com/servers/sstoolkit).

There are multiple ways to use the Toolkit utilities. The basic deployment strategies discussed in this guide are:

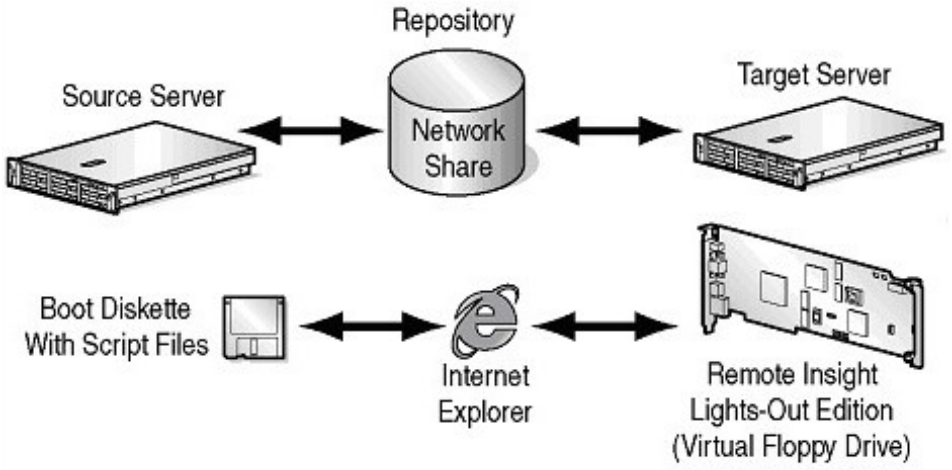
- **Scripted with local CD**



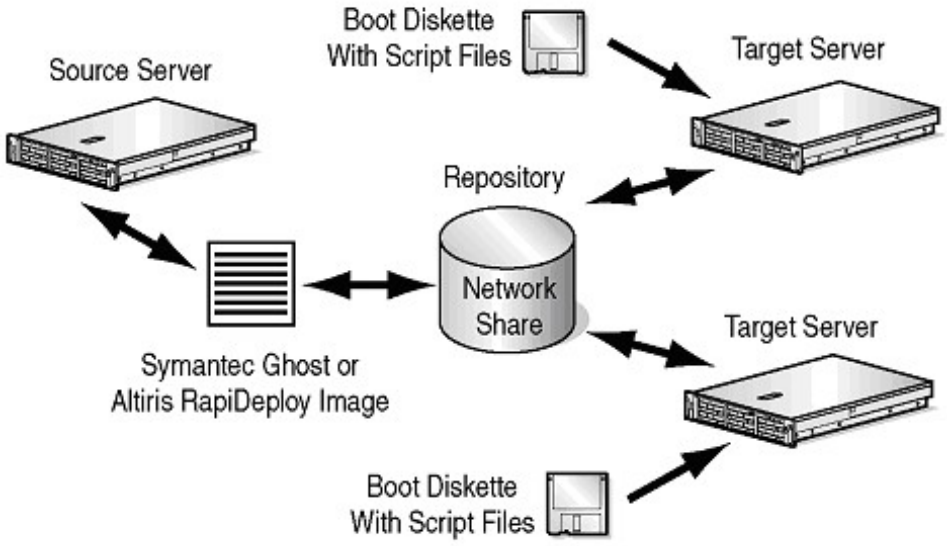
- **Scripted with network share**



- **Scripted with RILOE, virtual floppy drive, and network share**



- **Scripted with third party imaging software**



Microsoft Windows NT 4.0 Deployment

In This Section

Creating Windows NT Server Profile Scripts

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

Windows NT Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the primary script files on the source server:

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:\D
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

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).
2. Generate the array configuration script file for ProLiant servers with an ATA RAID controller, using the following command:

   ```
   HYPERCFG /S /L /F A:\DL380NT.CFG
   ```

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

Windows NT Unattended Installation Files

When the server profile script files are generated and modified for the target server, modify and save a copy of the script file on the server configuration diskette. 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. For an example of a typical file, refer to the "Windows NT 4.0 UNATTEND.TXT Sample File (on page 38)" section.

Using a standard text editor, edit the following three additional files for the Windows NT® 4.0 operating system unattended install.

1. Edit the \Toolkit\CPQNT4\OEM\C\CMD.TXT file to install and configure PSPs.

   PSPs require Microsoft® Internet Explorer 5.5 or later and Microsoft® XML Parser 3 or later.

   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 installer during the graphical portion of the operating system installation process.

   The CMD.TXT file is similar to the following:

   ```
   C:\cpqbfile.exe
   delfile C:\UNATTEND.TXT
   delfile C:\cpqbfile.exe
   deldir C:\NTCSP
   deldir C:\QUICKLCH
   deldir C:\DRIVERS
   deldir C:\i386
   ```

   GUICMD.EXE is located in the \COMPAQ\INSTALL\NT\POSTINST 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 does not run files with CMD or BAT extensions.
- GUICMD.EXE accepts the following internal commands in the Windows NT® 4.0 operating system:

```
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. Edit the \Toolkit\CPQNT4\OEM\CMDLINES.TXT file with the following text:

```
[Commands]
"attrib.exe -r c:\guicmd.exe"
"c:\guicmd.exe"
```

3. Edit the \Toolkit\CPQNT4\OEM\TXTSETUP.OEM file, adding all driver files required for text mode setup. The TXTSETUP.OEM file is similar to the following:

```
[Disks]
d1 = "CPQ CPQ CPQ32FS2",\,\
d2 = "CPQ CPQ CPQARRY2",\,\
d3 = "CPQ CPQ CPQARRAY",\,\
d4 = "CPQ CPQ CPQSMGRK",\,\
d5 = "CPQ CPQ ADPU160M",\,\
d6 = "CPQ CPQ CPQCISSM",\,\
d7 = "CPQ CPQ CSA64xx",\,\
d8 = "AMI MegaRAID IDE Driver",\,\

[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)"
cpqcissm = "Compaq Smart Array 53xx Controller"
csa64xx = "Compaq CMD 0649 Ultra DMA IDE Controller"
MegaIDE100_NT4C = "Integrated Ultra ATA-100 Dual Channel
Controller (Windows NT)"
MegaIDE100_NT4L = "Integrated Ultra ATA-100 IDE RAID
Controller (Windows NT)"

[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
```

```
[Files.scsi.cpqcissm]
driver = d6,cpqcissm.sys,cpqcissm
inf = d6,cpqcissm.inf

[Config.cpqcissm]
value = "",tag,REG_DWORD,103

[Files.scsi.csa64xx]
driver = d7,csa64xx.sys,csa64xx
inf = d7,cmdide.inf

[Config.csa64xx]
value = "",Type,REG_DWORD,1
value = "",Start,REG_DWORD,0
value = "",Group,REG_SZ,"SCSI miniport"
value = "",ErrorControl,REG_DWORD,0

[Files.scsi.MegaIDE100_NT4C]
driver  = d8,MegaIDE.sys,MegaIDE
inf = d8, MegaIDE.inf

[Config.MegaIDE]
value = "", Tag,REG_DWORD,1

[Files.scsi.MegaIDE100_NT4L]
driver  = d8,MegaIDE.sys,MegaIDE
inf = d8, MegaIDE.inf
```

Creating Windows NT Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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 ProLiant server with an embedded LSI 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.

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

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

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

```
@echo off
cls
echo [ SCRIPT FOR REMOTE INSTALL OF WINDOWS NT 4.0 ON
ML570G3 ]

s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase
REM *** Remove this initial pause when the batch file
REM *** has been fully tested and debugged
rem pause
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 *** Configure the target server hardware by reading
REM *** the configuration information in the script file
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\ML570G3\ML570G3.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

:State1
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file and
REM *** stamping it onto the array controllers of the
REM *** target server
echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\ML570G3\ML570G3.ary
REM *** ECHO Configuring the RAID Controllers...
REM *** Remove REM to configure RAID Controllers
REM *** s:\CPQ\hypercfg /s /l
/@s:\servers\ML570G3\ML570G3.cfg
echo Setting State Information...
```

```
s:\cpq\statemgr /w Phase 2
REM *** Reboot to A
s:\cpq\reboot A:

:State2
REM *** Create partition by reading content of the
REM *** script file and stamping the configuration onto
REM *** the hard drive in the target server
echo Creating Disk Partition...
s:\cpq\cpqdisk /w s:\servers\ML570G3\ML570G3.prt
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** Reboot to A
s:\cpq\reboot A:

:State3
REM *** Format the boot partition and populate
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:
REM *** Copy Microsoft Windows NT 4.0 operating system
REM *** files and OEM driver files from the CD to the
REM *** hard drive of the target server, creating
REM *** subdirectories as needed
echo Creating Driver Directory and Copying Drivers...
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 pause
REM *** Copy the customized UNATTEND.TXT file to the
REM *** root directory of the target server's hard drive
copy s:\servers\ML570G3\unattend.txt c:\
rem pause
echo Setting State Information...
s:\cpq\statemgr /w Phase 4

:State4
REM *** Copy operating system files to the boot
partition
echo Setting the state to allow diskette removal during
the installation of Windows NT
s:\cpq\statemgr /w Phase 5
echo Starting operating system installation...
REM *** Locking the target drive before running
WINNT.EXE
```

```
c:
cd \i386
echo Y | lock c:\ > nul
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
winnt /s:c:\i386 /u:c:\unattend.txt

:State5
REM *** Resets state variable to 5 to allow operating
system
REM *** reboot without removing the diskette
s:\cpq\statemgr /w Phase 5
echo The Windows NT installation will continue after the
reboot...
REM *** Turn off the Virtual Floppy
s:\cpq\vflop /b:never /p:off
REM *** Disable PXE
REM s:\cpq\pxeboot /disable
REM *** Reboot to drive C:
s:\cpq\reboot c:
REM *** Unused states
REM *** Installation of other utilities and agents may
be placed
REM *** here
:State10
:State9
:State8
:State7
:State6
```

Windows NT CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents

- Toolkit utilities
- Server profile script files arranged in folders

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.

Windows NT CD-based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for Windows NT (on page 23)
2. Creating Windows NT server profile scripts (on page 13)
3. Creating Windows NT server batch files (on page 18)
4. Creating the installation CD for Windows NT (on page 25)
5. Deploying the target server using Windows NT CD-based deployment (on page 29)

Creating a Bootable Server Configuration Diskette for Windows NT

Create a bootable server configuration diskette used to initiate the server deployment process.

To 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
REM *** the 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
```

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

3. Be sure 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 is similar to the following:

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

If the SYSTYPE utility is used to enable 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 drive caching program
smartdrv.exe /u/v
REM *** Switch to the CD drive and installation
REM *** directory
s:
cd \cpq

REM *** ------------------------------------------------
REM *** Start the scripted server deployment by
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the batch files in
REM *** subdirectories on the A: drive, the files can
REM *** be placed in any location accessible by the
REM *** 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:\dl580nt.bat
goto end

:DL380
call a:\dl380nt.bat
goto end

:ML530
call a:\ml530nt.bat
goto end

:ML350
call a:\ml350nt.bat
goto end

cd \
:end
```

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

Creating the Installation CD for Windows NT

Creating an installation CD for a 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 .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.

   IMPORTANT: 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`, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

   This example works in SmartStart 6.00.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=D:

REM Set NTFILES TO Microsoft NT 4.0 folder.
SET NTFILES=F:\NT4ss6

REM Set OEM TO $OEM$ files for Microsoft NT 4.0 OEM
REM driver files.
SET OEM=F:\NT4ss6\CPQNT4\$OEM$
SET SYSTEM32=%OEM%\$$\SYSTEM32
SET COMPAQ=%OEM%\C
SET NET=%OEM%\C\DRIVERS\NET
SET NTCSP=%OEM%\C\NTCSP\*.*
```

```
SET TEXTMODE=%OEM%\TEXTMODE

ECHO Updating Compaq Files: $OEM$
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\COMPAQ.BMP
%OEM%\COMPAQ.BMP /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\CMDLINES.TXT
%OEM%\CMDLINES.TXT /C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$$\SYSTEM32
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\NETOEMDH.I
NF %SYSTEM32%\NETOEMDH.INF /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\OEMNADZZ.I
NF %SYSTEM32%\OEMNADZZ.INF /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\MSNCDET.DL
L %SYSTEM32%\MSNCDET.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\NETSETUP.D
LL %SYSTEM32%\NETSETUP.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\TCPCFG.DLL
%SYSTEM32%\TCPCFG.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\FTDISK.SYS
%SYSTEM32%\FTDISK.SYS /C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\C
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\CMD.TXT
%COMPAQ%\CMD.TXT /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\GUICMD.EXE
%COMPAQ%\GUICMD.EXE /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\CPQBFILE.EXE
%COMPAQ%\CPQBFILE.EXE /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\C\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\NC_NICS\*.*
%NET%\NC_NICS\*.* /S /E /C /F /H /R /K
```

```
ECHO Updating Windows NT 4.0 NTCSP: $OEM$\C\NTCSP
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\ADPU160M\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQARRAY\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQARRY2\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQ32FS2\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQCISSM\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQCISSE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CMDIDE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\MEGAIDE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K

ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\TXTSETUP.OEM
%TEXTMODE%\TXTSETUP.OEM /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.
7. If using SYSTYPE to enable branching from the AUTOEXEC.BAT file, 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 the SmartStart and Management CDs.

When the directory structure of the installation CD is determined, be sure the server batch file runs all programs and utilities from the CD.

Deploying the Target Server Using Windows NT CD-Based Deployment

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.

Windows NT Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

Windows NT Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a Windows NT bootable server configuration diskette with network software (on page 30)
2. Creating Windows NT server profile scripts (on page 13)
3. Creating Windows NT server batch files (on page 18)
4. Preparing the Windows NT network software repository (on page 34)
5. Deploying the target server using Windows NT network-based deployment (on page 37)

Creating a Windows NT Bootable Server Configuration Diskette with Network Software

Using DOS version 6.22 or 7.0, 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 enables the target server to connect to a network share and initiate the server deployment process over the network.

> **NOTE:** Refer to "Creating a Network Boot Diskette (on page 241)" for an alternate procedure to create a basic network boot diskette using Microsoft Network Client 3.0 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. Be sure that the latest NIC drivers are available for the server on which the operating system will be installed. In this case, an Ethernet NIC is installed.
3. Using a Windows NT® 4.0 machine, start the Network Client Administrator tool and click **Make Network Installation Startup Disk.**

   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.
6. When prompted, supply the **Computer name, User name, Domain,** and **Network protocol.** This example assumes that both TCP/IP and 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 lines:

   ```
   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$
   ```

   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
    REM *** the 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
    ```

    Refer to the server documentation for information about which devices to load through the CONFIG.SYS file, depending on the server configuration.
11. Be sure 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 following lines:

```
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
smartdrv.exe /u /v

REM *** Login
REM *** Change to the \net subdirectory and load network
REM *** 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
REM *** the configuration batch file that resides in
REM *** the shared network directory
call s:\dl380nt.bat
```

If the SYSTYPE utility is used to enable 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
smartdrv.exe /u /v

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
REM *** determining the target system and calling the
REM *** server-specific 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:\dl380nt.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, which is 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 diskette.

Preparing the Windows NT 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 or 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 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 can also be placed in the subdirectories containing the server profiles.
3. Create an \I386 subdirectory and copy the contents of the operating system 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 HP .OEM extension operating system files and drivers 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 \CPQNT4\OEM subdirectories.

   IMPORTANT: 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, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

   This example works in SmartStart 6.00.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=D:

REM Set NTFILES TO Microsoft NT 4.0 folder.
SET NTFILES=F:\NT4ss6

REM Set OEM TO $OEM$ files for Microsoft NT 4.0 OEM
REM driver files.
SET OEM=F:\NT4ss6\CPQNT4\$OEM$
SET SYSTEM32=%OEM%\$$\SYSTEM32
SET COMPAQ=%OEM%\C
SET NET=%OEM%\C\DRIVERS\NET
SET NTCSP=%OEM%\C\NTCSP\*.*
SET TEXTMODE=%OEM%\TEXTMODE

ECHO Updating Compaq Files: $OEM$
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\COMPAQ.BMP
%OEM%\COMPAQ.BMP /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\CMDLINES.TXT
%OEM%\CMDLINES.TXT /C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$$\SYSTEM32
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\NETOEMDH.I
NF %SYSTEM32%\NETOEMDH.INF /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\OEMNADZZ.I
NF %SYSTEM32%\OEMNADZZ.INF /C /F /H /R /K
```

```
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\MSNCDET.DL
L %SYSTEM32%\MSNCDET.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\NETSETUP.D
LL %SYSTEM32%\NETSETUP.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\TCPCFG.DLL
%SYSTEM32%\TCPCFG.DLL /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\MICROSOFT\FTDISK.SYS
%SYSTEM32%\FTDISK.SYS /C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\C
ECHO F | XCOPY %SOURCE%\COMPAQ\INSTALLTXT
%COMPAQ%\CMD.TXT /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\POSTINST\GUICMD.EXE
%COMPAQ%\GUICMD.EXE /C /F /H /R /K
ECHO F | XCOPY
%SOURCE%\COMPAQ\INSTALL\NT\POSTINST\CPQBFILE.TXT
%COMPAQ%\CPQBFILE.TXT /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\C\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\NC_NICS\*.*
%NET%\NC_NICS\*.* /S /E /C /F /H /R /K

ECHO Updating Windows NT 4.0 NTCSP: $OEM$\C\NTCSP
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\ADPU160M\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQARRAY\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQARRY2\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQ32FS2\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQCISSM\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CPQCISSE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\CMDIDE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\MEGAIDE\*.*
%TEXTMODE%\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\NT\TXTSETUP.OEM
%TEXTMODE%\TXTSETUP.OEM /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.
8. 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.

   If using SYSTYPE to enable branching from the AUTOEXEC.BAT file, also copy the server-specific configuration batch file into each server subdirectory.
9. Create additional subdirectories to copy all other user-selected utilities and management agents available on the SmartStart and Management CDs.

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

Deploying the Target Server Using Windows NT Network-Based Deployment

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 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. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

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 *Deployment Resources Roadmap: A Guide to Deploying Windows NT® Server 4.0*, available on the Microsoft® website (http://www.microsoft.com/ntserver/techresources/deployment/NTserver/DeployRoadmap.asp).

UNATTEND.TXT example script:

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

[SelectedAdaptersSection]
   Q57NT4=OEMCardParameters,
   C:\i386\$OEM$\C\DRIVERS\NET\NC_NICS

[MassStorageDrivers]
   "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
   "Compaq CMD 0649 Ultra DMA IDE Controller"=OEM
   "Integrated Ultra ATA-100 Dual Channel Controller
   (Windows NT)"=OEM
   "Integrated Ultra ATA-100 IDE RAID Controller
   (Windows NT)"=OEM
```

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

[OEMBootFiles]
   cpqarry2.sys
   adpu160m.sys
   MegaIDE.sys
   cpqcissm.sys
   cpq32fs2.sys
   txtsetup.oem
   cpqarray.sys
   cpqsmgrk.sys
   csa64xx.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"

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

```
[Unattended]
   ConfirmHardware=no
   ExtendOemPartition=0
   FileSystem=ConvertNTFS
   KeyboardLayout="US"
   NoWaitAfterGUIMode=1
   NoWaitAfterTextMode=1
   NtUpgrade=no
   OemPreinstall=Yes
   OemSkipEula=Yes
   OverWriteOemFilesOnUpgrade=No
   TargetPath=WINNT
   UnattendMode=FullUnattended
   Win31Upgrade=no

[ServicesSection]
   SNMP=SNMPParamSection

[SNMPParamSection]
   Accept_CommunityName=public
   Send_Authentication=yes
   Any_Host=yes
   Service=Applications, Internet, EndToEnd

[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

[UserData]
   ComputerName="DL320G2"
   FullName="DL320G2"
   OrgName="HP"
   ProductId="XXX-XXXXXXX"
```

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

Microsoft Windows 2000 Deployment

In This Section

Creating Windows 2000 Server Profile Script Files

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

Windows 2000 Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the primary script files on the source server:

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:\DL3802K.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

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).

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

   HYPERCFG /S /L /F A:\DL3802K.CFG

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

3. Generate the NIC teaming script file. This is an optional step for the Windows® 2000 operating system.

Windows 2000 Unattended Installation Files

When the server profile script files are generated and modified for the target server, modify and save a copy of the script file on the server configuration diskette. 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. For an example of a typical file, refer to the "Windows 2000 UNATTEND.TXT Sample File (on page 72)" section.

Using a standard text editor, create the following three additional Toolkit files for the Windows® 2000 unattended install.

1. Edit the \Toolkit\CPQNT4\OEM\C\CMD.TXT file to install and configure PSPs.

   PSPs require Microsoft® Internet Explorer 5.5 or later and Microsoft® XML Parser 3 or later.

   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 installer during the graphical portion of the operating system installation process.

   The CMD.TXT file is similar to the following:

```
HP Installation Utility
Installing and configuring HP programs. Please
wait...
C:\ntcsp\setupc.exe /f /silent /use-latest /use-
location:c:\ntcsp
waitonprocess SETUP50.EXE 120
C:\CMSISU.EXE
C:\XMMZERO.EXE
C:\cpqbfile.exe
C:\CPQclean.cmd
delfile C:\CMSISU.EXE
delfile C:\UNATTEND.TXT
delfile C:\CMDLINES.TXT
```

```
delfile C:\cpqclean.cmd
delfile C:\cpqbfile.exe
delfile C:\CMDLINES.TXT
delfile C:\XMMZERO.EXE
deldir C:\NTCSP
deldir C:\$WIN_NT$.~bt
deldir C:\QUICKLCH
deldir C:\Drivers
deldir C:\$ldr$
deldir C:\$OEM$
deldir C:\txtsetup.OEM
deldir C:\$ldr$
deldir C:\txtsetup.sif
deldir C:\Compaq.bmp
C:\winnt\system32\rundll32.exe
setupapi,InstallHinfSection DefaultInstall 129
c:\reboot.inf
```

CMSISU.EXE is located in the \COMPAQ\INSTALL\W2K\POSTINST subdirectory on the SmartStart CD. 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

GUICMD.EXE is located in the \COMPAQ\INSTALL\NT\POSTINST 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 does not run files with CMD or BAT extensions.
- GUICMD.EXE accepts the following internal commands in the Windows® 2000 operating system:

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

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

2. Edit the \Toolkit\CPQW2K\OEM\CMDLINES.TXT file. The format of the CMDLINES.TXT file is similar to the following:

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

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

3. Edit the following files, adding all driver files required for text mode setup:

- \Toolkit\CPQW2K\OEM\TXTSETUP.OEM
- \Toolkit\CPQW2K\$OEM$\$1\$WIN_NT$.~LS\TXTSETUP.OEM
- \Toolkit\CPQW2K\$OEM$\$1\DRIVERS\\SCSI\TXTSETUP.OEM

The TXTSETUP.OEM file is similar to the following text:

```
############################################################
#This txtsetup.oem file can be used for unattended
#installs of Windows 2000 only.
############################################################
[Disks]
d1 = "Compaq Smart Array Controllers Driver for Windows
2000",.\disk1,.
d4 = "Adaptec Ultra160 Family Manager Set (Win
2000)",.\disk4,.
d5 = "Smart Array 5x and 6x Driver Diskette",.\disk5,.
d6 = "AMI MegaRAID IDE Driver",.\disk6,.
d7 = "LSI Logic Ultra320 1020/1030 Driver",.\disk7,.
d8 = "LSI CSB-6 Ultra ATA-100 Driver",.\disk8,.

[Defaults]
SCSI = cpq32fs2_000A

[SCSI]
cpqarry2 = "Compaq Smart Array Controllers"
adpu160m = "Adaptec Ultra160 Family Manager Set"
```

```
B060 = "Smart Array 5300 Controller"
B178 = "Smart Array 5i, 532, 5312 Controllers"
0046 = "Smart Array 6i, 641, 642, 6400 EM, 6400
Controllers"
MegaIDE100_NT5C = "Integrated Ultra ATA-100 Dual Channel
Controller (Windows 2000)"
MegaIDE100_NT5L = "Integrated Ultra ATA-100 IDE RAID
Controller (Windows 2000)"
SYMMPI_2K    = "LSI Logic Ultra320 1020/1030 Driver
(Windows 2000)"
MegaIDE100 = "CSB-6 Ultra ATA-100 IDE RAID Controller
(Windows 2000)"

[Files.SCSI.cpqarry2]
driver = d1,cpqarry2.sys,cpqarry2
inf    = d1,cpqarry2.inf
catalog = d1,cpqarry2.cat

[Files.scsi.adpu160m]
driver = d4,adpu160m.sys, aic7899
inf    = d4,adpu160m.inf
catalog = d4,adpu160m.cat

[Files.scsi.B060]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.B178]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.0046]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.MegaIDE100_NT5C]
driver  = d1, MegaIDE.sys, MegaIDE
inf     = d1, MegaIDE.inf
catalog = d1, Mega2k.cat

[Files.scsi.MegaIDE100_NT5L]
```

```
driver  = d1, MegaIDE.sys, MegaIDE
inf     = d1, MegaIDE.inf
catalog = d1, Mega2k.cat

[Files.scsi.SYMMPI_2K]
driver = d7,symmpi.sys,SYMMPI
inf    = d7,symmpi.inf
catalog = d7,symmpi2k.cat

[Files.scsi.MegaIDE100]
driver  = d8, LsiCsb6.sys, LSICSB6
inf     = d8, LsiCsb6.inf
inf     = d8, NODEV.inf
catalog = d8, Csb6W2K.cat

[Config.cpqarry2]
value = "",tag,REG_DWORD,102
value = Parameters\Device,NumberOfRequests,REG_DWORD,80
value = Parameters\PnpInterface,5,REG_DWORD,1

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

[Config.cpqcissm]
value = "",tag,REG_DWORD,103
value = Parameters\PnpInterface,5,REG_DWORD,1
value = Parameters\Device,NumberOfRequests,REG_DWORD,80

[Config.MegaIDE]
value = "", Tag, REG_DWORD, 1

[Config.SYMMPI]
value = Parameters,dummy,REG_DWORD,0
value = Parameters\PnpInterface,5,REG_DWORD,1

[Config.LSICSB6]
value = "", Tag, REG_DWORD, 1

[HardwareIds.scsi.cpq32fs2_000A]
id = "PCI\VEN_1000&DEV_000A","cpq32fs2"

[HardwareIds.scsi.cpq32fs2_0012]
id = "PCI\VEN_1000&DEV_0012","cpq32fs2"
```

```
[HardwareIds.scsi.cpqarry2]
id = "PCI\VEN_1000&DEV_0010&SUBSYS_40400E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40500E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40510E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40580E11","cpqarry2"

[HardwareIds.scsi.adpu160m]
id = "PCI\VEN_9005&DEV_00C0","adpu160m"
id = "PCI\VEN_9005&DEV_0080","adpu160m"

[HardwareIds.scsi.B060]
id = "PCI\VEN_0E11&DEV_B060","cpqcissm"

[HardwareIds.scsi.B178]
id = "PCI\VEN_0E11&DEV_B178","cpqcissm"

[HardwareIds.scsi.0046]
id = "PCI\VEN_0E11&DEV_0046","cpqcissm"

[HardwareIds.scsi.MegaIDE100_NT5C]
id="PCI\VEN_1095&DEV_0649&SUBSYS_005D0E11", "MegaIDE"

[HardwareIds.scsi.MegaIDE100_NT5L]
id="PCI\VEN_1095&DEV_0649&SUBSYS_007E0E11", "MegaIDE"

[HardwareIds.scsi.SYMMPI_2K]
id = "PCI\VEN_1000&DEV_0030", "symmpi"

[HardwareIds.scsi.MegaIDE100]
id="PCI\VEN_1166&DEV_0213&SUBSYS_00E80E11", "LSICSB6"
```

Creating Windows 2000 Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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 ProLiant server with an embedded LSI 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 executes these steps:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

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

```
@echo off
cls
echo [ SCRIPT FOR REMOTE INSTALL OF WIN2K ON ML570G3 ]

s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase
REM *** Remove this initial pause when the batch file
REM *** has been fully tested and debugged
pause
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 *** Configure the target server hardware by reading
REM *** the configuration information in the script file

echo Running Configuration Replication Utility...
s:\cpq\conrep -l a:\ml570g3.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

:State1
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file and
REM *** stamping it onto the array controllers of the
REM *** target server

echo Configuring the Array Controllers...
s:\cpq\acr /i a:\ml570g3.ary
```

```
REM *** ECHO Configuring the RAID Controllers...
REM *** Remove REM to configure RAID Controllers
REM *** s:\CPQ\hypercfg /s /l /@a:\ML330G3.cfg
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** Reboot to A:
s:\cpq\reboot A:

:State2
REM *** Create partition by reading content of the
REM *** script file and stamping the configuration
REM *** onto the hard drive in the target server
echo Creating Disk Partition...
s:\cpq\cpqdisk /w a:\ml570g3.prt
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** Reboot to A:
s:\cpq\reboot A:

State3
REM *** Format the boot partition and populate
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:
REM *** Copy OEM driver files from the CD to the
REM *** hard drive of the target server, creating
REM *** subdirectories as needed
echo Creating Driver Directory and Copying Drivers...
s:
s:\cpq\filecopy /s:s:\cpqw2k\$oem$ /d:c:\$oem$ /s /e
/f:*.*

REM *** Copy the customized UNATTEND.TXT file from the
REM *** system configuration diskette to the root
directory
REM *** of the target server's hard drive
copy a:\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 4

:State4
REM *** Copy operating system files to the boot
REM *** partition
echo Setting the state to allow diskette removal during
the installation of Windows 2000
```

```
s:\cpq\statemgr /w Phase 5
echo Starting operating system installation...
s:
cd \i386
REM *** Start installation of the operating system using
REM *** the unattended installation instructions from
the
REM *** C:\UNATTEND.TXT file
winnt /s:s:\i386 /u:c:\unattend.txt

:State5
REM *** Resets state variable to 5 to allow operating
REM *** system reboot without removing the diskette
s:\cpq\statemgr /w Phase 5
echo The Windows 2000 installation will continue after
the reboot...
REM *** Turn off the Virtual Floppy
s:\cpq\vflop /b:never /p:off
REM *** Disable PXEBoot
s:\cpq\PXEBoot /disable
REM *** Reboot to drive C:
s:\cpq\reboot c:
REM *** Unused states
REM *** Installation of other utilities and agents may
REM *** be placed here

:State10
:State9
:State8
:State7
:State6
```

Windows 2000 CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents
- Toolkit utilities

- Server profile script files arranged in folders
- 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.

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.

Windows 2000 CD-based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for Windows 2000 (on page 55)
2. Creating Windows 2000 server profile script files (on page 43)
3. Creating Windows 2000 server batch files (on page 50)
4. Creating the installation CD for Windows 2000 (on page 58)
5. Deploying the target server using Windows 2000 CD-based deployment (on page 62)

Creating a Bootable Server Configuration Diskette for Windows 2000

Create a bootable server configuration diskette used to initiate the server deployment process.

To 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
REM *** the 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
```

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

3. Be sure 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 is similar to the following:

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

If the SYSTYPE utility is used to enable 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 drive caching program
smartdrv.exe /u/v
REM *** Switch to the CD drive and installation
REM *** directory
s:
cd \cpq

REM *** ------------------------------------------------
REM *** Start the scripted server deployment by
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the batch files in
REM *** subdirectories on the A: drive, the files can
```

```
REM *** be placed in any location accessible by the
REM *** 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:\dl580nt.bat
goto end

:DL380
call a:\dl380nt.bat
goto end

:ML530
call a:\ml530nt.bat
goto end

:ML350
call a:\ml350nt.bat
goto end

cd \
:end
```

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

Creating the Installation CD for Windows 2000

Creating an installation CD for a 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® 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 .OEM extension operating system files and drivers into the appropriate subdirectories.
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 \CPQW2K\OEM subdirectories:

   > **IMPORTANT:** 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`, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=E:
SET OEM=D:\WIN2KREP\CPQW2K\$OEM$
SET TEXTMODE=%OEM%\TEXTMODE\*.*
SET SCSI=%OEM%\$1\DRIVERS\SCSI\*.*
SET NET=%OEM%\$1\DRIVERS\NET\*.*
```

```
SET NTCSP=%OEM%\$1\NTCSP\*.*

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\ADPU160M\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQ32FS2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRAY\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRY2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\MEGAIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\LSICSB6\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\SYMMPI\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\TXTSETUP.OEM
%TEXTMODE% /C /F /H /R /K

ECHO Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\ADPU160M\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQ32FS2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRAY\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRY2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\MEGAIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%SCSI% /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\LSICSB6\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\SYMMPI\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\TXTSETUP.OEM
%SCSI% /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\$1\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\INT100\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\INT1000\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\Q57W2K\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\NETFLX3\*.*
%NET% /S /E /C /F /H /R /K

ECHO Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$1
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2KM.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2KFS2\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2KOEM
%OEM%\$1\$WIN_NT$.~LS\TXTSETUP.OEM /C /F /H /R /K
```

```
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALLK\POSTINST\QUICKLCH\*.*
%OEM%\$1\QUICKLCH\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CMSISU.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CPQBFILE.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\GUICMD.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\REBOOT.INF
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CPQCLEAN.CMD
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CMDLINES.TXT %OEM%\
/C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\POSTINSTBMP
%OEM%\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\MSDOS\DOSFILES\XMMZERO.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\CMD.TXT
%OEM%\$1\ /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.

CPQBFILE.EXE is located in the SmartStart \COMPAQ\INSTALL\W2K\POSTINST subdirectory. The command removes the Windows® boot option from the Windows® 2000 BOOT.INI file.

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.

If using SYSTYPE 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 the SmartStart and Management CDs.

   When the directory structure of the installation CD is determined, be sure the server batch file runs all programs and utilities from the CD.

Deploying the Target Server Using Windows 2000 CD-Based Deployment

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.

Windows 2000 Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

Windows 2000 Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a Windows 2000 bootable server configuration diskette with network software (on page 63)
2. Creating Windows 2000 server profile script files (on page 43)
3. Creating Windows 2000 server batch files (on page 50)
4. Preparing the Windows 2000 network software repository (on page 67)
5. Deploying the target server using Windows 2000 network-based deployment (on page 71)

Creating a Windows 2000 Bootable Server Configuration Diskette with Network Software

Using DOS version 6.22 or 7.0, 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 enables the target server to connect to a network share and initiate the server deployment process over the network.

> **NOTE:** Refer to "Creating a Network Boot Diskette (on page 241)" for an alternate procedure to create a basic network boot diskette using Microsoft Network Client 3.0 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. Be sure that the latest NIC drivers are available for the server on which the operating system will be installed. In this case, an Ethernet NIC is installed.
3. Using a Windows® 2000 machine, start the Network Client Administrator tool and click **Make Network Installation Startup Disk.**

   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.

6. When prompted, supply the **Computer name, User name, Domain,** and **Network protocol.** This example assumes that both TCP/IP and 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 lines:

   ```
   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$
   ```

   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
    REM *** the 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
    ```

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

11. Be sure 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 following lines:

```
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
smartdrv.exe /u /v

REM *** Login
REM *** Change to the \net subdirectory and load network
REM *** 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
REM *** the configuration batch file that resides in the
REM *** shared 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
smartdrv.exe /u /v

REM *** Login
REM *** Change to the \net subdirectory and load network
REM *** 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
REM *** determining the target system and calling
REM *** the appropriate server 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:\dl5802k.bat
goto end

:DL380
call s:\dl3802k.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, which is 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 diskette.

Preparing the Windows 2000 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 or 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 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 can also be placed in the subdirectories containing the server profiles.
3. Create an \I386 subdirectory and copy the contents of the operating system 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 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 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, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=E:
SET OEM=D:\WIN2KREP\CPQW2K\$OEM$
SET TEXTMODE=%OEM%\TEXTMODE\*.*
SET SCSI=%OEM%\$1\DRIVERS\SCSI\*.*
SET NET=%OEM%\$1\DRIVERS\NET\*.*
SET NTCSP=%OEM%\$1\NTCSP\*.*

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\ADPU160M\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQ32FS2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRAY\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRY2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\MEGAIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\LSICSB6\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\SYMMPI\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\TXTSETUP.OEM
%TEXTMODE% /C /F /H /R /K
```

```
ECHO Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\ADPU160M\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQ32FS2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRAY\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQARRY2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\MEGAIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\LSICSB6\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\SYMMPI\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\TXTSETUP.OEM
%SCSI% /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\$1\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\INT100\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\INT1000\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\Q57W2K\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\NETFLX3\*.*
%NET% /S /E /C /F /H /R /K

ECHO Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$1
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CMDIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2KM.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2KFS2\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\W2K\CPQCISSM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2KOEM
%OEM%\$1\$WIN_NT$.~LS\TXTSETUP.OEM /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALLK\POSTINST\QUICKLCH\*.*
%OEM%\$1\QUICKLCH\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CMSISU.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CPQBFILE.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\GUICMD.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\REBOOT.INF
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CPQCLEAN.CMD
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\W2K\POSTINST\CMDLINES.TXT %OEM%\
/C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\POSTINSTBMP
%OEM%\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\MSDOS\DOSFILES\XMMZERO.EXE
%OEM%\$1\ /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\W2K\CMD.TXT
%OEM%\$1\ /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.

CPQBFILE.EXE is located in the \COMPAQ\INSTALL\W2K\POSTINST subdirectory on the SmartStart CD. The command removes the Microsoft Windows boot option from the Windows 2000 BOOT.INI file.

7. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on.
8. 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.

   If using SYSTYPE to enable branching from the AUTOEXEC.BAT file, also copy the server-specific configuration batch file into each server subdirectory.
9. Create additional subdirectories to copy all other user-selected utilities and management agents available on the SmartStart and Management CDs.

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

Deploying the Target Server Using Windows 2000 Network-Based Deployment

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. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

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 Microsoft Windows 2000 Guide to Unattended Setup document, available on the Microsoft® website (http://www.microsoft.com/technet/prodtechnol/windows2000pro/deploy/unattend/sp1unatd.mspx).

UNATTEND.TXT example script:

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

[Display]
   AutoConfirm=1
   BitsPerPel=16
   ConfigureAtLogon=0
   VRefresh=60
   Xresolution=800
   Yresolution=600

[GuiRunOnce]
   "C:\guicmd.exe"

[MassStorageDrivers]
   "Adaptec Ultra160 Family Manager Set"=OEM
   "Smart Array 5300 Controller"=OEM
   "Smart Array 5i, 532, 5312 Controllers"=OEM
   "Smart Array 6i, 641, 642, 6400 EM, 6400
   Controllers"=OEM
   "Compaq Smart Array Controllers"=OEM
```

```
   "Integrated Ultra ATA-100 Dual Channel Controller
   (Windows 2000)"=OEM
   "Integrated Ultra ATA-100 IDE RAID Controller
   (Windows 2000)"=OEM
   "LSI Logic Ultra320 1020/1030 Driver (Windows
   2000)"=OEM
   "CSB-6 Ultra ATA-100 IDE RAID Controller (Windows
   2000)"=OEM
   "Symbios Logic C8100 PCI SCSI Host Adapter"=RETAIL
   "Symbios Logic C896 PCI SCSI Host Adapter"=RETAIL
   "Symbios Logic C8xx PCI SCSI Host Adapter"=RETAIL
   "IDE CD-ROM (ATAPI 1.2)/PCI IDE Controller"=RETAIL

[NetOptionalComponents]
   SNMP=1

[Networking]
   InstallDefaultComponents=Yes

[OEM_Ads]
   Logo=Compaq.bmp

[OEMBootFiles]
   ADPU160M.SYS
   CPQARRY2.SYS
   CPQCISSM.SYS
   MegaIDE.sys
   LSICSB6.SYS
   SYMMPI.sys
   TXTSETUP.OEM

[Identification]
   JoinWorkgroup=Workgroup

[Unattended]
   DriverSigningPolicy=Ignore
   NtUpgrade=No
   OemFilesPath=C:
   OemPnPDriversPath=drivers\net
   OemPreinstall=Yes
   OemSkipEula=Yes
   OverwriteOemFilesOnUpgrade=No
   TargetPath=\WINNT
   UnattendMode=DefaultHide
```

```
   Win9xUpgrade=No
   ExtendOemPartition=1
   FileSystem=ConvertNTFS

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

[LicenseFilePrintData]
   AutoMode=PerServer
   AutoUsers=16

[UserData]
   FullName="HP"
   OrgName="HP"
   ComputerName=DL320
   ProductID=XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[RegionalSettings]
   Language=00000409
   LanguageGroup=1

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

Use SmartStart 6.00 or later 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.

Microsoft Windows Server 2003 Deployment

In This Section

Creating Windows 2003 Server Profile Script Files

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

Windows 2003 Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the primary script files on the source server:

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:\DL3802K.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.

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).

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

   ```
   HYPERCFG /S /L /F A:\ML330G32K.CFG
   ```

   This command reads the array configuration on the source servers and writes the array configuration script file to A:\ML330G32K.CFG.

3. Generate the NIC teaming script file. This is an optional step for the Windows® Server 2003 operating system.

Windows 2003 Unattended Installation Files

When the server profile script files are generated and modified for the target server, modify and save a copy of the script file on the server configuration diskette. 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. For an example of a typical file, refer to the "Windows 2003 UNATTEND.TXT Sample File (on page 103)" section.

Using a standard text editor, create the following three additional Toolkit files for the Windows® 2003 unattended install.

1. Edit the \Toolkit\CPQW2K3\$OEM$\$1\CMD.TXT file to install and configure PSPs.

   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® Server 2003 installer during the graphical portion of the operating system installation process.

   The CMD.TXT file is similar to the following:

```
HP Installation Utility
Installing and configuring HP programs. Please wait...

C:\ntcsp\setupc.exe /f /use-latest
C:\CMSISU.EXE
C:\XMMzero.exe
C:\cpqbfile.exe
C:\CPQclean.cmd
delfile C:\UNATTEND.TXT
delfile C:\CMDLINES.TXT
delfile C:\CMSISU.EXE
deldir C:\NTCSP
deldir C:\QUICKLCH
deldir C:\i386
deldir C:\$WIN_NT$.~bt
deldir C:\$ldr$
delfile C:\cpqbfile.exe
```

```
deldir C:\txtsetup.oem
deldir C:\$ldr$
deldir C:\txtsetup.sif
delfile C:\CPQclean.cmd
deldir C:\$winnt.log
deldir c:\drivers
deldir C:\$oem$
delfile C:\XMMzero.exe
deldir C:\compaq.bmp
C:\windows\system32\rundll32.exe
setupapi,InstallHinfSection DefaultInstall 129
c:\reboot.inf
```

CMSISU.EXE is located in the \COMPAQ\INSTALL\WNET\POSTINST subdirectory on the SmartStart CD. The command does not accept any arguments and performs the following functions on Microsoft® Windows® Server 2003 platforms:

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

GUICMD.EXE is located in the \COMPAQ\INSTALL\WINET\POSTINST 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 does not run files with CMD or BAT extensions.
- GUICMD.EXE accepts the following internal commands in the Windows® Server 2003 operating system:

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

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

2. Edit the \Toolkit\CPQW2K3\OEM\CMDLINES.TXT file. The format of the CMDLINES.TXT file is similar to the following:

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

CMDLINES.TXT is an input file of commands that is run by the operating system. CMDLINES.TXT is not required in Windows® Server 2003.

3. Edit the following files, adding all driver files required for text mode setup:

– \Toolkit\CPQW2K3\OEM\ TXTSETUP.OEM

– \Toolkit\CPQW2K3\$OEM$\$1\$WIN_NT$.~LS\TXTSETUP.OEM

– \Toolkit\CPQW2K3\$OEM$\$1\DRIVERS\\SCSI\TXTSETUP.OEM

The TXTSETUP.OEM file will be similar to the following text:

```
############################################################
#This txtsetup.oem file can be used for unattended
#installs of Windows .NET only.
############################################################
[Disks]
d1 = "Compaq Smart Array Controllers Driver for Windows
2000",\TXTSETUP.OEM,\
d4 = "Adaptec Ultra160 Family Manager Set (Win
2000)",\TXTSETUP.OEM,\
d5 = "Smart Array 5x and 6x Driver
Diskette",\TXTSETUP.OEM,\
d6 = "AMI MegaRAID IDE Driver",\MEGAIDE,\
d7 = "LSI Logic Ultra320 1020/1030
Driver",\TXTSETUP.OEM,\
d8 = "LSI CSB-6 Ultra ATA-100 Driver",\TXTSETUP.OEM,\

[Defaults]
SCSI = cpq32fs2_000A
```

```
[SCSI]
cpqarry2 = "Compaq Smart Array Controllers"
adpu160m = "Adaptec Ultra160 Family Manager Set"
B060 = "Smart Array 5300 Controller"
B178 = "Smart Array 5i, 532, 5312 Controllers"
0046 = "Smart Array 6i, 641, 642, 6400 EM, 6400
Controllers"
MegaIDE100_NT5L = "Integrated Ultra ATA-100 IDE RAID
Controller (Windows 2000)"
SYMMPI_2003 = "LSI Logic Ultra320 1020/1030 Driver
(Windows Server 2003)"
MegaIDE100 = "CSB-6 Ultra ATA-100 IDE RAID Controller
(Windows Server 2003)"

[Files.SCSI.cpqarry2]
driver = d1,cpqarry2.sys,cpqarry2
inf    = d1,cpqarry2.inf
catalog = d1,cpqarry2.cat

[Files.scsi.adpu160m]
driver = d4,adpu160m.sys, aic7899
inf    = d4,adpu160m.inf
catalog = d4,adpu160m.cat

[Files.scsi.B060]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.B178]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.0046]
driver  = d5,cpqcissm.sys,cpqcissm
inf     = d5,cpqcissm.inf
catalog = d5,cpqcissm.cat

[Files.scsi.MegaIDE100_NT5L]
driver  = d6, MegaIDE.sys, MegaIDE
inf     = d6, MegaIDE.inf
catalog = d6, Mega2k.cat
```

```
[Files.scsi.SYMMPI_2003]
driver = d7,symmpi.sys,SYMMPI
inf    = d7,symmpi.inf
catalog = d7,mpixp32.cat

[Files.scsi.MegaIDE100]
driver  = d8, LsiCsb6.sys, LSICSB6
inf     = d8, LsiCsb6.inf
inf     = d8, NODEV.inf
catalog = d8, csb6win.cat

[Config.cpqarry2]
value = "",tag,REG_DWORD,102
value = Parameters\Device,NumberOfRequests,REG_DWORD,80
value = Parameters\PnpInterface,5,REG_DWORD,1

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

[Config.cpqcissm]
value = "",tag,REG_DWORD,103
value = Parameters\PnpInterface,5,REG_DWORD,1
value = Parameters\Device,NumberOfRequests,REG_DWORD,ff

[Config.MegaIDE]
value = "", Tag, REG_DWORD, 1

[Config.SYMMPI]
value = Parameters,dummy,REG_DWORD,0
value = Parameters\PnpInterface,5,REG_DWORD,1

[Config.LSICSB6]
value = "", Tag, REG_DWORD, 1

[HardwareIds.scsi.cpqarry2]
id = "PCI\VEN_1000&DEV_0010&SUBSYS_40400E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40500E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40510E11","cpqarry2"
id = "PCI\VEN_1011&DEV_0046&SUBSYS_40580E11","cpqarry2"

[HardwareIds.scsi.adpu160m]
id = "PCI\VEN_9005&DEV_00C0","adpu160m"
id = "PCI\VEN_9005&DEV_0080","adpu160m"
```

```
[HardwareIds.scsi.B060]
id = "PCI\VEN_0E11&DEV_B060","cpqcissm"

[HardwareIds.scsi.B178]
id = "PCI\VEN_0E11&DEV_B178","cpqcissm"

[HardwareIds.scsi.0046]
id = "PCI\VEN_0E11&DEV_0046","cpqcissm"

[HardwareIds.scsi.MegaIDE100_NT5L]
id = "PCI\VEN_1095&DEV_0649&SUBSYS_007E0E11", "MegaIDE"

[HardwareIds.scsi.SYMMPI_2003]
id = "PCI\VEN_1000&DEV_0030", "symmpi"

[HardwareIds.scsi.MegaIDE100]
id = "PCI\VEN_1166&DEV_0213&SUBSYS_00E80E11", "LSICSB6"
```

Creating Windows 2003 Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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 ProLiant server with an embedded LSI 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 executes these steps:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

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

```
@echo off
cls
echo [ SCRIPT FOR REMOTE INSTALL OF WIN2K3 ON ml570g3 ]

s:
cd \cpq
echo Retrieving State Information...
s:\cpq\statemgr /r phase

REM *** Remove this initial pause when the batch file
REM *** has been fully tested and debugged
pause
```

```
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 *** Configure the target server hardware by reading
REM *** the configuration information in the script file
echo Running Configuration Replication Utility...
s:\cpq\conrep -l s:\servers\ML570G3\ML570G3.hwr
echo Setting State Information...
s:\cpq\statemgr /w Phase 1

:State1
REM *** Configure the array controllers by reading the
REM *** configuration information in the script file and
REM *** stamping it onto the array controllers of the
REM *** target server

echo Configuring the Array Controllers...
s:\cpq\acr /i s:\servers\ML570G3\ML570G3.ary
REM *** ECHO Configuring the RAID Controllers...
REM *** Remove REM to configure RAID Controllers
REM *** s:\CPQ\hypercfg /s /l
/@s:\servers\ML330G3\ML330G3.cfg
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM *** Reboot to A:
s:\cpq\reboot A:

:State2
REM *** Create partition by reading content of the
REM *** script file and stamping the configuration
REM *** onto the hard drive in the target server

echo Creating Disk Partition...
```

```
s:\cpq\cpqdisk /w s:\servers\ML570G3\ML570G3.prt
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM *** Reboot to A:
s:\cpq\reboot A:

:State3
REM *** Format the boot partition and populate
echo Formatting the First Disk Partition as DOS...
s:\cpq\cpqfmt c:
REM *** Copy OEM driver files from the CD to the hard
REM *** drive of the target server, creating
subdirectories
REM *** as needed
echo Creating Driver Directory and Copying Drivers...
s:
s:\cpq\filecopy /s:s:\cpqw2k3\$oem$ /d:c:\$oem$ /s /e
/f:*.*

REM *** Copy the customized UNATTEND.TXT file from
REM *** the system configuration diskette to the root
REM *** directory of the target server's hard drive
copy a:\unattend.txt c:\
echo Setting State Information...
s:\cpq\statemgr /w Phase 4

:State4
REM *** Copy operating system files to the boot
REM *** partition
echo Setting the state to allow diskette removal during
the installation of Windows 2003
s:\cpq\statemgr /w Phase 5
echo Starting operating system installation...
s:
cd \i386

REM *** Start installation of the operating system using
REM *** the unattended installation instructions from
the
REM *** C:\UNATTEND.TXT file.
winnt /s:s:\i386 /u:c:\unattend.txt

:State5
REM *** Resets state variable to 5 to allow operating
```

```
REM *** system reboot without removing the diskette
s:\cpq\statemgr /w Phase 5
echo The Windows 2003 installation will continue after
the reboot...
REM *** Turn off the Virtual Floppy
s:\cpq\vflop /b:never /p:off
REM *** Disable PXEBoot
s:\cpq\PXEBoot /disable
REM *** Reboot to drive C:
s:\cpq\reboot c:

REM *** Unused states
REM *** Installation of other utilities and agents may
REM *** be placed here

:State10
:State9
:State8
:State7
:State6
```

Windows 2003 CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders
- 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.

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.

Windows 2003 CD-Based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for Windows 2003 (on page 87)
2. Creating Windows 2003 server profile script files (on page 75)
3. Creating Windows 2003 server batch files (on page 82)
4. Creating the installation CD for Windows 2003 (on page 89)
5. Deploying the target server using Windows 2003 CD-based deployment (on page 93)

Creating a Bootable Server Configuration Diskette for Windows 2003

Create a bootable server configuration diskette used to initiate the server deployment process.

To 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
   REM *** the 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
   ```

   Refer to the server documentation for information about which devices to load through the CONFIG.SYS file, depending on the server configuration.
3. Be sure 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 is similar to the following:

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

If the SYSTYPE utility is used to enable 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 drive caching program
smartdrv.exe /u/v
REM *** Switch to the CD drive and installation
REM *** directory
s:
cd \cpq

REM *** ------------------------------------------------
REM *** Start the scripted server deployment by
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the batch files in
REM *** subdirectories on the A: drive, the files can
REM *** be placed in any location accessible by the
REM *** 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:\dl580nt.bat
goto end

:DL380
call a:\dl380nt.bat
goto end

:ML530
call a:\ml530nt.bat
goto end

:ML350
call a:\ml350nt.bat
goto end

cd \
:end
```

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

Creating the Installation CD for Windows 2003

Creating an installation CD for a 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® Server 2003 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 \CPQW2K3\OEM subdirectory and other OEM subdirectory structures, then copy all .OEM extension operating system files and drivers into the appropriate subdirectories.
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 \CPQW2K3\OEM subdirectories:

   IMPORTANT: 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`, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=E:
SET OEM=D:\WNETREP\CPQW2K3\$OEM$
SET TEXTMODE=%OEM%\TEXTMODE\*.*
SET SCSI=%OEM%\$1\DRIVERS\SCSI\*.*
SET NET=%OEM%\$1\DRIVERS\NET\*.*
SET NTCSP=%OEM%\$1\NTCSP\*.*

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\ADPU160M\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQ32FS2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRY2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\TXTSETUP.OEM
%TEXTMODE% /C /F /H /R /K

ECHO Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\ADPU160M\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQ32FS2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRY2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\TXTSETUP.OEM
%SCSI% /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\$1\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\N100\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\N1000\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\Q57XP32\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\NETFLX3\*.*
%NET% /S /E /C /F /H /R /K

ECHO Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$1
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNETM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNETFS2\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNETOEM
%OEM%\$1\$WIN_NT$.~LS\TXTSETUP.OEM /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\QUICKLCH\*.*
%OEM%\$1\QUICKLCH\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\CMSISU.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\CPQBFILE.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNETEXE %OEM%\$1\
/C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\REBOOT.INF
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\CPQCLEAN.CMD
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\COMPAQ.BMP
%OEM%\ /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\CMD.TXT
%OEM%\$1\ /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.

CPQBFILE.EXE is located in the SmartStart \COMPAQ\INSTALL\W2K\POSTINST subdirectory. The command removes the Windows® boot option from the Windows® Server 2003 BOOT.INI file.

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.

   If using SYSTYPE 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 the SmartStart and Management CDs.

   When the directory structure of the installation CD is determined, be sure the server batch file runs all programs and utilities from the CD.

Deploying the Target Server Using Windows 2003 CD-Based Deployment

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.

Windows 2003 Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

Windows 2003 Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a Windows 2003 bootable server configuration diskette with network software (on page 94)
2. Creating Windows 2003 server profile script files (on page 75)
3. Creating Windows 2003 server batch files (on page 82)
4. Preparing the Windows 2003 network software repository (on page 98)
5. Deploying the target server using Windows 2003 network-based deployment (on page 102)

Creating a Windows 2003 Bootable Server Configuration Diskette with Network Software

Using DOS version 6.22 or 7.0, 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 enables the target server to connect to a network share and initiate the server deployment process over the network.

NOTE: Refer to "Creating a Network Boot Diskette (on page 241)" for an alternate procedure to create a basic network boot diskette using Microsoft Network Client 3.0 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. Be sure that the latest NIC drivers are available for the server on which the operating system will be installed. In this case, an Ethernet NIC is installed.
3. Using a Windows® Server 2003 machine, start the Network Client Administrator tool and click **Make Network Installation Startup Disk.**

   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.
6. When prompted, supply the **Computer name, User name, Domain,** and **Network protocol.** This example assumes that both TCP/IP and 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 lines:

   ```
   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$
   ```

   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
REM *** the 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
```

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

11. Be sure 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 following lines:

```
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
smartdrv.exe /u /v

REM *** Login
REM *** Change to the \net subdirectory and load network
REM *** 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
REM *** the configuration batch file that resides in the
REM *** shared network directory
call s:\dl380w2k.bat
```

If the SYSTYPE utility is used to enable 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
smartdrv.exe /u /v

REM *** Login
REM *** Change to the \net subdirectory and load network
REM *** 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
REM *** determining the target system and calling the
REM *** appropriate server 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:\dl5802k.bat
goto end

:DL380
call s:\dl3802k.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, which is 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 diskette.

Preparing the Windows 2003 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 or 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 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 can also be placed in the subdirectories containing the server profiles.
3. Create an \I386 subdirectory and copy the contents of the operating system 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 \CPQW2K3\OEM subdirectory and other OEM subdirectory structures and copy all 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 \CPQW2K3\OEM subdirectories:

   IMPORTANT: 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, be sure to create the destination directories before copying files. Also, be sure that the correct drive designations and paths specific to the configuration are included in the server batch file.

```
REM Set SOURCE TO CD or file path with SmartStart CD
REM image
SET SOURCE=E:
SET OEM=D:\WNETREP\CPQW2K3\$OEM$
SET TEXTMODE=%OEM%\TEXTMODE\*.*
SET SCSI=%OEM%\$1\DRIVERS\SCSI\*.*
SET NET=%OEM%\$1\DRIVERS\NET\*.*
SET NTCSP=%OEM%\$1\NTCSP\*.*

ECHO Updating OEM Boot Files: $OEM$\TEXTMODE
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\ADPU160M\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQ32FS2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRY2\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%TEXTMODE% /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%TEXTMODE% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\TXTSETUP.OEM
%TEXTMODE% /C /F /H /R /K

ECHO Updating SCSI Drivers: $OEM$\$1\DRIVERS\SCSI
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\ADPU160M\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQ32FS2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRY2\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%SCSI% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\TXTSETUP.OEM
%SCSI% /C /F /H /R /K

ECHO Updating NET Drivers: $OEM$\$1\DRIVERS\NET
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\N100\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\N1000\*.*
%NET% /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\Q57XP32\*.*
%NET% /S /E /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\NETFLX3\*.*
%NET% /S /E /C /F /H /R /K

ECHO Updating Windows 2000 Support Paq: $OEM$\$1\NTCSP
ECHO A | XCOPY %SOURCE%\COMPAQ\CSP\NT\*.* %NTCSP% /S /E
/C /F /H /R /K

ECHO Updating Compaq Files: $OEM$\$1
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\SYMMPI\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\LSICSB6\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CMDIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQARRAY\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\MEGAIDE\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNETM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNETFS2\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\DRIVERS\WNET\CPQCISSM\*.*
%OEM%\$1\$WIN_NT$.~LS\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNETOEM
%OEM%\$1\$WIN_NT$.~LS\TXTSETUP.OEM /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\QUICKLCH\*.*
%OEM%\$1\QUICKLCH\*.* /S /E /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\CMSISU.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\CPQBFILE.EXE
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNETEXE %OEM%\$1\
/C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\REBOOT.INF
%OEM%\$1\ /C /F /H /R /K
```

```
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\CPQCLEAN.CMD
%OEM%\$1\ /C /F /H /R /K
ECHO A | XCOPY
%SOURCE%\COMPAQ\INSTALL\WNET\POSTINST\COMPAQ.BMP %OEM%\
/C /F /H /R /K
ECHO A | XCOPY %SOURCE%\COMPAQ\INSTALL\WNET\CMD.TXT
%OEM%\$1\ /C /F /H /R /K
```

Use SmartStart 6.00 or later 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.

CPQBFILE.EXE is located in the \COMPAQ\INSTALL\WNET\POSTINST subdirectory on the SmartStart CD. The command removes the Microsoft® Windows® boot option from the Windows® Server 2003 BOOT.INI file.

7. Create a \SERVERS subdirectory containing a subdirectory for each server profile. For example, create \SERVERS\DL380, \SERVERS\ML330, and so on.
8. 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.

   If using SYSTYPE to enable branching from the AUTOEXEC.BAT file, also copy the server-specific configuration batch file into each server subdirectory.
9. Create additional subdirectories to copy all other user-selected utilities and management agents available on the SmartStart and Management CDs.

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

Deploying the Target Server Using Windows 2003 Network-Based Deployment

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 2003 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. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

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® Server 2003. For more information, refer to the Microsoft® website (http://www.microsoft.com/resources/documentation/WindowsServ/2003/all/techref/en-us/default.asp).

UNATTEND.TXT example script:

```
; Base Server Unattended Install Script for Windows
; Server 2003
[Unattended]
   DriverSigningPolicy=Ignore
   ExtendOemPartition=1
   FileSystem=ConvertNTFS
   KeyboardLayout="US"
   NtUpgrade=No
   OemFilesPath=C:
   OemPnPDriversPath=drivers\net;drivers\scsi
   OemPreinstall=Yes
   OemSkipEula=Yes
   DisableVirtualOemDevices=yes
   OverwriteOemFilesOnUpgrade=No
   TargetPath=\WINDOWS
   UnattendMode=FullUnattended
   Win9xUpgrade=No

[MassStorageDrivers]
   "Adaptec Ultra160 Family Manager Set"=OEM
```

```
   "Compaq Smart Array Controllers"=OEM
   "Smart Array 5300 Controller"=OEM
   "Smart Array 5i, 532, 5312 Controllers"=OEM
   "Smart Array 6i, 641, 642, 6400 EM, 6400
   Controllers"=OEM
   "Integrated Ultra ATA-100 IDE RAID Controller
   (Windows 2000)" =OEM
   "LSI Logic Ultra320 1020/1030 Driver (Windows Server
   2003)"=OEM
   "CSB-6 Ultra ATA-100 IDE RAID Controller (Windows
   Server 2003)"=OEM
   "LSI Logic C8100 PCI SCSI Host Adapter"=RETAIL
   "LSI Logic C896 PCI SCSI Host Adapter"=RETAIL
   "LSI Logic C8xx PCI SCSI Host Adapter"=RETAIL
   "IDE CD-ROM (ATAPI 1.2)/PCI IDE Controller"=RETAIL

[OEMBootFiles]
   ADPU160M.SYS
   CPQARRY2.SYS
   CPQCISSM.SYS
   MegaIDE.sys
   Symmpi.sys
   Lsicsb6.sys
   TXTSETUP.OEM

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

[UserData]
   ComputerName=DL740
   FullName=HP
   OrgName=HPQ
   ProductID=XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[Proxy]
   Proxy_Enable=0
   Use_Same_Proxy=0

[LicenseFilePrintData]
```

```
   AutoMode=PerServer
   AutoUsers=999

[GuiRunOnce]
   "c:\guicmd.exe"

[RegionalSettings]
   Language=00000409
   LanguageGroup=1

[Components]
   iis_pwmgr=Off
   iis_inetmgr=Off
   iis_www=Off
   iis_ftp=Off
   TSClients=On
   TSEnable=On

[Networking]
   InstallDefaultComponents=Yes

[Identification]
   JoinWorkgroup=WORKGROUP

[NetOptionalComponents]
   SNMP=1
   WBEMSNMP=1
   SimpTCP=1

[SNMP]
   Community_Name=Public
   Traps=Localhost
   Accept_CommunityName=public
   Send_Authentication=yes

[TerminalServices]
   ApplicationServer=0
   PermissionsSetting=0

[Display]
   AutoConfirm=1
   BitsPerPel=16
   ConfigureAtLogon=0
   VRefresh=60
```

```
      Xresolution=800
      Yresolution=600

   [OEM_Ads]
      Logo=Compaq.bmp
```

Use SmartStart 6.00 or later 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.

Novell NetWare 5.1 Deployment

In This Section

Creating NetWare 5.1 Server Profile Script Files

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

NetWare 5.1 Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the three primary script files on the source server by following these steps:

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 Files

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).

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

   ```
   HYPERCFG /S /L /F A:\DL380NW.CFG
   ```

This command reads the array configuration on the source servers and writes the array configuration script file to A:\DL380NW.CFG.

NetWare 5.1 Unattended Installation Files

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 software is already installed on a similar server, a copy of the RESPONSE.NI file is found on SYS:NI\DATA. Refer to "NetWare 5.1 RESPONSE.NI Sample File (on page 127)" for a typical unattended installation file.

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 Novell website (http://www.novell.com/documentation/lg/nw51/othr_enu/data/a2zj6s4.html) and is also available as Technical Information Document number 10055290.

Creating NetWare 5.1 Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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.

> **NOTE:** If deploying a ProLiant server with an embedded LSI ATA RAID controller, use HYPERCFG to generate a non-editable array configuration data file. Do not use ACR.

```
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 configuration batch file executes these steps:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from a shared network location or 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
REM *** has been fully tested and debugged
REM *** ------------------------------------------------
REM *** pause
REM *** ------------------------------------------------
REM *** Establish DOS error levels and branching in
REM *** declining 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
REM *** the 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
```

```
REM *** configuration information in the script file
REM *** A:\DL380NW.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...
f:\cpq\acr /i a:\dl380nw.ary /o
REM *** ECHO Configuring the RAID Controllers
REM *** Remove REM to configure RAID Controllers
REM *** f:\CPQ\hypercfg /s /l /@a:dl380nw.cfg
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
REM *** A:\DL380NW.PRT script file and stamping the
REM *** configuration onto the hard drive in the target
REM *** server
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------
echo Creating Disk Partition...
f:\cpq\cpqdisk /w a:\dl380nw.prt
echo Setting State Information...
f:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------
f:\cpq\reboot a:

:State 3
REM *** ------------------------------------------------
REM *** Fourth 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
```

```
REM *** Caldera DOS command FORMAT C: /X /S /QUIET /V:
REM *** on the following line 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
REM *** create a 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
copy f:\compaq\drivers\nw5\*.*
copy f:\cpq\script\java.nlm
copy f:\cpq\script\langsel.nlm
copy f:\cpq\script\other.ics
cd\
md compaq
cd compaq
copy f:\cpq\script\extra.ics
copy f:\compaq\csp\nw\*.*
f:
REM *** ------------------------------------------------
REM *** Copy the customized RESPONSE.TXT file from the
REM *** system configuration diskette to the \NWUPDATE
REM *** directory on the target server
REM *** ------------------------------------------------
copy a:\response.txt c:\nwupdate
echo Setting State Information...
f:\cpq\statemgr /w Phase 4:
REM *** If using the Remote Insight Lights-Out Edition,
```

```
REM *** this command ensures that the server reboots to
REM *** the C drive instead of the virtual floppy drive
REM *** ------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ------------------------------------------------
f:\cpq\vflop /b:never /p:off

:State4
REM *** ------------------------------------------------
REM *** Fifth state
REM *** Start the installation process by reading the
REM *** RESPONSE.TXT file
REM *** Increase the state variable
REM *** ------------------------------------------------
f:
cd \
f:\cpq\statemgr /w Phase 5
f:\cpq\setboot c:
echo Starting operating system installation...
install /rf=c:\nwupdate\response.txt
REM *** ------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents
REM *** may be placed here
REM *** ------------------------------------------------
:State5
:State6
:State7
:State8
:State9
:State10
```

NetWare 5.1 CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents
- Toolkit utilities

- Server profile script files arranged in folders

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.

NetWare 5.1 CD-based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for NetWare 5.1 (on page 115)
2. Creating NetWare 5.1 server profile script files (on page 107)
3. Creating NetWare 5.1 server batch files (on page 109)
4. Creating the installation CD for NetWare 5.1 (on page 117)
5. Deploying the target server using NetWare 5.1 CD-based deployment (on page 119)

Creating a Bootable Server Configuration Diskette for NetWare 5.1

Create a bootable server configuration diskette used to initiate the server deployment process.

> **IMPORTANT:** 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 6.22 or 7.0, replace the disk utility in the server batch file with the DOS `FORMAT` command.

To create the bootable server configuration diskette:

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:
```

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

3. Be sure 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 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 the SYSTYPE utility is used to enable 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
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the server batch files in
REM *** subdirectories on the A: drive, the files can
REM *** be placed in any location that is accessible by
the
REM *** target 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. Be sure 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 SIGNDISK by copying the utility to the diskette and entering `SIGNDISK` at the A:\ prompt. Signing the server configuration diskette stamps it with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Installation CD for NetWare 5.1

Creating an installation CD for a 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.

NOTE: If using an international version of a NetWare CD to create an installation CD, there will not be sufficient disk space to include the HP Toolkit utilities and drivers. It might 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. Be sure 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. Copy the contents of the NetWare 5.1 CD into the installation CD root directory.
4. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
5. 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.
6. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
7. For a totally automated installation, be sure that appropriate sections to select these nodes are also included in the RESPONSE.TXT file. For more information, refer to the "NetWare 5.1 RESPONSE.NI Sample File (on page 127)" section.
8. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart CD 6.00 or later.

   Copy the JAVA.NLM, LANGSEL.NLM, and OTHER.ICS files from the \COMPAQ\INSTALL\NW51\NOVELL directory on the SmartStart CD 6.00 or later.

9. Create a \COMPAQ\DRIVERS\NW5 subdirectory and copy the \COMPAQ\DRIVERS\NW5 subdirectory contents from the SmartStart CD 6.00 or later.
10. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 6.00 or later.
11. Be sure that the response file has the following section:

    ```
    [NWI: Install Script]
    Close script=c:\COMPAQ\extra.ics e=c:\cpqerr.log
    Script Location=c:\nwupdate\other.ics
    ```

    The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation. The OTHER.ICS file is used to copy SYMCJIT.NLM to correct an issue running NetWare 5.1 on Intel® Pentium® 4 servers.
12. 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.

    When the directory structure of the installation CD is determined, make sure the server batch file runs all programs and utilities from the CD.

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

Deploying the Target Server Using NetWare 5.1 CD-Based Deployment

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.

NetWare 5.1 Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

NetWare 5.1 Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a NetWare 5.1 bootable server configuration diskette with network software (on page 120)
2. Creating NetWare 5.1 server profile script files (on page 107)
3. Creating NetWare 5.1 server batch files (on page 109)
4. Preparing the NetWare 5.1 network software repository (on page 125)
5. Deploying the target server using NetWare 5.1 network-based deployment (on page 127)

Creating a NetWare 5.1 Bootable Server Configuration Diskette with Network Software

Create a bootable server configuration diskette for booting the target server and loading the Novell Client for DOS and Windows® 3.1x. Loading the Novell DOS client network protocol stack enables 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.

> **IMPORTANT:** 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 6.22 or 7.0, replace the disk utility in the server batch file with the DOS `FORMAT` command.

To create the bootable server configuration disk with network software:

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. Be sure that the latest NIC drivers are available for the server on which NetWare 5.1 will be installed. These drivers are on the SmartStart 6.00 CD.
3. Install the Novell Client for DOS and Windows® 3.1x on a workstation and, when prompted, supply the required Novell network information. 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 from the \NOVELL\CLIENT32 subdirectory on the Novell DOS Client workstation to the subdirectory on the diskette.

   ```
   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. Be sure 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
```

   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
MESSAGE TIMEOUT=1

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. Be sure 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 is similar to the following text:

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

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

10. Be sure 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
REM *** the server login name, h: is a specified drive,
REM *** and vol1:\ is a NetWare volume where NWSERVER is
REM *** an example NetWare server and USERNAME is the
user
REM *** name used to log on to the server. H is an
example
REM *** drive letter mapped to the 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
REM *** the configuration batch file that resides in
REM *** the network directory
call h:\servers\dl380\dl380nw.bat
```

If SYSTYPE is used to enable 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
REM *** determining the 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:\dl380nw.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 entering `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.

Preparing the NetWare 5.1 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 or 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 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 the configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they can 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. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
5. 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.
6. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
7. For a totally automated installation, be sure that appropriate sections to select these nodes are also included in the RESPONSE.TXT file. For more information, refer to the "NetWare 5.1 RESPONSE.NI Sample File for SmartStart 6.00 or Later ("NetWare 5.1 RESPONSE.NI Sample File" on page 127)" section.
8. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart CD 6.00 or later.
9. Copy the JAVA.NLM, LANGSEL.NLM, and OTHER.ICS files from the \COMPAQ\INSTALL\NW51\NOVELL directory on the SmartStart CD 6.00 or later.
10. Create a \COMPAQ\DRIVERS\NW5 subdirectory and copy the \COMPAQ\DRIVERS\NW5 subdirectory contents from the SmartStart CD 6.00 or later.
11. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 6.00 or later.
12. Be sure that the response file has the following section:

```
[NWI: Install Script]
Close script=c:\COMPAQ\extra.ics e=c:\cpqerr.log
Script location=c:\nwupdate\other.ics
```

The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation. The OTHER.ICS file is used to copy SYMCJIT.NLM to correct an issue running NetWare 5.1 on Intel® Pentium® 4 servers.

13. 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.

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

Deploying the Target Server Using NetWare 5.1 Network-Based Deployment

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.

NetWare 5.1 RESPONSE.NI Sample File

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

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 the Novell website (http://www.novell.com/documentation/lg/nw51/othr_enu/data/a2zj6s4.html). This document is also available as Technical Information Document number 10055290.

```
[NWI:Language]
Prompt=FALSE
Server Language=4
```

```
[NWI:Install Options]
Prompt=FALSE
Upgrade=FALSE
Startup Directory=C:\NWSERVER
Server Boot Directory=C:\NWSERVER\
Allow User Response File=TRUE

[NWI:Locale]
Prompt=FALSE
Country Code=001
Code Page=437
Keyboard=United States
Uses Vgadisp=false
Replace DOS Config Files=False
Allow User Response File=False

[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.S
   CH,
   sys:/system/schema/MASV.SCH,sys:/system/schema/SLP.SC
   H,
   sys:system/schema/CATALOG.SCH,sys:system/schema/WANMA
   N.SCH,
   sys:system/schema/SMS.SCH,sys:system/schema/NDPS100.S
   CH,
   sys:system/schema/NDPS200.SCH,sys:system/schema/SVC.S
   CH
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=dl5801
Server Context=O=dl5802
New Tree=true
Admin Login Name=admin
Admin Context=O=dl5802
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
Novell:NDPS:2.1.2=Novell:DST:1.0.0

[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:Time Zone: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:S
   MS:1.0.4,
   Novell:NDPS:2.1.2,Novell:Netscape Enterprise Server
   for
   NetWare:3.5.2,Novell:Netscape Administration Server
   for
   NetWare:3.5.2,NOVELL:FTP Server:1.0.1
Product Selection=default
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:NDPS:2.1.2=Novell:NDPS Server Files:1.0.0,
   Novell:NDPS Resource Files:1.0.0
Novell:NDPS Server Files:1.0.0=Novell:NDPS System:1.0.0,
   Novell:NDPS Public:1.0.0,Novell:Epson Files:1.0.0
Novell:NDPS Resource Files:1.0.0=Novell:NDPS
Banner:1.0.0,
   Novell:NDPS Font:1.0.0,Novell:NDPS Prndef:1.0.0,
   Novell:NDPS Prndrv:1.0.0
Novell:NDPS Prndrv:1.0.0=Novell:NDPS Prndrv W95:1.0.0,
   Novell:NDPS Prndrv NT4:1.0.0,Novell:NDPS Prndrv
   W2K:1.0.0
Novell:Netscape Enterprise Server for NetWare:3.5.2=
   Novell:WebConfig:3.5.2
Novell:WebConfig:3.5.2=Novell:Web_Always:3.5.2,
   Novell:WEB_NovonyxConfigZip:3.5.2,Novell:Web_NLS:3.5.
   2
Novell:Web_Always:3.5.2=Novell:WEB_NovonyxNonConfigZip:3
.5.2,
   Novell:Other_Sys_RootZip:3.5.2,Novell:NOVL_WebStuffZi
   p:3.5.2,
   Novell:NVX_WebStuffZip:3.5.2,Novell:WEB_ServletGW:3.5
   .2,
   Novell:Ndo_nsp_Stuffzip:3.5.2,Novell:Sqlc_StuffZIP:3.
   5.2
Novell:Web_NLS:3.5.2=NONE
Novell:Netscape Administration Server for
```

```
   NetWare:3.5.2=Novell:AdminConfig:3.5.2
Novell:AdminConfig:3.5.2=Novell:ADM_NLS:3.5.2,
   Novell:Admin_Always:3.5.2,Novell:AdminNovonyxConfigZi
   p:3.5.2
Novell:ADM_NLS:3.5.2=NONE
Novell:Admin_Always:3.5.2=Novell:AdminNovonyxNonConfigZi
p:3.5.2,
   Novell:NOVL_AdminStuffZip:3.5.2,Novell:NVX_AdminStuff
   Zip:3.5.2
NOVELL:FTP Server:1.0.1=Novell:FTP Server Files:1.0.0,
   Novell:FTP Server CFG Files:1.0.0,
   Novell:FTP Admin Html Files:1.0.0,
   Novell:FTP Admin Icons Files:1.0.0,
   Novell:FTP Admin Help Lang4 Files:1.0.0
Novell:NWUpdateGroup:1.0.0=Novell:NWUpdate:1.0.0

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

[NOVELL:NOVELL_ROOT:1.0.0]
showWelcomeScreen=false
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.SelectLang
uage
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 will install 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:License]
prompt=false
Display License Agreement=FALSE
NICI Foundation Key File=a:\license\86419866.nfk
License File=a:\license\86419866.nlf
```

```
[NWI:Install Script]
Script Location=c:\nwupdate\other.ics
Close Script=c:\compaq\extra.ics e=c:\error.log

[NWI:Mouse and Video]
Prompt=FALSE
Mouse=PS/2
Use Super Vga=TRUE

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

[NWI:Language]
Server Language=4

[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.S
   CH,
   sys:/system/schema/MASV.SCH,sys:/system/schema/SLP.SC
   H,
   sys:system/schema/CATALOG.SCH,sys:system/schema/WANMA
   N.SCH,
   sys:system/schema/SMS.SCH,sys:system/schema/NDPS100.S
   CH,
   sys:system/schema/NDPS200.SCH,sys:system/schema/SVC.S
   CH,
   sys:system/schema/NDPS201.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

[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=true
Novell:NetWare5:1.0.0=ALL

[NOVELL:NOVELL_ROOT:1.0.0]
ShowWelcomeScreen=No
LogLevel=DEBUG_DETAIL

[Initialization]
Version=Novell:NETWARE 5:5.0.0
SPLocation=../data/local.db
NISubdirectory=update

[NWI:Install Script]
Support Pack Script=c:/spack/silent.ics

[Locations]
Novell:DST%Startup:1.0.0=
[Novell:SRC:1.0.0]
path=F:

[NWI:File Server]
Prompt=false
Servername=dl580
Server Id Number=9D644CB

[NWI:Hardware]
PSM Detection=TRUE
Storage Detection=TRUE
Network Detection=TRUE
Prompt=FALSE
```

```
[NWI:Add To Startup]

[Novell:DST%Startup:1.0.0_Location]
Path=file:///C:\NWSERVER
User=

[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=NSS
PARTITION SIZE=4010
PARTITION HOTFIX SIZE=4
START SECTOR=489600

[NWI:Volume 0]
VOLUME NAME=SYS
SEGMENT 1 SIZE=4005
SEGMENT 1 PARTITION=0
FILE SYSTEM TYPE=NSS
COMPRESSION=FALSE

[LDAP]
adminID=.CN=admin.O=dl5802
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

[Licenses]
Novell:FCLLic:1.0.0=

[Novell:FCLLic:1.0.0_License]
fileName0=sys:\ni\update\lic0001.lic
activationKey0=7DDAE9F75969E5F8
context0=O=dl5802
fileName1=sys:\ni\update\lic0002.lic
activationKey1=7DDAE9F75969E5F8
context1=O=dl5802
licCnt=2

[NWI:PROTOCOLS]
Prompt=false

[NWI:TCPIP]
Logical Name 1=q57_1_EII
IP Address 1=192.168.102.34
Subnet Mask 1=255.255.255.0

[NWI:IPCMD]
IPX Compatibility=True

[NWI:DNS]
Prompt=false

[NWI:Host Name]
Prompt=false
IP Address 1=192.168.102.34

[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=dl5801 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=dl5801
queueVolume=CN=dl580.O=dl5802
queueContext=CN=dl580 Backup Queue.O=dl5802
smdrContext=O=dl5802

[NWI:MISC]
relogin password=""
[Novell:NDPS:2.1.2]
LocalBrokerName=null
LocalBrokerLoaded=false
LocalBrokerSRSState=disabled
CreateBroker=true
NewBrokerName=dl580_BROKER.dl5802
EnableSRS=true
EnableENS=true
EnableRMS=true
adminUserName=.CN=admin.O=dl5802

[Novell:DST%ndps%resdir:1.0.0_Location]
Path=file:///SYS:\ndps\resdir
User=

[Novell:WebConfig:3.5.2]
WebPort=80
SecureWebPort=443
KeepWebSettings=True
TuneWeb=False
MSFrontPage=False
```

```
[Novell:AdminConfig:3.5.2]
AdminPort=2200
KeepAdminSettings=True
```

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 quotation marks specify a user connection without a password. If a password is required, it should be relogin password=pswd where pswd is the password.

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

Novell NetWare 6 Deployment

In This Section

Creating NetWare 6 Server Profile Script Files

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

NetWare 6 Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the three primary script files on the source server by following these steps:

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 Files

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).

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

   ```
   HYPERCFG /S /L /F A:\DL380NW.CFG
   ```

This command reads the array configuration on the source servers and writes the array configuration script file to A:\DL380NW.CFG.

NetWare 6 Unattended Installation Files

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 software is already installed on a similar server, a copy of the RESPONSE.NI file is found on SYS:NI\DATA. Refer to "NetWare 6 RESPONSE.NI Sample File ("NetWare 6 RESPONSE.NI Sample File for SmartStart 6.00 or Later" on page 159)" for a typical unattended installation file.

Refer to the NetWare document *Automating the NetWare 6 Installation with a Response File* for a complete description of how to automate the installation of NetWare 6. The document can be found at the Novell website (http://www.novell.com/documentation/lg/nw6p/index.html?page=/documentation/lg/nw6p/othr_enu/data/hz8pck9v.html).

Creating NetWare 6 Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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.

> **NOTE:** If deploying a ProLiant server with an embedded LSI ATA RAID controller, use HYPERCFG to generate a non-editable array configuration data file. Do not use ACR.

```
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 configuration batch file executes these steps:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from a shared network location or 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
REM *** has been full tested and debugged
REM *** ------------------------------------------------
REM *** pause
REM *** ------------------------------------------------
REM *** Establish DOS error levels and branching in
REM *** declining 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
REM *** the 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
```

```
REM *** configuration information in the script file
REM *** A:\DL380NW.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...
f:\cpq\acr /i a:\dl380nw.ary /o
REM *** ECHO Configuring the RAID Controllers
REM *** Remove REM to configure RAID Controllers
REM *** f:\CPQ\hypercfg /s /l /@a:dl380nw.cfg
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
REM *** A:\DL380NW.PRT script file and stamping the
REM *** configuration onto the hard drive in the target
REM *** server
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------
echo Creating Disk Partition...
f:\cpq\cpqdisk /w a:\dl380nw.prt
echo Setting State Information...
f:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------
f:\cpq\reboot a:

:State 3
REM *** ------------------------------------------------
REM *** Fourth 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
```

```
REM *** Caldera DOS command FORMAT C: /X /S /QUIET /V:
REM *** on the following line 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
REM *** create a 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
REM *** 6.00 or later.
REM *** ------------------------------------------------
copy f:\compaq\drivers\nw6.*
cd\
md compaq
cd compaq
copy f:\cpq\script\extra.ics
copy f:\compaq\csp\nw\*.*
f:
REM *** ------------------------------------------------
REM *** Copy the customized RESPONSE.TXT file from the
REM *** system configuration diskette to the \NWUPDATE
REM *** directory on the target server
REM *** ------------------------------------------------
copy a:\response.txt c:\nwupdate
echo Setting State Information...
f:\cpq\statemgr /w Phase 4:
REM *** If using the Remote Insight Lights-Out Edition,
```

```
REM *** this command ensures that the server reboots to
REM *** the C drive instead of the virtual floppy drive
REM *** ------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ------------------------------------------------
f:\cpq\vflop /b:never /p:off

:State4
REM *** ------------------------------------------------
REM *** Fifth state
REM *** Start the installation process by reading the
REM *** RESPONSE.TXT file
REM *** Increase the state variable
REM *** ------------------------------------------------
f:
cd \
f:\cpq\statemgr /w Phase 5
f:\cpq\setboot c:
echo Starting operating system installation...
install /rf=c:\nwupdate\response.txt
REM *** ------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents
REM *** software may be placed here
REM *** ------------------------------------------------

:State5
:State6
:State7
:State8
:State9
:State10
```

NetWare 6 CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents

- Toolkit utilities
- Server profile script files arranged in folders

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.

NetWare 6 CD-based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for NetWare 6 (on page 147)
2. Creating NetWare 6 server profile script files (on page 139)
3. Creating NetWare 6 server batch files (on page 141)
4. Creating the installation CD for NetWare 6 (on page 149)
5. Deploying the target server using NetWare 6 CD-based deployment (on page 151)

Creating a Bootable Server Configuration Diskette for NetWare 6

Create a bootable server configuration diskette used to initiate the server deployment process.

> **IMPORTANT:** 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 6.22 or 7.0, replace the disk utility in the server batch file with the DOS `FORMAT` command.

To create the bootable server configuration diskette:

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:
```

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

3. Be sure 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 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 the SYSTYPE utility is used to enable 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
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the server batch files in
REM *** subdirectories on the A: drive, the files can
REM *** be placed in any location that is accessible by
the
REM *** target 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. Be sure 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 SIGNDISK by copying the utility to the diskette and entering `SIGNDISK` at the A:\ prompt. Signing the server configuration diskette stamps it with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Installation CD for NetWare 6

Creating an installation CD for a 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.

NOTE: If using an international version of a NetWare CD to create an installation CD, there will not be sufficient disk space to include the HP Toolkit utilities and drivers. It might 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. Be sure that the volume label of the installation CD is NetWare 6.
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 6 operating system.
3. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart 6.00 or later CD.
4. Create a \COMPAQ\DRIVERS\NW6 subdirectory and copy the \COMPAQ\DRIVERS\NW6 subdirectory contents from the SmartStart 6.00 or later CD.
5. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 6.00 or later.
6. Be sure that the response file has the following section:

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

   The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation.
7. Copy the contents of the NetWare 6 CD into the installation CD root directory.
8. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
9. 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.

10. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
11. 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.

    When the directory structure of the installation CD is determined, make sure the server batch file runs all programs and utilities from the CD.

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

Deploying the Target Server Using NetWare 6 CD-Based Deployment

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.

NetWare 6 Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

NetWare 6 Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a NetWare 6 bootable server configuration diskette with network software (on page 152)
2. Creating NetWare 6 server profile script files (on page 139)
3. Creating NetWare 6 server batch files (on page 141)
4. Preparing the NetWare 6 network software repository (on page 157)
5. Deploying the target server using NetWare 6 network-based deployment (on page 158)

Creating a NetWare 6 Bootable Server Configuration Diskette with Network Software

Using DOS 6.22 or 7.0, follow these steps to create a bootable server configuration diskette for booting the target server and loading the Novell IP Server Connection Utility. Loading the Novell IP Server Connection Utility enables the target server to connect to a network share and to initiate the server deployment process over the network. For information about the IP Server Connection Utility, refer to the SVRINST\IPCONN.txt file on the NetWare 6 Client CD.

The IP Server Connection Utility provides a basic connection in an IP-only environment to complete an across-the-wire server installation.

> **IMPORTANT:** 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 6.22 or 7.0, replace the disk utility in the server batch file with the DOS `FORMAT` command.

To create the bootable server configuration disk with network software:

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. Be sure that the latest NIC drivers are available for the server on which NetWare 6 software will be installed. These drivers are on the NetWare 6 Client CD or provided by the vendor. For information about the Novell IP Server connection utility, refer to the software documentation.
3. Create a \NOVELL subdirectory on the server configuration diskette and copy the following files from the \SVRINST\FILES subdirectory on the NetWare 6 Client CD into the subdirectory.

   ```
   CLIENT32.NLM
   CMSM.NLM
   ETHERTSM.NLM
   IPX.NLM
   LSLC32.NLM
   N100.LAN
   NBIC32.NLM
   NIOS.EXE
   SRVLOC.NLM
   TCPIP.NLM
   TRANNTA.NLM
   NET.CFG
   ```
4. Be sure that the correct NIC driver for the target server NIC is in the \NOVELL subdirectory. This example uses the N100.LAN NIC driver.
5. 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\tcpip.nlm
   load a:\novell\trannta.nlm
   load a:\novell\srvloc.nlm
   load a:\novell\client32.nlm
   ```

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

6. 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
   ;or PREFERRED SERVER = XX.XX.XX.XX
   PREFERRED TREE=USERSELECTED TREE
   NAME CONTEXT=USERSELECTED
   MAX CACHE SIZE=0
   FILE CACHE LEVEL=0
   MESSAGE TIMEOUT=1
Protocol TCPIP
   ; for DHCP
   ;IF_CONFIGURATION DHCP LAN_NET
   ;PATH TCP_CFG A:\

   ; for STATIC addressing
   IF_CONFIGURATION STATIC LAN_NET
   IP_ADDRESS xx.xx.xx.xx
   ;IP_ROUTER XX.XX.XX.XX
   IP_NETMASK 255.255.0.0
   PATH TCP_CFG A:\Novell

Link Driver N100
   FRAME Ethernet_II
```

7. Create a \LICENSE subdirectory on the server configuration diskette and copy the NetWare licenses into the subdirectory. Be sure that the Novell NetWare RESPONSE.TXT file has a license section that points to the location of the license files.

8. 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 text:

```
REM *** Load special memory and DOS devices required by
REM *** the target server
device=himem.sys /testmem:off
device=cpqidecd.sys /d:cpqcdrom
```

```
files=40
buffers=30
dos=high,umb
stacks=9,256
lastdrive=z:
```

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

9. Be sure that all files referenced in the CONFIG.SYS file are copied to the appropriate subdirectories on the server configuration diskette.
10. 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
REM *** the server login name, h: is a specified drive,
REM *** and vol1:\ is a NetWare volume where NWSERVER is
REM *** an example NetWare server and USERNAME is the
user
REM *** name used to log on to the server. H is an
example
REM *** drive letter mapped to the 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
REM *** the configuration batch file that resides in
REM *** the network directory
call h:\servers\dl380\dl380nw.bat
```

If SYSTYPE is used to enable 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
REM *** determining the 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:\dl380nw.bat
goto end

:ML530
call h:\ml530nw.bat
goto end

:ML350
call h:\ml350nw.bat
goto end
cd \

:end
```

11. Sign the server configuration diskette with SIGNDISK by copying the SIGNDISK utility to the diskette and entering `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.

Preparing the NetWare 6 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 or 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 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 the configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they can also be placed in the subdirectories containing the server profiles.
3. Create an \NW6 subdirectory and copy the contents of the Novell NetWare 6 CD into the subdirectory.
4. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.

5. 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.
6. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
7. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart 6.00 or later CD.
8. Create a \COMPAQ\DRIVERS\NW6 subdirectory and copy the \COMPAQ\DRIVERS\NW6 subdirectory contents from the SmartStart 6.00 or later CD.
9. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 6.00 or later.
10. Be sure that the response file has the following section:

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

    The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation.
11. 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.

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

Deploying the Target Server Using NetWare 6 Network-Based Deployment

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.

NetWare 6 RESPONSE.NI Sample File for SmartStart 6.00 or Later

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

For a complete description of how to automate the installation of Novell NetWare 6, refer to the Novell NetWare document *Automating the NetWare 6 Installation with a Response File*, available at the Novell website (http://www.novell.com/documentation/lg/nw6p/index.html?page=/documentation/lg/nw6p/othr_enu/data/hz8pck9v.html).

You can remove all server-specific hardware information from the response file and turn on hardware detection by changing values from false to true. Refer to **[NWI:Hardware]** in the following example. This creates a more generic response file for use on multiple servers.

```
[NWI:Product Information]
Major Version=NetWare 6
Minor Version=00

[NWI:Language]
Server Language=4
Prompt=FALSE
Additional Languages=4

[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.S
   CH,
   sys:/system/schema/MASV.SCH,sys:/system/schema/SLP.SC
   H,
   sys:system/schema/CATALOG.SCH,sys:system/schema/WANMA
   N.SCH,
   sys:system/schema/SMS.SCH,sys:system/schema/NDPS100.S
   CH,
   sys:system/schema/NDPS200.SCH,sys:system/schema/SVC.S
   CH,
   sys:system/schema/NDSCOMM.SCH,sys:system/schema/NOV_I
   NET.SCH,
   sys:system/schema/NSSFS.SCH
Schema Extensions TAO=sys:/system/schema/NDS500.SCH,
   sys:/system/schema/NDSPKIS.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=ml3501
Server Context=O=ml3502
New Tree=true
Admin Login Name=admin
Admin Context=O=ml3502
Display Summary=false
Prompt=false

[NWI:Old Products]
Product 1=NWSB411
Product 2=IWSB411
Product 3=NWSB420
Product 4=NWGB420
Product 5=NSBS
```

```
[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
Novell:AFP:1.0.1=
Novell:CIFS:1.0.1=

[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.server.cobr
a.
   CustomSummary
licenseAgreementScreen=com.novell.application.install.
   ProductLicenseAgreement
languageScreen=com.novell.application.install.SelectLang
uage
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 will install the following selected
programs on your computer.
welcomeScreenTitle=Novell Product Installation
customizeScreenTitle=Product Customization
defaultImage=banner5.gif
licenseAgreeFile=nwlic.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=2
overWriteNewerFile=false
;overWriteNewerFilePrompt=true
overWriteNewerFilePrompt=false
copyToRemoteDestination=true
pdbDirectory=server;products
reboot=true

[Initialization]
Version=Novell:NetWare5:1.0.0
SPLocation=SYS:\ni\update\bin\../data/local.db
NISubdirectory=update
Install Zip Path=sys:ni/data
DisplayLanguage=en_US
InstallationMode=Silent
SummaryPrompt=false

[NWI:Install Script]
Support Pack Script=c:/spack/spack.ips e=c:\spackerr.log
s=c:\spack
Close Script=C:\compaq\extra.ics e=c:\cpqerr.log

[Locations]
Novell:DST%Startup:1.0.0=

[Selected Nodes]
prompt=true
Novell:NetWare5:1.0.0=Novell:NetWare:5.1.0,Novell:Produc
ts:1.0.0,
```

```
   Novell:NWUpdateGroup:1.0.0
Novell:NetWare:5.1.0=Novell:NetWare6OS:6.0.0,Novell:NICI
:1.0.0,
   Novell:Disk Carver:1.0.0,Novell:Protocols:1.0.0,
   Novell:Time Zone:1.0.0,Novell:DS_Install:1.0.0,
   Novell:LicensePrompt: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:nwadminzip:5.1.9
Novell:SYS:1.0.0=Novell:SYSDirectory:1.0.0,
   Novell:ConfigDirectory:1.0.0,Novell:PervasiveDirector
   y: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:6pkLdap:3.20.0,Novell:Imonitor:1.5.0,
   NOVELL:Portal:1.0.1,Novell:SMS:1.0.8,
   Novell:ConsoleOne Products:1.3.2,
   Novell:Netscape Administration Server for
   NetWare:3.6.0,
   Novell:Novell NMAS Install:2.0.0,
   Novell:Native File Services:1.0.1,
   Novell:NAAS:1.0.0,Novell:eMFrame:1.0.0,
   Novell:PortRes:1.0.0
Non-Changeable Products=Imonitor,Portal,ConsoleOne
Products,
   NWLdap,SMS,Novell Certificate Server,Novell NMAS
   Install,
   RAS,Netscape Administration Server for
   NetWare,PortRes,emFrame
Default=Novell Certificate Server,NWLdap,Portal,SMS,
   ConsoleOne Products,NDPS,Netscape Enterprise Server
   for
   NetWare,Collabra Server,Netscape Administration
   Server for
   NetWare,NIS SERVICES,FTP Server,NFS Server,
   NetWare Web Search,RAS,ipWanMan,Novell NMAS
   Install,PortRes
Novell:Novell Certificate Server:2.0.0=Novell:CertServ
System
   Files:2.0.0,Novell:CertServ Public Files:2.0.0
```

```
Novell:Imonitor:1.5.0=Novell:imonitor_DFG:1.5.0,
   Novell:imonitor_en_DFG:1.5.0
NOVELL:Portal:1.0.1=Novell:portalzip:1.0.0
Novell:SMS:1.0.8=Novell:SMSSystemFiles:1.0.4,
   Novell:SMSPublicFiles:1.0.4,Novell:SMSNsnFiles:1.0.4
Novell:ConsoleOne
Products:1.3.2=Novell:ConsoleOne:1.3.2,
   Novell:Reporting Snapin:1.3.0
Novell:ConsoleOne:1.3.2=Novell:c1_core:1.0.0,Novell:
   c1_win32:1.0.0,Novell:c1_nw.zip:1.0.0
Novell:Reporting Snapin:1.3.0=Novell:c1_rpt:1.0.0
Novell:Netscape Administration Server for
NetWare:3.6.0=Novell:
   Admin_Always:3.6.0,Novell:ADM_NLS:3.6.0,
   Novell:AdminNovonyxConfigZip:3.6.0
Novell:Admin_Always:3.6.0=Novell:AdminNovonyxNonConfigZi
p:3.6.0,
   Novell:NOVL_AdminStuffZip:3.6.0,
   Novell:NVX_AdminStuffZip:3.6.0,
   Novell:Apache_AdminZip:3.6.0,
   Novell:WebAdmin_Zip:3.6.0,Novell:NWTomcat_Zip:3.6.0,
   Novell:NWTC33_Zip:3.3.0
Novell:ADM_NLS:3.6.0=Novell:WadNLS4Zip:3.6.0
Novell:Novell NMAS Install:2.0.0=Novell:NMAS Server
   Components:2.0.0,Novell:NMAS Server System
   Files:2.0.0
Novell:Native File Services:1.0.1=Novell:AFP:1.0.1,
   Novell:CIFS:1.0.1,Novell:NFSNIS:1.1.0
Novell:AFP:1.0.1=Novell:AFP-NLMs:1.0.1
Novell:CIFS:1.0.1=Novell:CIFS-NLMs:1.0.1
Novell:NFSNIS:1.1.0=Novell:NFSNIS-NLMs:1.1.0
Novell:NAAS:1.0.0=Novell:AGENT_ZIP:1.0.0,
   Novell:SERVER_ZIP:1.0.0,Novell:UTIL_ZIP:1.0.0
Novell:eMFrame:1.0.0=Novell:eMFrame install module:1.0.0
Novell:eMFrame install module:1.0.0=Novell:eMFrame zip
file:1.0.0,
   Novell:Tomcat config zip file:1.0.0,
   Novell:NDPS extra zip file:1.0.0,
   Novell:NDPS snapin zip file:1.0.0,
   Novell:NLS snapin zip file:1.0.0,
   Novell:DNSDHCP snapin zip file:1.0.0
Novell:PortRes:1.0.0=Novell:PortRes install module:1.0.0
Novell:PortRes install module:1.0.0=Novell:Welcome Page
   zip file - English:1.0.0
```

```
Novell:NWUpdateGroup:1.0.0=Novell:NWUpdate:1.0.0

[NWI:Locale]
Prompt=FALSE
Country Code=001
Keyboard=United States
Code Page=437
Uses Vgadisp=false

[NWI:Mouse and Video]
Mouse=Auto
Video Type=PlugNPlay
Prompt=FALSE

[NWI:Install Options]
Upgrade=FALSE
Migration=FALSE
Express=FALSE
Prompt=FALSE
Startup Directory=C:\NWSERVER
Allow User Response File=TRUE

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

[NWI:License]
Prompt=False
Display License Agreement=FALSE
NICI Foundation Key File=a:\License\90360394.nfk
License File=a:\License\90360394.nlf

[Novell:SRC:1.0.0]
path=F:

[NWI:File Server]
Prompt=false
Servername=ml350
Server Id Number=B65B1D8

[NWI:Hardware]
PSM Detection=TRUE
```

```
Storage Detection=TRUE
Network Detection=TRUE
Prompt=FALSE

[NWI:Add To Startup]

[Novell:DST%Startup:1.0.0_Location]
path=file:///C:\NWSERVER

[NWI:File System]
Prompt=FALSE
ALLOW VOLUME PROPERTIES=TRUE
GUI Prompt=false

[NWI:Partition 0]
Device Name=[V504-A1-D0:0] Compaq Smart Array 5i Slot 0
ID 0 LUN 0
PARTITION TYPE=NSS
PARTITION SIZE=4010
PARTITION HOTFIX SIZE=4
START SECTOR=416160

[NWI:Volume 0]
VOLUME NAME=SYS
SEGMENT 1 SIZE=4005
SEGMENT 1 PARTITION=0
FILE SYSTEM TYPE=NSS
COMPRESSION=FALSE

[Novell:PortRes:1.0.0]
Enterprise.NISname=Netscape Enterprise Server for
NetWare
Apache.NISname=Netscape Administration Server for
NetWare
Apache.subNISnames=iStorage, NWWA, NetWare Web Search
Apache.ipaddress=192.168.102.28
Apache.hostname=192.168.102.28
Apache.port=80
Apache.port.secure=443
Apache.ipaddress.2=192.168.102.28
Apache.hostname.2=192.168.102.28
Apache.port.2=51080
Apache.port.secure.2=51443
iFolder.NISname=iFolder
```

```
iPrint.NISname=NDPS
showAlways=false
configtype=single
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\ad3.gif,60
AD ID#2=SYS:\NI\DATA\ad4.gif,60
AD ID#3=SYS:\NI\DATA\ad5.gif,60
AD ID#4=SYS:\NI\DATA\ad6.gif,60
AD ID#5=SYS:\NI\DATA\ad2.gif,60

[Licenses]
Novell:FCLLic:1.0.0=

[Novell:FCLLic:1.0.0_License]
fileName0=sys:\ni\update\lic0001.lic
activationKey0=C612C4858123D66E
context0=O=ml3502
licCnt=1

[NWI:PROTOCOLS]
Prompt=false

[NWI:TCPIP]
```

```
Logical Name 1=Q57_1_EII
IP Address 1=192.168.102.28
Subnet Mask 1=255.255.255.0

[NWI:IPCMD]
IPX Compatibility=False

[NWI:DNS]
Prompt=false

[NWI:Host Name]
Prompt=false
Verify=False
IP Address 1=192.168.102.28

[NWI:Time Zone]
Use Daylight Saving Time=true
Time Zone=CST
Prompt=false

[NWI:Time Synchronization]
Time Server Type=SINGLE

[Novell:Novell Certificate Server:2.0.0]
Prompt=False
Create Organizational CA=True
Organizational CA Name=ml3501 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

[NWI:LdapConfig]
Prompt=true
ClearText=false

[Novell:SMS:1.0.8]
treeName=ml3501
queueVolume=CN=ml350.O=ml3502
queueContext=CN=ml350 Backup Queue.O=ml3502
smdrContext=O=ml3502

[NWI:MISC]
```

```
;relogin password=toolkit
relogin password=""

[Novell:Netscape Administration Server for
NetWare:3.6.0]
Prompt=false
AdminPort=2200
AdminIP=
AdminHost=
ApacheServicesPort=80
ApacheServicesSecurePort=443

[NFAM: AFP Contexts]
context0=ml3502

[NFAW: CIFS Server Properties]
servername=ml350_W
servercomment=
unicode=false

[NFAW: CIFS Authentication]
domain=local
wkgpName=workgroup
pdc=
pdcaddr=
wins=

[NFAW: CIFS IP Addresses]
enableAllAddresses=true

[NFAW: CIFS Share All]
shareAllVolumes=true

[NFAW: CIFS Contexts]
context0=ml3502

[Novell:eMFrame:1.0.0]
rbsTreeName=ml3501
rbsContext=ml3502
rbsContainerName=Role Based Service
prompt=false
```

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

Novell NetWare 6.5 Deployment

In This Section

Creating NetWare 6.5 Server Profile Script Files

The Toolkit utilities require a server profile consisting of generated script files and an operating system-dependent unattended installation file to fully configure the target server and deploy the operating system. The Toolkit can generate the server configuration files used in both CD-based and network-based deployments. The number of script files generated varies, depending on your system. These scripts are classified as either primary or optional configuration script files.

NetWare 6.5 Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)

- HYPERCFG.CFG—Array configuration script file generated by HYPERCFG (required by ProLiant servers that have LSI ATA RAID controllers)

Primary Configuration Script Files

To generate the three primary script files on the source server:

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 Files

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).

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

   ```
   HYPERCFG /S /L /F A:\DL380NW.CFG
   ```

This command reads the array configuration on the source servers and writes the array configuration script file to A:\DL380NW.CFG.

NetWare 6.5 Unattended Installation Files

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 software is already installed on a similar server, a copy of the RESPONSE.NI file is found on SYS:NI\DATA. Refer to "NetWare 6.5 RESPONSE.NI Sample File (on page 191)" for a typical unattended installation file.

Refer to the NetWare document *Automating the NetWare 6.5 Installation with a Response File* for a complete description of how to automate the installation of NetWare 6.5. The document can be found at the Novell website (http://www.novell.com/documentation/lg/nw65/index.html).

Creating NetWare 6.5 Server Batch Files

The server batch file typically resides on the server configuration diskette or 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.

Example: Creating a log file

```
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.

Examples: Appending a 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.

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

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

A typical server batch file that runs the Toolkit utilities from a CD and the configuration script files from a shared network location or 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
REM *** has been fully tested and debugged
REM *** ------------------------------------------------
REM *** pause
REM *** ------------------------------------------------
```

```
REM *** Establish DOS error levels and branching in
REM *** declining 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
REM *** the 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
REM *** configuration information in the script file
REM *** A:\DL380NW.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...
f:\cpq\acr /i a:\dl380nw.ary /o
REM *** ECHO Configuring the RAID Controllers
REM *** Remove REM to configure RAID Controllers
```

```
REM *** f:\CPQ\hypercfg /s /l /@a:dl330nw.cfg
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
REM *** A:\DL380NW.PRT script file and stamping the
REM *** configuration onto the hard drive in the target
REM *** server
REM *** Increase the state variable and reboot
REM *** ------------------------------------------------
echo Creating Disk Partition...
f:\cpq\cpqdisk /w a:\dl380nw.prt
echo Setting State Information...
f:\cpq\statemgr /w Phase 3
REM *** ------------------------------------------------
REM *** Reboot to drive A:
REM *** ------------------------------------------------
f:\cpq\reboot a:

:State 3
REM *** ------------------------------------------------
REM *** Fourth 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
REM *** Caldera DOS command FORMAT C: /X /S /QUIET /V:
REM *** on the following line 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
```

```
REM *** create a 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
copy f:\compaq\drivers\nw65\*.*
cd\
md compaq
cd compaq
copy f:\cpq\script\extra.ics
copy f:\compaq\csp\nw\*.*
f:
echo Setting State Information...
f:\cpq\statemgr /w Phase 4:
REM *** If using the Remote Insight Lights-Out Edition,
REM *** this command ensures that the server reboots to
REM *** the C drive instead of the virtual floppy drive
REM *** ------------------------------------------------
REM *** Turn off the Virtual Floppy
REM *** ------------------------------------------------
f:\cpq\vflop /b:never /p:off

:State4
REM *** ------------------------------------------------
REM *** Fifth state
REM *** Start the installation process by reading the
REM *** RESPONSE.TXT file
REM *** Increase the state variable
REM *** ------------------------------------------------
f:
cd \
f:\cpq\statemgr /w Phase 5
REM *** ------------------------------------------------
REM *** Copy the customized RESPONSE.TXT file from the
```

```
REM *** system configuration diskette to the \NWUPDATE
REM *** directory on the target server
REM *** ------------------------------------------------
copy f:\servers\dl380\response.txt c:\nwupdate
REM *** ------------------------------------------------
REM *** Use setboot to the C drive so after the NetWare
REM *** installation we boot to the C drive instead of
REM *** the floppy.
REM *** ------------------------------------------------
f:\cpq\setboot c:
f:
cd \NW65OS
echo Starting operating system installation...
install /rf=c:\nwupdate\response.txt
REM *** ------------------------------------------------
REM *** Unused states
REM *** Installation of other utilities and agents
REM *** software may be placed here
REM *** ------------------------------------------------
:State5
:State6
:State7
:State8
:State9
:State10
```

NetWare 6.5 CD-Based Deployment

This scenario illustrates the deployment of the operating system 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
- HP drivers, utilities, and management agents
- Toolkit utilities
- Server profile script files arranged in folders

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.

NetWare 6.5 CD-based Deployment Overview

The general CD-based server deployment process includes:

1. Creating a bootable server configuration diskette for NetWare 6.5 (on page 179)
2. Creating NetWare 6.5 server profile script files (on page 171)
3. Creating NetWare 6.5 server batch files (on page 173)
4. Creating the installation CD for NetWare 6.5 (on page 181)
5. Deploying the target server using NetWare 6.5 CD-based deployment (on page 183)

Creating a Bootable Server Configuration Diskette for NetWare 6.5

Create a bootable server configuration diskette used to initiate the server deployment process.

The disk formatting utility in the Toolkit is not fully compatible with Caldera DOS 7.02 or later. NetWare 6.5 supports Caldera DOS only.

To create the bootable server configuration diskette:

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=\dos\himempro.sys /v
device=cpqidecd.sys /d:cpqcdrom
files=40
buffers=50
dos=high,umb
lastdrive=z:
stacks=9,256
```

Download himempro.sys from the Novell website. Refer to TID 2965742. This driver is required to work with himem.sys on systems with ACPI support.

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

3. Be sure 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 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 the SYSTYPE utility is used to enable 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
REM *** determining the target system and calling the
REM *** server-specific server batch file. Although
REM *** this example shows the server batch files in
REM *** subdirectories on the A: drive, the files can
REM *** be placed in any location that is accessible by
the
REM *** target 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. Be sure 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 SIGNDISK by copying the utility to the diskette and entering SIGNDISK at the A:\ prompt. Signing the server configuration diskette stamps it with information required to bypass the F1/F10 setup prompt on unconfigured systems restarted with the diskette.

Creating the Installation CD for NetWare 6.5

Creating an installation CD for a 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.

NetWare 6.5 requires two CDs, requiring you to swap CDs during the installation. The NetWare 6.5 Operation System CD does not have sufficient disk space to include the HP Scripting Toolkit files and HP drivers. The following steps include a procedure to delete two directories not used during a fresh install, enabling you to create a CD that includes the remainder of the NetWare 6.5 Operating System CD, plus the HP Scripting Toolkit files.

> **IMPORTANT:** Software is generally furnished under a license agreement and may be used or copied only in accordance with the terms of the agreement. Before 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. Be sure that the volume label of the installation CD you are creating is NW65OS.
2. Copy the contents of the NetWare 6.5 Operating System CD into the installation CD Root directory.
3. To make room for the HP scripting Toolkit files and drivers:
   a. Delete the \Products\migrtwzd subdirectory. Be sure you delete only the subdirectory \migrtwzd under the \Products directory, and not all files or directories under \Products.
   b. Delete the \NI\Windows subdirectory. Be sure you delete only the subdirectory \Windows under the \NI directory, and not all files/directories under \NI.
4. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart 7.00 or later CD.
5. Create a \COMPAQ\DRIVERS\NW65 subdirectory and copy the \COMPAQ\DRIVERS\NW65 subdirectory contents from the SmartStart 7.00 or later CD.
6. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 7.00 or later.
7. Be sure that the response file has the following section:

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

The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation.

8. Create a \CPQ subdirectory and copy the Toolkit utilities into the subdirectory.
9. 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.
10. Create a \CPQ\DOS subdirectory and copy the DOS files to be placed in the \DOS subdirectory of the target server C drive.
11. 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.

    When the directory structure of the installation CD is determined, make sure the server batch file runs all programs and utilities from the CD.

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

Deploying the Target Server Using NetWare 6.5 CD-Based Deployment

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.

NetWare 6.5 Network-Based Deployment

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

- Operating system files
- HP 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, HP recommends network-based deployments over 100-Mb/s (and faster) networks only.

NetWare 6.5 Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a NetWare 6.5 bootable server configuration diskette with network software (on page 185)
2. Creating NetWare 6.5 server profile script files (on page 171)
3. Creating NetWare 6.5 server batch files (on page 173)
4. Preparing the NetWare 6.5 network software repository (on page 190)
5. Deploying the target server using NetWare 6.5 network-based deployment (on page 191)

Creating a NetWare 6.5 Bootable Server Configuration Diskette with Network Software

Using Caldera DOS, follow these steps to create a bootable server configuration diskette (with Caldera DOS) for booting the target server and loading the Novell IP Server Connection Utility. Loading the Novell IP Server Connection Utility enables the target server to connect to a network share and to initiate the server deployment process over the network. For information about the IP Server Connection Utility, refer to the SVRINST\IPCONN.txt file on the NetWare 6.5 Client CD.

The IP Server Connection Utility provides a basic connection in an IP-only environment to complete an across-the-wire server installation.

The Disk Formatting utility in the Toolkit is not fully compatible with Caldera DOS 7.02 or later.

To create the bootable server configuration disk with network software:

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. Be sure that the latest NIC drivers are available for the server on which NetWare 6.5 software will be installed. These drivers are on the NetWare 6.5 Client CD or provided by the vendor. For information about the Novell IP Server connection utility, refer to the software documentation.
3. Create a \NOVELL subdirectory on the server configuration diskette and copy the following files from the \SVRINST\FILES subdirectory on the NetWare 6.5 Client CD into the subdirectory.

   ```
   CLIENT32.NLM
   CMSM.NLM
   ETHERTSM.NLM
   LSLC32.NLM
   N100.LAN [or N1000.lan or Q57.lan]
   NBIC32.NLM
   NIOS.EXE
   SRVLOC.NLM
   TCPIP.NLM
   TRANNTA.NLM
   NET.CFG
   ```

4. Be sure that the correct NIC driver for the target server NIC is in the \NOVELL subdirectory. This example uses the N100.LAN NIC driver.
5. Create 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\tcpip.nlm
load a:\novell\trannta.nlm
load a:\novell\srvloc.nlm
load a:\novell\client32.nlm
```

   Editing the STARTNET.BAT file ensures that there will be no prompts for the slot when the target server reboots.
6. 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
   ;or PREFERRED SERVER = XX.XX.XX.XX
   PREFERRED TREE=USERSELECTED TREE
   NAME CONTEXT=USERSELECTED
   MAX CACHE SIZE=0
   FILE CACHE LEVEL=0
   MESSAGE TIMEOUT=1

Protocol TCPIP
   ; for DHCP
   ;IF_CONFIGURATION DHCP LAN_NET
   ;PATH TCP_CFG A:\
   ; for STATIC addressing
   IF_CONFIGURATION STATIC LAN_NET
```

```
   IP_ADDRESS xx.xx.xx.xx
   ;IP_ROUTER XX.XX.XX.XX
   IP_NETMASK 255.255.0.0
   PATH TCP_CFG A:\Novell

Link Driver N100
   FRAME Ethernet_II
```

7. Create a \LICENSE subdirectory on the server configuration diskette and copy the NetWare licenses into the subdirectory. Be sure that the Novell NetWare RESPONSE.TXT file has a license section that points to the location of the license files.

8. 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 text:

   ```
   REM *** Load special memory and DOS devices required by
   REM *** the target server
   device=himem.sys /testmem:off
   device=\dos\himempro.sys /v
   device=cpqidecd.sys /d:cpqcdrom
   files=40
   buffers=50
   dos=high,umb
   stacks=9,256
   lastdrive=z:
   ```

   Download himempro.sys from the Novell website (http://www.novell.com). Refer to TID 2965742. This driver is required to work with himem.sys on systems with ACPI support.

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

9. Be sure that all files referenced in the CONFIG.SYS file are copied to the appropriate subdirectories on the server configuration diskette.

10. 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
    REM *** the server login name, h: is a specified drive,
    ```

```
REM *** and vol1:\ is a NetWare volume where NWSERVER is
REM *** an example NetWare server and USERNAME is the
user
REM *** name used to log on to the server. H is an
example
REM *** drive letter mapped to the 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
REM *** the configuration batch file that resides in the
REM *** network directory
call h:\servers\dl380\dl380nw.bat
```

If SYSTYPE is used to enable 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
REM *** determining the 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:\dl380nw.bat
goto end

:ML530
call h:\ml530nw.bat
goto end

:ML350
call h:\ml350nw.bat
goto end
cd \

:end
```

11. Sign the server configuration diskette with SIGNDISK by copying the SIGNDISK utility to the diskette and entering `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.

Preparing the NetWare 6.5 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 or 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 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 the configuration batch files for each type of server in the root directory of the software repository. Because these files are server specific, they can also be placed in the subdirectories containing the server profiles.
3. Create a \NW65OS subdirectory and copy the contents of the Novell NetWare 6.5 CD into the subdirectory.
4. Copy the NetWare 6.5 Products CD to the NW65OS subdirectory. When prompted to overwrite the existing files, click **Yes.**
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. Create a \CPQ\SCRIPT subdirectory and copy the EXTRA.ICS file from \COMPAQ\INSTALL\NW on the SmartStart 7.00 or later CD.
9. Create a \COMPAQ\DRIVERS\NW65 subdirectory and copy the \COMPAQ\DRIVERS\NW65 subdirectory contents from the SmartStart 7.00 or later CD.

10. Create a \COMPAQ\CSP\NW subdirectory and copy the \COMPAQ\CSP\NW subdirectory contents from the SmartStart CD 7.00 or later.
11. Be sure that the response file has the following section:

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

    The EXTRA.ICS file is used to launch the ProLiant Support Pack at the end of the network installation.
12. 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.

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

Deploying the Target Server Using NetWare 6.5 Network-Based Deployment

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.

NetWare 6.5 RESPONSE.NI Sample File

The operating system-dependent unattended installation file is not created by the Toolkit utilities. The user must create the file separately. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

For a complete description of how to automate the installation of Novell NetWare 6.5, refer to the Novell NetWare document *Automating the NetWare 6.5 Installation with a Response File,* available at the Novell website (http://www.novell.com/documentation/lg/nw65/index.html).

You can remove all server-specific hardware information from the response file and turn on hardware detection by changing values from false to true. Refer to **[NWI:Hardware]** in the following example. This creates a more generic response file for use on multiple servers.

The following script file is a sample only. HP recommends that you perform a base media install and use the resulting response file.

```
[Product Versions]
EDIR=87.1.0
NICI=2.6.0

[NWI:Product Information]
Major Version=NetWare 6
Minor Version=50

[NWI:Language]
Server Language=4
Prompt=FALSE
Additional Languages=4

[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.SC
   H,
   sys:system/schema/NDPS100.SCH,sys:system/schema/NDPS2
   00.SCH,
   sys:system/schema/SVC.SCH,sys:system/schema/NDSCOMM.S
   CH,
```

```
   sys:system/schema/NOV_INET.SCH,sys:system/schema/NSSF
   S.SCH
Schema Extensions TAO=sys:/system/schema/NDS500.SCH,
   sys:/system/schema/NDSPKIS.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=NETWARE65_TREE
Server Context=O=compaq
New Tree=true
Admin Login Name=admin
Admin Context=O=compaq
Display Summary=false
Prompt=false

[NWI:Old Products]
Product 1=NWSB411
Product 2=IWSB411
Product 3=NWSB420
Product 4=NWGB420
Product 5=NSBS
Product 6=NFAM
Product 7=NFAW
Product 8=NFAU

[NOVELL:NOVELL_ROOT:1.0.0]
showWelcomeScreen=false
LogLevel=DEBUG_DETAIL
rebootAfterFileCopy=false
allowLicenseAgreement=false
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.SelectLang
uage
customChoiceScreen=com.novell.application.install.
   CustomChoicePanel
wizardScreen=com.novell.application.install.WizardFrame
licenseEnvelopeScreen=com.novell.application.install.
   LicenseEnvelope
;closeScreen=NWICloseScreen
closeScreen=SilentCloseScreen
silent=true
installSilentModeOverwrite=true
installSilentModeOverwriteConfigFile=true
allowCustomization=true
allowSummary=false
allowReadme=true
allowCloseScreen=true
allowStatusBar=true
welcomeScreenText=Welcome to the Novell installation.
This program will upgrade your system to NetWare 6.1.
This upgrade is comprised of two steps.  First is an
interview and the file copy.  This is followed by a
system reboot and the system configuration.  So sit back
and enjoy the ride.  Upgrades just don't get any easier
than this :)
welcomeScreenTitle=Novell Product Installation
customizeScreenTitle=Product Customization
defaultImage=banner5.gif
licenseAgreeFile=
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=2
overWriteNewerFile=false
overWriteNewerFilePrompt=true
copyToRemoteDestination=true
pdbDirectory=server;products
copyAll=false
automaticReboot=true
reboot=true

[Initialization]
SPLocation=SYS:\NI\nis30\bin\../data/local.db
NISubdirectory=nis30
Install Zip Path=sys:ni/data
Skip Script Copy=true
DisplayLanguage=en_US
Version=DestinationNode
Install State=Finished
InstallationMode=Silent
SummaryPrompt=false

[NWI:Install Script]
Support Pack Script=c:\spack\spack.ips e=c:\spackerr.log
s=c:\spack
DOS Install=DOS_INST.ILS
SYS Install=SYS_INST.ILS
Image Install=GUI_INST.ILS
Close Script=C:\compaq\extra.ics e=c:\cpqerr.log

[Locations]
Novell:DST%Startup:1.0.0=

[Selected Nodes]
prompt=true
DestinationNode=HealthChecks
HealthChecks=NetWare Services
NetWare Services=NetWare
OS,Patterns,Products,NWUpdateGroup
NetWare OS=NetWare65OS,NICI,Protocols,
   Time Zone,DS_Install,LicensePrompt,W0 install,
   NFA Install Module,DOS_INST,SYS_INST
Patterns=CustomNetWare
Products=Novell Certificate Server,6pkLdap,Imonitor,
```

```
   Apache2 Admin
   Server,Tomcat4,Portal,SMS,ConsoleOneProducts,
   NWNMAS,Native File Services,NWEMBOX,NFA Module,
   Beans,NSN,Perl,PHP,OpenSSH
Novell Certificate Server=CertServ System Files,
   CertServ Public Files
Imonitor=imonitor_DFG
Apache2 Admin Server=AApache2,AAp2Conf,adminsrv,welcome
Tomcat4=Tomcat zip file,examples zip file,
   Tomcat admin configuration,Novell Tomcat Startup
   Scripts
Portal=portalzip,httpstkzip
SMS=SMSSystemFiles
ConsoleOneProducts=ConsoleOne,Reporting Snapin
ConsoleOne=c1_core,c1_win32,c1_nw.zip
Reporting Snapin=c1_rpt
NWNMAS=NMAS Server System Files,NMAS Methods
Native File Services=NFSNIS
NFSNIS=NFSNIS-NLMs
NWEMBOX=embox_DFG
Beans=BEANS_ZIP
NSN=NSN install module,UCS install module
NSN install module=NSN Product zip file
UCS install module=UCS Product zip file
Perl=Perl install module
Perl install module=Perl Product zip file
PHP=PHP install module
PHP install module=PHP Product zip file
OpenSSH=SSH-Config,SSH-Core,SSH-Docs
NWUpdateGroup=NWUpdate

[Product List]
Essential Products=NetWare OS,HealthChecks,NetWare
Services

[Health Check]
Clear Default Check List=true
Display Summary Screen=false
Display Selection Screen=false
prompt=false

[Advertisement]
Ad ID#0=ad1.gif,60
Ad ID#1=ad2.gif,60
```

```
Ad ID#2=ad3.gif,60
Ad ID#3=ad4.gif,60
Ad ID#4=ad5.gif,60
Ad ID#5=ad6.gif,60
Ad ID#6=ad7.gif,60
Ad ID#7=ad8.gif,60
Ad ID#8=ad9.gif,60
Ad ID#9=ad10.gif,60
Ad ID#10=ad11.gif,60
Ad ID#11=ad12.gif,60

[FileGroup finalSize]
CertServ System Files=1658797
CertServ Public Files=3678457
imonitor_DFG=6431720
AApache2=10050928
AAp2Conf=9136
adminsrv=5923996
welcome=637890
Tomcat zip file=24630940
examples zip file=375454
Tomcat admin configuration=301538
Novell Tomcat Startup Scripts=57452
Ap2webcf=75969
portalzip=1172709
httpstkzip=488
SMSSystemFiles=1648705
c1_es=187205
c1help_es=448106
c1_core=5119817
c1_win32=46835789
c1_nw.zip=170
c1_rpt=12290385
IPP Login Files=4098693
IPrint Files=6137859
Gateway Files=37921515
NDPS Banner=874491
NDPS Font=3332
NDPS Prndef=10321258
HPDrivers=75929678
XeroxDrivers=88456164
KyoceraDrivers=19494559
LexmarkDrivers=12046952
IBMDrivers=16445029
```

```
OkiDrivers=176
QMSDrivers=10946325
ftpfilezip=327458
NSearch1=6974132
Templates=598840
Sample Templates=598840
NSrchES=2918872
NMAS Server System Files=2805022
NMAS Methods=21136089
NFSNIS-NLMs=2624178
iFolder zip file=7284736
ifolder_en=5486498
ifolder_es=5510820
embox_DFG=5723823
Product zip file=16423459
Configuration zip file=161
JDBC Driver zip file=212314
Manage zip file=7802229
exteNd Application Server zip file=203527112
exteNd Application Server NetWare Overlay=101856
exteNd Application Server IP address Management zip
file=9464
Nsure auditing zip file=1819638
Nsure auditing lsc files=25990
RSyncSrvZip=379034
BEANS_ZIP=954018
components=4625563
NSN Product zip file=2505532
UCS Product zip file=403216
Perl Product zip file=10123351
PHP Product zip file=1460960
SSH-Config=3054
SSH-Core=3965796
WanConnectZip=3371721
EXTEND_ZIP_FILE=3012904
DOS_INST=1
SYS_INST=1

[NWI:Boot Partition]
Prompt=FALSE

[NWI:Locale]
Prompt=FALSE
Country Code=001
```

```
Keyboard=United States
Code Page=437
Uses Vgadisp=false

[NWI:Mouse and Video]
Mouse=Auto
Video Type=PlugNPlay
Prompt=FALSE

[NWI:License]
Prompt=False
Display License Agreement=FALSE
NICI Foundation Key File=file:/A:\LICENSE\90367531.NFK
License File=file:/A:\LICENSE\90367531.NLF

[NWI:Install Options]
Upgrade=FALSE
Migration=FALSE
Express=FALSE
Prompt=FALSE
Startup Directory=C:\NWSERVER
Allow User Response File=TRUE

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

[Novell:SRC:1.0.0]
path=F:

[NWI:File Server]
Prompt=false
Servername=NETWARE65
Server Id Number=422116F

[NWI:Hardware]
Access Floppy=FALSE
CD-ROM Driver=NetWare
Prompt=FALSE
PSM Detection=True
Storage Detection=True
Network Detection=True
```

```
[NWI:Add To Startup]

[Novell:DST%Startup:1.0.0_Location]
path=file:///C:\NWSERVER
[NWI:Fileset Totals]
DOS copy=45403193
FAT Compatibility Update Copy=1256
FAT update copy=2415231
DOS finish copy=916950
FAT TMP copy=6319309
FAT TMP Update copy=628
SYS Volume Backup=0
Copy System Files Script=265437549
SYS Compatibility Update Copy=628
System Files Update Copy=0
UnZip System Files Script=979357

[NWI:Pool Sys]
Remove Old Partitions=TRUE
Remove Only SYS partitions=TRUE
Remove Shared Partitions=FALSE
Device ID=[V321-A3-D0:0] Compaq 64-Bit Slot 0 Port 2 ID
0 COMPAQ BD01862A
SYS POOL SIZE=4000

[DST_Location]
Path=file:/sys:
User=

[Languages]
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
[Licenses]
```

```
FCLLic=

[NWI:PROTOCOLS]
Prompt=false

[NWI:TCPIP]
Logical Name 1=N100_1_EII
IP Address 1=10.1.30.23
Subnet Mask 1=255.255.255.0

[NWI:IPCMD]
IPX Compatibility=False

[NWI:DNS]
Prompt=false
Domain=com
Nameservers=10.1.30.27

[NWI:Host Name]
Prompt=false
Verify=False
Host Name 1=karen.com
IP Address 1=10.1.30.23

[NWI:Time Zone]
Time Zone=CST
Prompt=false
Use Daylight Saving Time=true

[NWI:Time Synchronization]
Time Server Type=SINGLE
[NWI:LdapConfig]
Prompt=false
ClearText=false

[SMS]
treeName=NETWARE65_TREE
queueVolume=CN=NETWARE65.O=compaq
queueContext=CN=NETWARE65 Backup Queue.O=compaq
smdrContext=O=compaq

[NWNMAS]
Prompt=false
Method 0=NDS
```

```
[Beans]
prompt=false

[NSN]
prompt=false

[Perl]
prompt=false

[PHP]
prompt=false

[NWI:MISC]
Relogin Password=password
```

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

Red Hat Linux Deployment

In This Section

Linux Network-Based Deployment

This section provides best practice scenarios for using the Toolkit to deploy Red Hat Linux operating systems to a target server across a network connection. The following distributions of Red Hat Linux are supported:

- Red Hat Linux 7.3
- Red Hat Linux 8.0 Professional
- Red Hat Enterprise Linux 2.1 update 2

Samples of the script files are available in the /toolkit/samples directory that is created when you download and expand the SmartStart Scripting Toolkit.

For more information on the SmartStart Scripting Toolkit, refer to the HP website (http://www.hp.com/servers/sstoolkit).

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 7.3, Red Hat Linux 8.0 Professional, or Red Hat Enterprise Linux 2.1 update 2 operating system files
- Customized Red Hat Linux boot image file
- Toolkit utilities
- Server profile script files arranged in directories

Some hardware might require that specific parameters or patches be applied to the Linux kernel. For more information, visit the Linux for ProLiant website (http://h18004.www1.hp.com/products/servers/linux/softwaredrivers.html).

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

Linux Network-based Deployment Overview

The general network-based deployment process includes:

1. Creating a Linux bootable server configuration diskette with network software (on page 204)
2. Creating Linux server profile script files (on page 208)
3. Customizing the Linux boot image file (on page 211)
4. Creating Linux server batch files (on page 212)
5. Preparing the Linux network software repository (on page 217)
6. Deploying the target server using Linux network-based deployment (on page 219)

For more information, refer to the README.TXT file on the Red Hat Linux CD.

Creating a Linux Bootable Server Configuration Diskette with Network Software

Using DOS 6.22 or 7.0, follow these steps to create a bootable server configuration diskette for booting the target server and loading the Microsoft® Networking protocol stack. Loading the protocol stack enables the target server to connect to a shared network directory and initiate the server deployment process over the network.

> **NOTE:** Refer to "Creating a Network Boot Diskette (on page 241)" for an alternate procedure to create a basic network boot diskette using Microsoft Network Client 3.0 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. Be sure that the latest NIC drivers are available for the server on which Red Hat Linux will be installed.

   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 v3.0 for MS-DOS and Windows.**

5. Select any of the NICs from the list.

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 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
REM *** copied to the 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
REM *** the 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:
```

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
REM *** 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
REM *** the configuration batch file that resides in the
REM *** shared 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
REM *** determining the target system and calling the
REM *** server-specific 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 to the diskette and entering 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 Linux Server Profile Script Files

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

Linux Server Configuration Files

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
- SERVER.ARY—Array configuration script file generated by ACR
- SERVER.RLO—RILOE configuration file generated by CPQLODOS (optional)
- SERVER.PRT—Partition configuration script file generated by CPQDISK

Primary Configuration Script Files

Generate the three primary script files on the source server by following these steps:

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 Files

To generate the optional script files on the source server:

1. Generate the RILOE, RILOE II, or iLO configuration script file. For examples of the command line parameters, refer to the "Lights-Out DOS Utility" section of the *Remote Insight Lights-Out Edition User Guide,* the *Remote Insight Lights-Out Edition II User Guide,* or the *Integrated Lights-Out User Guide* on the HP remote management website (http://www.hp.com/servers/lights-out).
2. Be sure 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
```

Linux 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 kickstart file (ks.cfg) on the server configuration diskette. Refer to "Red Hat Linux ks.cfg Sample File (on page 220)" for a typical unattended installation.

The ks.cfg file is generated on a Red Hat Linux system by using the installable mkkickstart utility. Refer to the operating system documentation or to the *Red Hat Linux KickStart HOWTO* (http://www.linux.org/docs/ldp/howto/KickStart-HOWTO.html) 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.

Customizing the Linux Boot Image File

By default, the installation of Red Hat Linux 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 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-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, refer the "Third-Party Imaging Software Deployment (on page 229)" section.

Use a system running Linux to create the customized Linux boot image file. 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 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 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.

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 "Linux Unattended Installation Files (on page 210)" to the diskette.
5. Using the Linux `dd` command, create the customized Linux boot image file from the data on the diskette.

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 Remote Insight Diskette Image Utility to create the customized Linux boot image file.

Creating Linux Server Batch Files

In 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 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.

Example: Creating a log file

```
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.

Examples: Appending a 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 configuration batch file executes these steps:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats step 1

Because this is a destructive process, be sure 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 the "Third-Party Imaging Software Deployment (on page 229)" section. Alternatively, on Red Hat Linux-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.

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 operating system.

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
REM *** and get the current state
REM *** Samba and NFS services must have been started on
REM *** the 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
REM *** has been full tested and debugged
REM *** ------------------------------------------------
pause
REM *** ------------------------------------------------
REM *** Establish DOS error levels and branching in
REM *** declining 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
```

```
REM *** the 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
REM *** onto 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
REM *** 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\dl380lnx.prt
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 *** There is no operating system partition at this
REM *** point. The ramdrive is labeled c: by default.
REM *** Operating system files are copied to the
REM *** ramdrive from the diskette and the shared
REM *** network directory to prepare the Linux boot
REM *** 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
REM *** the 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
REM *** the content of the configuration diskette with
REM *** the content of a Linux image file
REM *** Ensure that an image file of the original
REM *** configuration diskette exists
REM *** The Linux boot diskette is created by using the
REM *** RaWrite 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 *** ------------------------------------------------
:State4
: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 Linux Network Software Repository

In this sample, the software repository is located on a Linux-based server. The SMB and 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 creating a custom installation CD, 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 can 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.

   Be sure 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 CD into the directory.

The /SHAREVOL/RedHatCD subdirectory must be shared as an NFS volume.

Refer to the README file on the Red Hat Linux 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.

   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 the SmartStart and Management CDs.
10. If the system partition on the target server will be populated, copy the subdirectories /SYSCFG, /DIAGS, /DIFDATA, and /CPQSUPSW/ROMPAQ from SmartStart to the /SHAREVOL subdirectory of the software repository.

After the directory structure of the network software repository is determined, be sure 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
```

For additional information and configuration parameters of the smb.conf file, refer to the Samba website (http://www.samba.org) or the *SMB HOWTO* document (http://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)
```

For additional information and configuration parameters of the exports file, refer to the *NFS HOWTO* document (http://www.linux.org/docs/ldp/howto/NFS-HOWTO.html).

Deploying the Target Server Using Linux Network-Based Deployment

To begin a new server deployment over the network:

1. Be sure 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 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. In the following example, bold lines indicate modifications made to fully automate the installation of the operating system.

The ks.cfg file is generated on a Red Hat Linux 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* (http://www.linux.org/docs/ldp/howto/KickStart-HOWTO.html) 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.

```
lang en_US

REM *** Modify the network settings to reflect required
REM *** network settings.

network --bootproto dhcp

REM *** The IP address should be the address of the
REM *** Linux repository server. The /SHAREVOL/RedHatCD
REM *** must be shared 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
```

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.

Deployment Using Lights-Out Management Processors

In This Section

Installation Overview and Prerequisites

This best practice scenario focuses on using the Toolkit with the latest version of the RILOE or iLO firmware to deploy a target server remotely. For the latest firmware, visit the HP remote management website (http://www.hp.com/servers/lights-out). This procedure can only be used for Windows®-based and NetWare-based deployments. It cannot be used for Linux-based deployments.

The following 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
- CPQLODOS

Successful remote server deployment using the Toolkit and the Virtual Floppy Drive requires:

- A target server with an installed LOM processor and accessibility to the administrative console over an IP connection.

Refer to the RILOE or iLO documentation for information about correctly configuring the LOM processor.

- 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 HP drivers required to achieve full installation of the operating system.
- A DHCP server at the remote location so that the LOM processor can automatically obtain an IP address from the DHCP server.

  If a DHCP server is not available at the remote location, the LOM processor can be configured to use a static IP address.
- An IP connection between the Web browser and the LOM processor.
- A remote target server and source server of an identical ProLiant brand with similar internal hardware.

Lights-Out Management Deployment Process Overview

The general deployment process includes:

1. Configuring the RILOE or iLO 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

   Because remote deployment with the RILOE or iLO occurs over a network connection, steps 1 through 5 are described in more detail in each of the network-based deployment sections of this document.
6. Creating the bootable server configuration diskette image file (on page 225)
7. Using the LOM processor to access and deploy the remote server (on page 226)

Steps 6 and 7 are described in more detail in the following sections.

Configuring the LOM Processor on the Target Server Using CPQLODOS

For examples of CPQLODOS scripting, refer to the *Remote Insight Lights-Out Edition User Guide* or the *Integrated Lights-Out User Guide* at the HP remote management website (http://www.hp.com/servers/lights-out).

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 Diskette Image Utility available on the HP support website (http://h18004.www1.hp.com/support/files/lights-out/us/index.html).

Download the Diskette Image Utility to a directory on the administrative console and run the file CPQIMAGE.EXE.

Enter the necessary information in each field and save the diskette image on the system used to access the RILOE or iLO. 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.

When using the RILOE Virtual Floppy, if present, remove the following line from the CONFIG.SYS file on the server configuration diskette:

```
DEVICE=EMM386.EXE
```

The RILOE Virtual Floppy Drive works correctly with an operating system that only accesses diskette drives through standard BIOS Interrupt 13 calls. The RILOE Virtual Floppy Drive is not compatible with protected-paging mode applications, such as EMM386.

Using the LOM Processor to Access and Deploy the Remote Server

Every LOM processor is preconfigured to use DHCP by default, with a preset user name, password, and 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: Refer to the default settings tag
- DNS name:
  - RILOE: `RIB`*xxxxxxxxxxxx*, where the 12 x's are the MAC address of the RIB
  - ILO: `ILO`*yyyyyyyyyyyy*, where the 12 y's are the host server's serial number

To access the RILOE or iLO using a Web browser:

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 LOM processor.
2. Enter the factory-preset user name and password, then click OK. The user name and password are case-sensitive. If the LOM processor is already configured and the name and password are changed, use the new user name and password instead of the default information.
3. After the user name and password are verified, the LOM processor home page opens.
4. Locate the Virtual Floppy or Virtual Media menu item and click the selection.
5. Use the Virtual Floppy or Virtual Media user interface to enter the path and name of the server configuration diskette image.
6. Click **Insert Virtual Floppy** (for RILOE) or **Connect** (for iLO).

7. For RILOE, select **Boot Always** on the Virtual Floppy Status screen, verify that the Virtual Floppy Drive is not write protected, and click **Submit Changes.**
8. Use the Virtual Power feature of the LOM processor to remotely reboot or power on the host server.
9. Use the Remote Console feature of the LOM processor to remotely monitor the server power-on and the process of booting from the Virtual Floppy image.

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.

Deployment of the remote target server can be monitored and controlled through the LOM processor graphical Remote Console window.

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

Third-Party Imaging Software Deployment

In This Section

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. Refer to 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.

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 be sure 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 (http://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

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

Third Party Imaging Deployment Process Overview

The general network-based server deployment process includes:

1. Creating the bootable server configuration diskette with network software (on page 230)
2. Creating the server profile script files using Ghost (on page 230)
3. Creating the server batch file using Ghost (on page 231)
4. Preparing the network software repository using Ghost (on page 234)
5. Deploying the target server using Ghost (on page 235)

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 the Windows NT® 4.0 and Windows® 2000 operating systems. Loading the network protocol stack enables 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 Using Ghost

When using Ghost, the Toolkit utilities require a server profile consisting of two 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.
- Array configuration script file generated by the ACR utility.

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.

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 the following:

   – DL3802K.HWR-Hardware configuration script file generated by CONREP

   – 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 Using Ghost

In this sample, the Windows® 2000 operating system 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.

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:

1. Reads a server state variable
2. Checks the error level returned by the server state variable and branches to the appropriate configuration process
3. Runs the commands in the configuration process and increases the server state variable, rebooting if necessary
4. Repeats 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
REM *** 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
REM *** has been full tested and debugged
REM *** ------------------------------------------------
pause
REM *** ------------------------------------------------
REM *** Establish DOS error levels and branching in
REM *** declining 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
REM *** the 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
REM *** onto 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\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
REM *** system's hard drive and copy the operating
REM *** system and other software onto the target server
REM *** using Norton Ghost with unattended parameters
REM *** from the Ghost documentation. The Norton Ghost
REM *** image used is: S:\SERVERS\DL380\DL3802K.GHO.
REM *** The system automatically reboots when the
REM *** imaging is 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
REM *** operating system on the target to reboot without
REM *** 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
REM *** be placed here
REM *** ------------------------------------------------

:State4
:State5
:State6
:State7
:State8
:State9
:State10
```

Preparing the Network Software Repository Using Ghost

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

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 can 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 the SmartStart and Management CDs.

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

Deploying the Target Server Using Ghost

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 server will work on a ProLiant DL360 server.

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 Altiris *RapiDeploy Technical Reference (*http://www.altiris.com/support/documentation/index.asp*).*

Creating the Bootable Server Configuration Diskette Using Altiris

If a bootable server configuration diskette is not already created, use the Altiris Boot Disk Creator to create the diskette. Be sure 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 Using Altiris

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
REM *** network stack and connect to the S: drive
REM *** (Toolkit share) here.
REM *** ------------------------------------------------
REM *** Ensure that the shared network directory is used
REM *** and get the current state
REM *** ------------------------------------------------
s:
cd \cpq
echo Retrieving State Information...
REM ***------------------------------------------------
REM *** Get the Array configuration data and save it to
REM *** a file
REM ------------------------------------------------
S:\CPQ\ACR /C S:\DL380\DL380NT.ARY
REM *** ------------------------------------------------
REM *** Get the Hardware configuration data and save it
REM *** 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 Using Altiris

Copying a disk image (which already has partition information) on the server does not require CPQDISK or any other partition-related Toolkit utilities. After the system configuration and array configuration are set with CONREP 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
REM *** network stack and connect to the S: drive
REM *** (Toolkit share) here.
REM *** ------------------------------------------------
REM *** Ensure that the shared network directory is used
REM *** 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
REM *** has been full tested and debugged
REM *** ------------------------------------------------
pause
REM *** ------------------------------------------------
REM *** Establish DOS error levels and branching in
REM *** declining 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
REM *** the 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 in the script file
REM *** S:\SERVERS\DL380\DL380NT.ARY and stamping it
REM *** 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
REM *** R:\DL380\DL380NT.IMG.
REM *** The image includes all partition information so
REM *** creating and formatting a partition is not
REM *** 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:
```

A significant portion of the typical Toolkit AUTOEXEC.BAT file is not required with RapiDeploy.

Creating a Network Boot Diskette

In This Section

Introduction to Creating a Network Boot Diskette

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 the Windows NT® 4.0, Windows® 2000, and Red Hat Linux 6.2 or 7.x operating systems in this document provide the additional information required to fully configure the boot diskette.

For network-based NetWare 5.1 deployments, follow the instructions in the "Network Based Deployment" section.

Configure the network boot diskette at a standard DOS 6.22 or 7.0 prompt.

The Network Client 3.0 files are self-extracting executable files available on the Microsoft® FTP site (ftp://ftp.microsoft.com/bussys/clients/msclient).

The file set consists of two files: DSK3-1.EXE and DSK3-2.EXE. 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. The DSK3-1.EXE and DSK3-2.EXE files can also be copied to separate subdirectories on a hard drive.

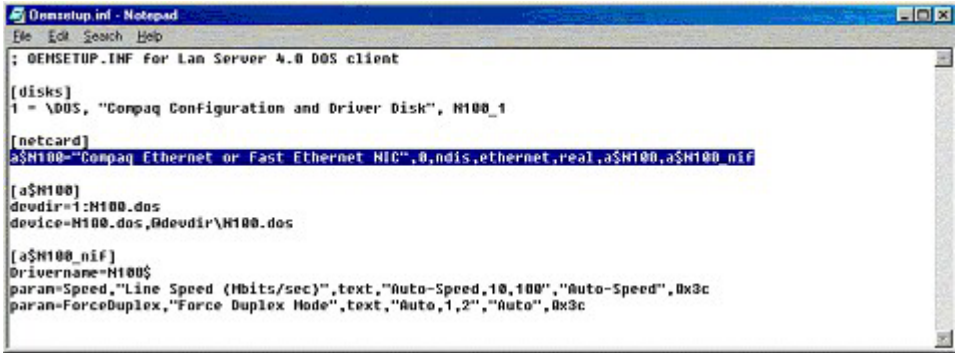
The Network Client 3.0 file set provides only a limited selection of network card drivers and must be updated to support new network cards.

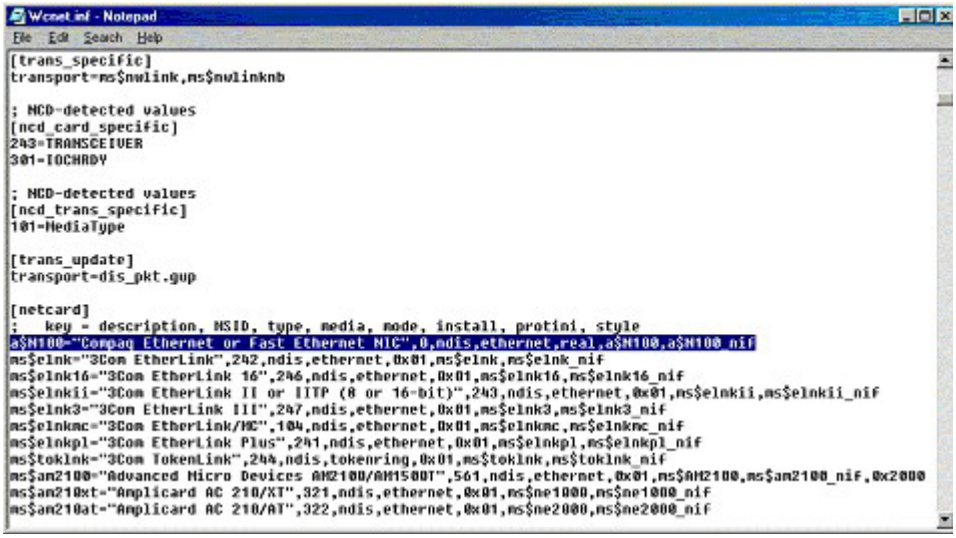
Updating the Network Client 3.0 Files

To add an updated NDIS2 driver to the Network Client 3.0 files:

1. Obtain and open the SoftPaq file containing updated DOS NDIS2 drivers for your network card at the HP support website (http://www.hp.com/support/files).
2. Open the OEMSETUP.INF file of the NDIS2 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.

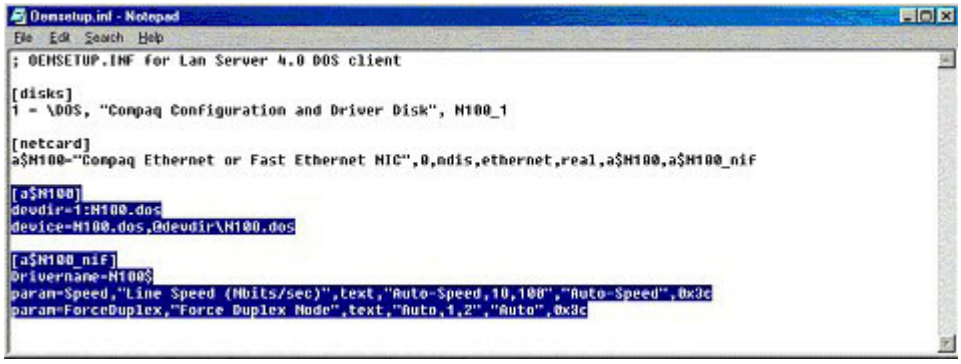
   For example, the following figures show the information that is copied from the [netcard] section of the OEMSETUP.INF file to the [netcard] section of the WCNET.INF file for the Fast Ethernet NIC driver.

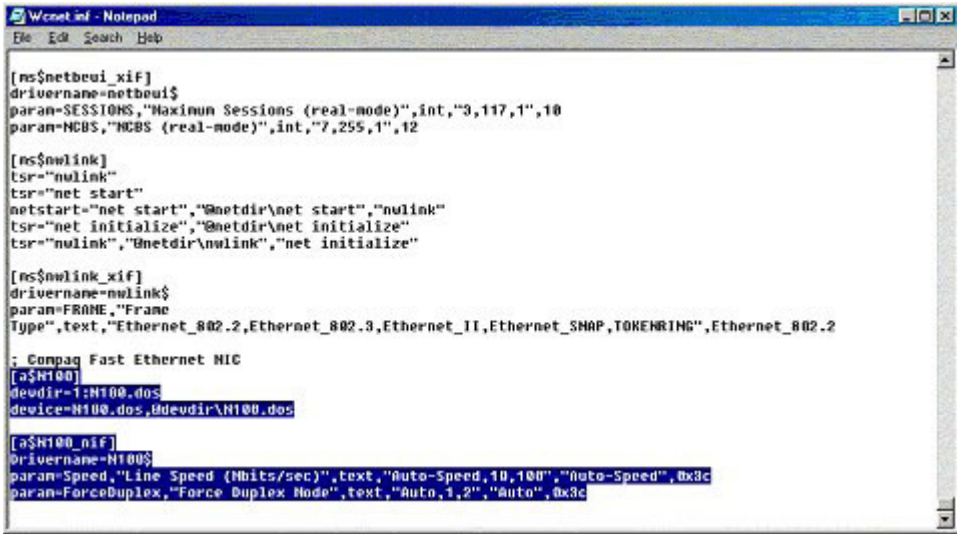




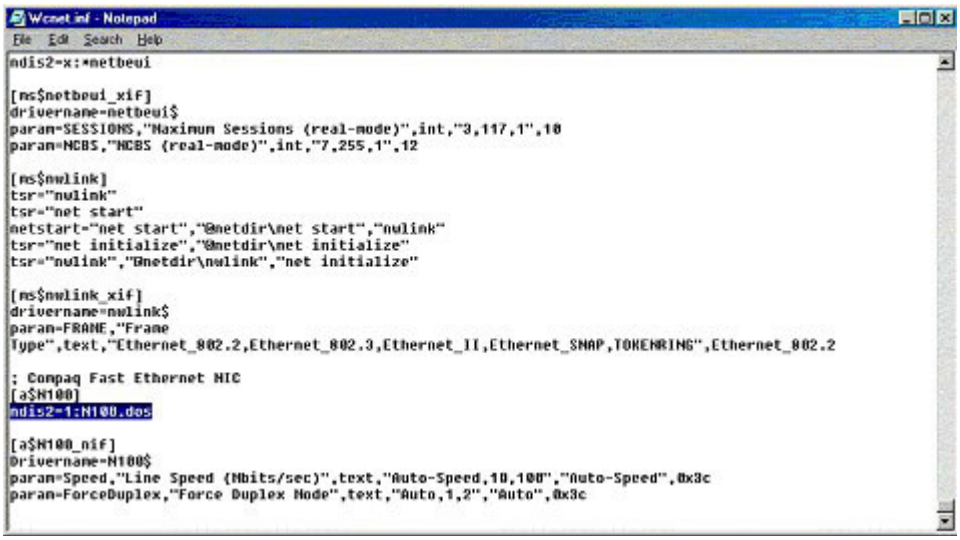
4. Append the NDIS2 driver header and NIF sections from the OEMSETUP.INF file to the end of the WCNET.INF file.

   For example, the following figures 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.




Wcnet.inf - Notepad
File Edit Search Help
[ms$netbeui_xif]
drivername=netbeui$
param=SESSIONS,"Maximum Sessions (real-mode)",int,"3,117,1",10
param=NCBS,"NCBS (real-mode)",int,"7,255,1",12
[ms$nwlink]
tsr="nwlink"
tsr="net start"
netstart="net start","@netdir\net start","nwlink"
tsr="net initialize","@netdir\net initialize"
tsr="nwlink","@netdir\nwlink","net initialize"
[ms$nwlink_xif]
drivername=nwlink$
param=FRAME,"Frame
Type",text,"Ethernet_802.2,Ethernet_802.3,Ethernet_II,Ethernet_SNAP,TOKENRING",Ethernet_802.2
; Compaq Fast Ethernet NIC
[a$N100]
devdir=1:N100.dos
device=N100.dos,@devdir\N100.dos
[a$N100_nif]
drivername=N100$
param=Speed,"Line Speed (Mbits/sec)",text,"Auto-Speed,10,100","Auto-Speed",0x3c
param=ForceDuplex,"Force Duplex Mode",text,"Auto,1,2","Auto",0x3c

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, and save the WCNET.INF file. DRIVERNAME.DOS is the DOS file name of the NDIS2 driver.



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.

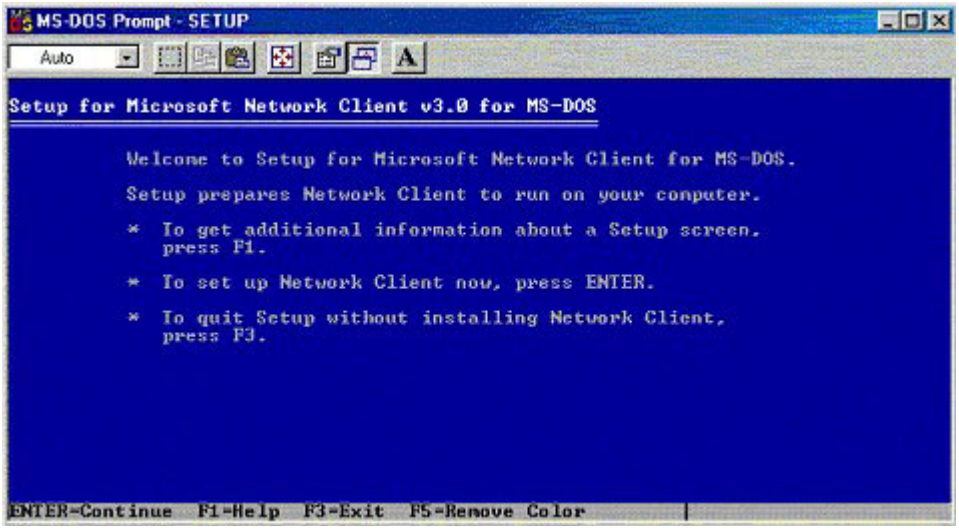
Creating a Network Boot Diskette

After the Network Client 3.0 files are updated with the latest NDIS2 drivers, create a basic network boot diskette that uses TCP/IP as the network protocol.

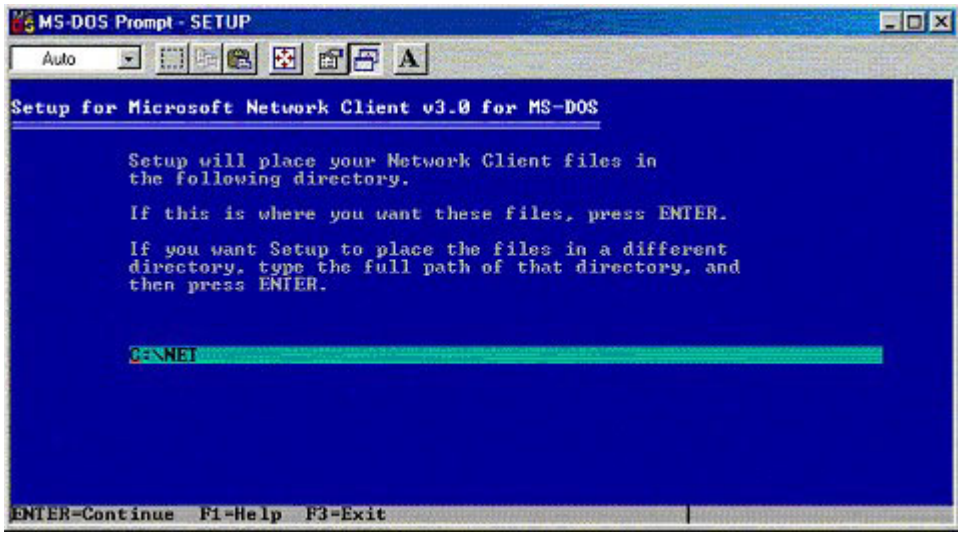
Because the default Network Client 3.0 file selection does not fit entirely on a standard 1.44-MB diskette, this procedure uses the local hard drive of the system on which the procedure is run as temporary storage for the \NET directory, AUTOEXEC.BAT, and CONFIG.SYS files. If a \NET directory already exists on the local hard drive, be sure 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.

To create a basic network boot diskette:

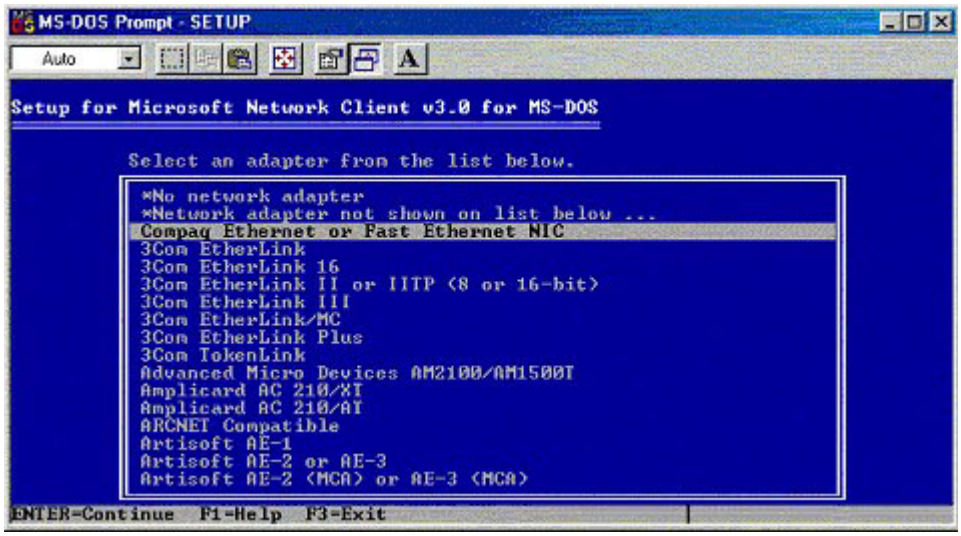
1. Format a standard 1.44-MB diskette using the `DOS FORMAT /S` command. This command transfers the system files that make the network boot diskette bootable.
2. Insert the first diskette of the Network Client 3.0 set of diskettes.
3. Change to the diskette drive and launch the setup file from the diskette drive by entering SETUP at the DOS prompt. A screen similar to the following figure is displayed.



4. Press the **Enter** key to continue. A screen that indicates the default installation directory for network files is displayed, as shown. The network files default installation directory is \NET on the local hard drive.

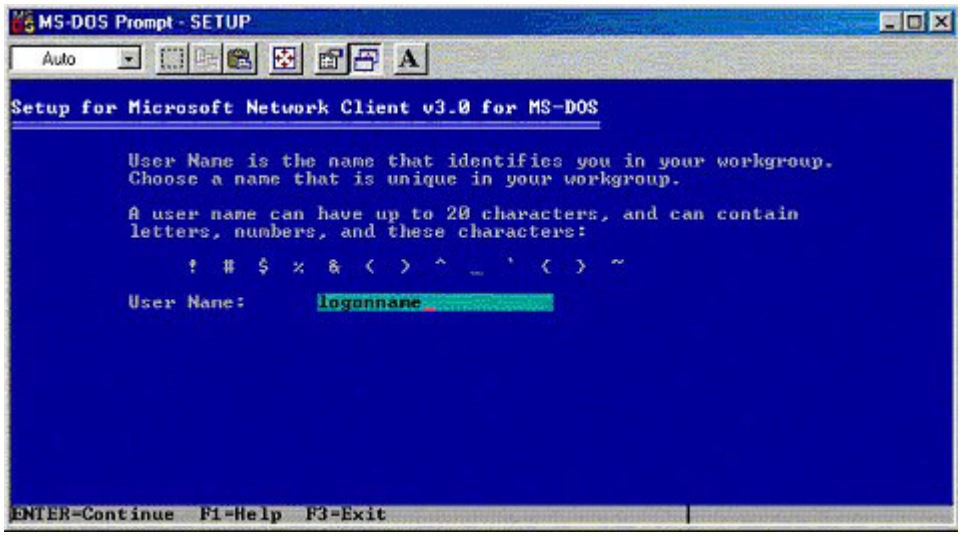


5. Accept the default installation directory and press the **Enter** key to continue. The Network Client 3.0 determines the drivers that are available for installation and displays a selection screen similar to the following.

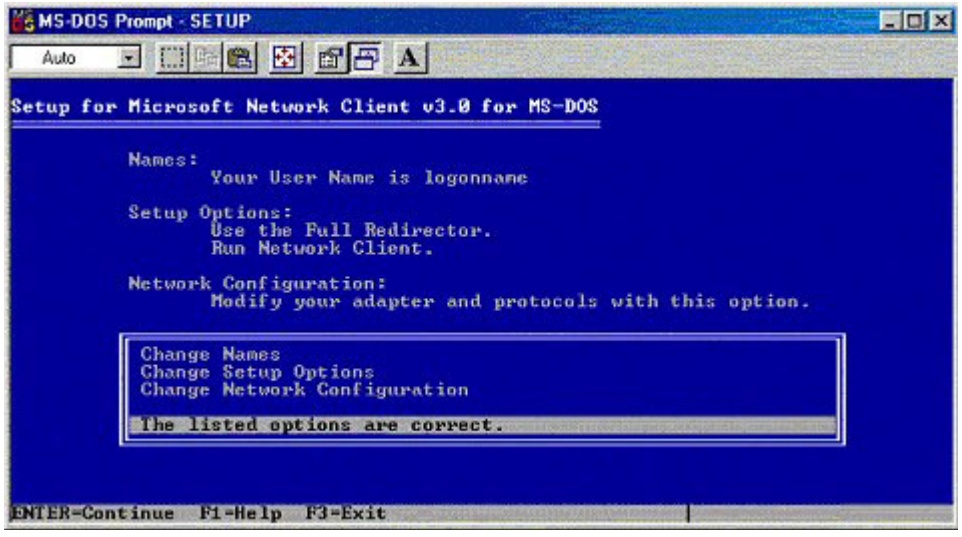


6. Select the network driver that is appropriate for the system and press the **Enter** key to continue. A screen that sets network buffers is displayed.

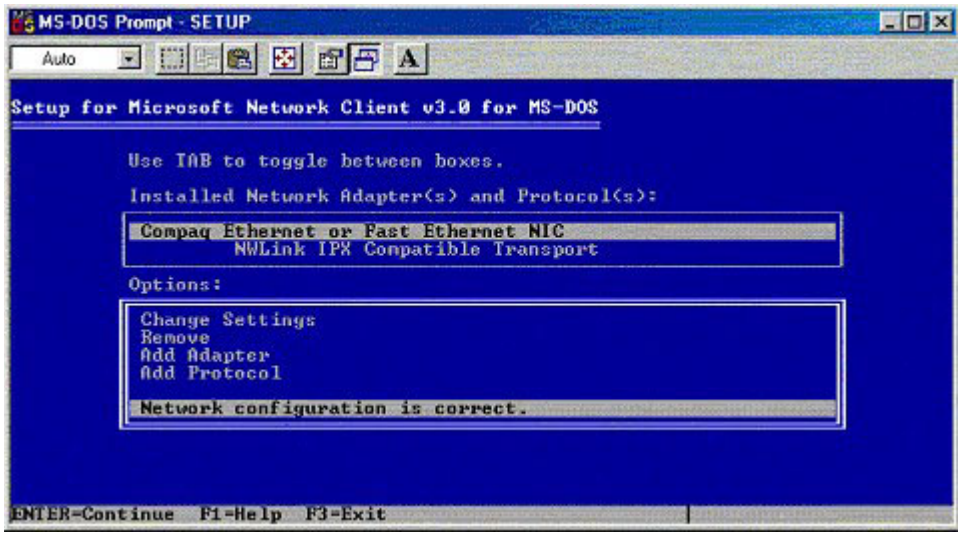
7. Press the **Enter** key to set the network buffers for optimal performance. A screen similar to the following is displayed and prompts for the network logon user name.



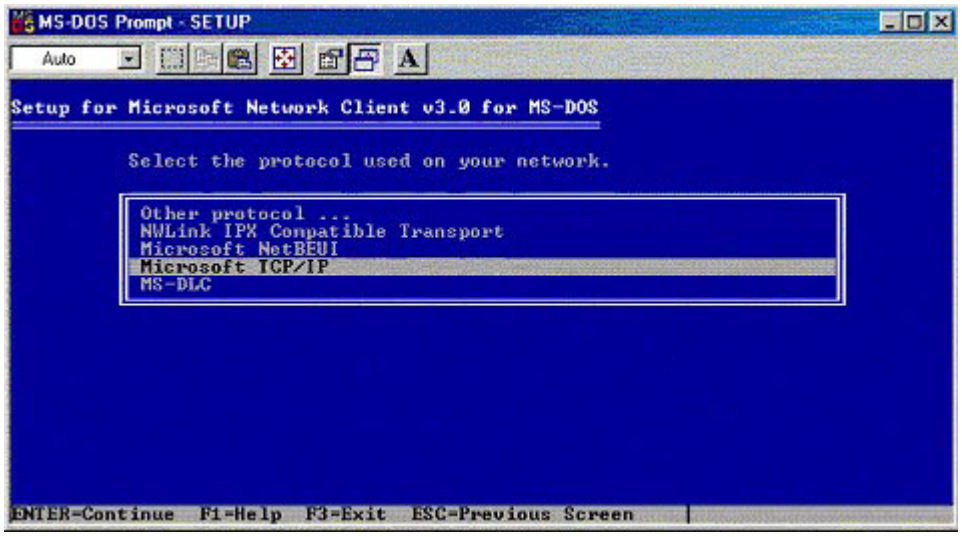
8. Enter the network logon user name. A screen similar to the one shown displays the default Network Client 3.0 settings.



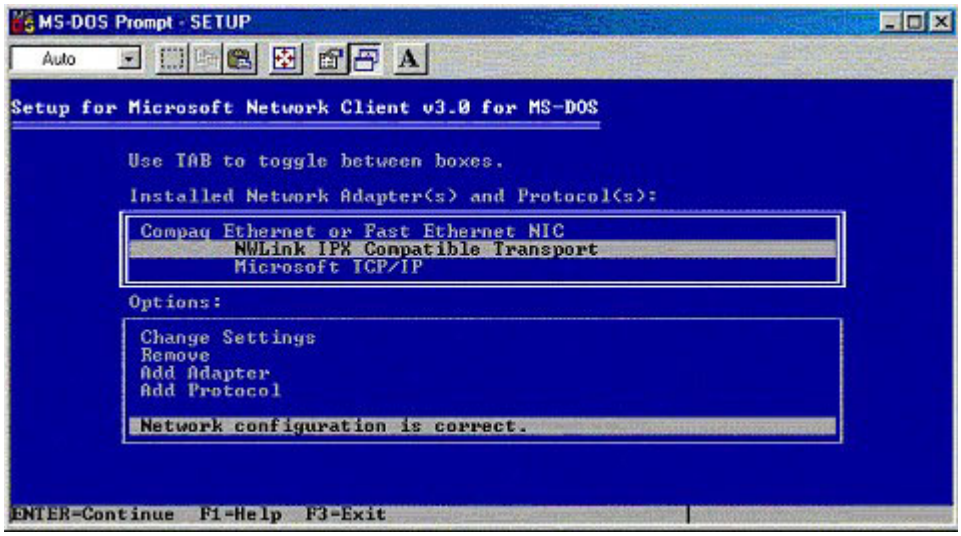
9. Highlight **Change Network Configuration** and press the **Enter** key. A screen similar to the one shown is displayed and shows the network protocols that are currently bound to the network driver.



10. To add the TCP/IP protocol, select **Add Protocol**, then press the **Enter** key. A screen similar to the one shown is displayed and shows all available network protocols.

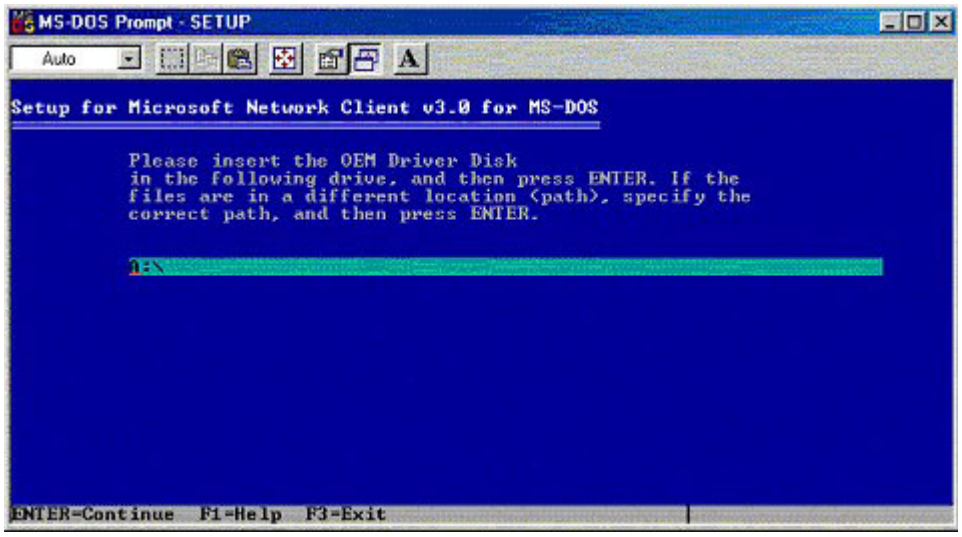


11. Highlight **Microsoft TCP/IP** and press the **Enter** key to add the protocol. A screen similar to the one shown is displayed and shows the recently added protocol.



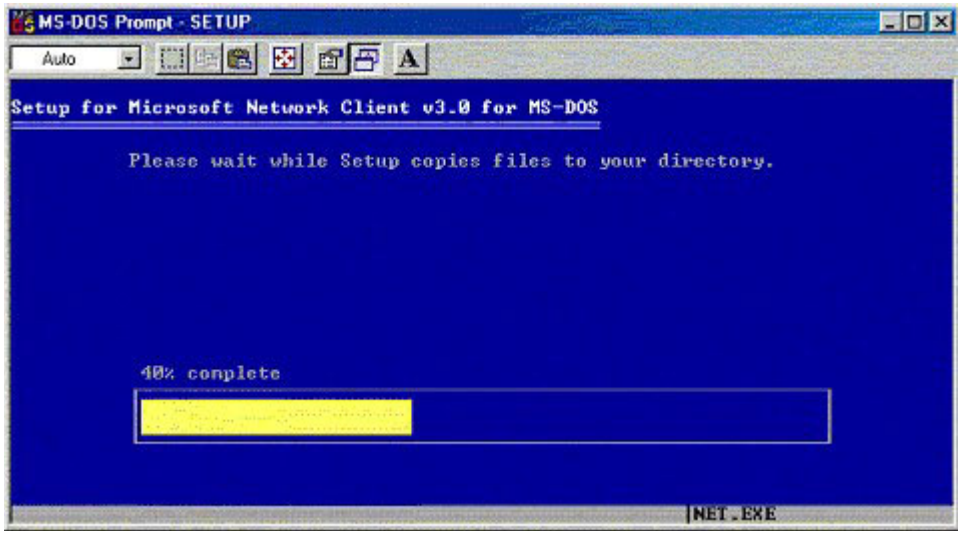
12. Perform the following to remove the NWLink IPX Compatible Transport protocol from the Installed Network Adapter(s) and Protocol(s) list:
    a. Press the **Tab** key to move the highlight from the Options list to the Installed Network Adapter(s) and Protocol(s) list.
    b. Highlight the **NWLink 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 that are displayed on the screen when this option is highlighted and the **Enter** key is pressed. Otherwise, highlight **Network configuration is correct** and press the **Enter** key.

14. Press the **Enter** key again at the Network Client 3.0 settings screen (shown in step 8), and a prompt for the OEM Driver Disk is displayed, similar to the following.



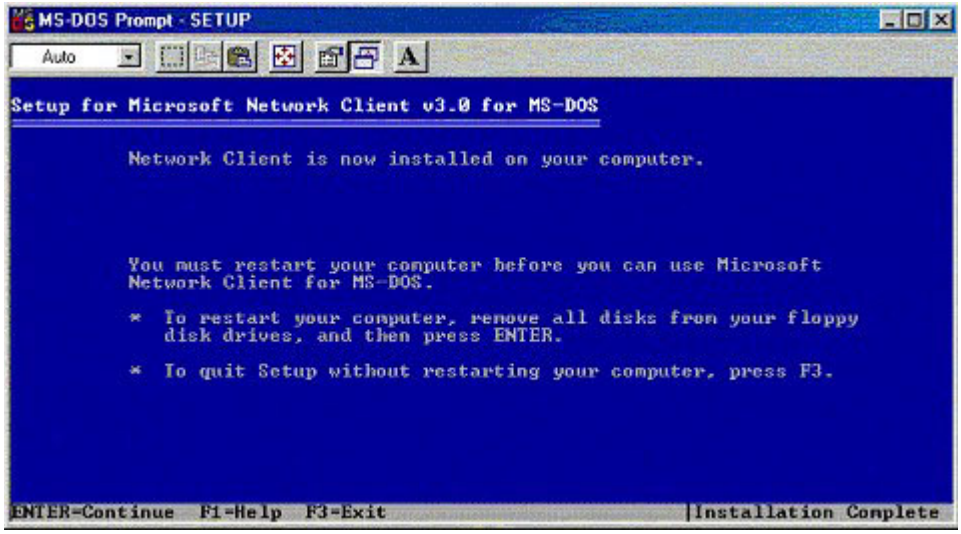
15. Insert the second diskette of the Network Client 3.0 set of diskettes into the specified drive and press the **Enter** key. Required TCP/IP files are copied into the \NET subdirectory of the local hard drive and network drivers are configured. After all necessary files are copied, another screen prompts to insert the Network Client for MS-DOS Disk into the diskette drive.

16. Reinsert the first diskette and press the **Enter** key. A progress bar similar to the figure shown is displayed.



17. Press the **F3** key to return to the DOS prompt after the file copy and configuration processes complete. A final status screen similar to the figure shown is displayed.

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 files, which can jeopardize system integrity.



18. Insert the network boot diskette prepared in step 1 into the diskette drive.
19. Copy the AUTOEXEC.BAT and CONFIG.SYS files from the local hard drive root directory to the root directory of the network boot diskette.
20. 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.
21. Create a \NET subdirectory on the network boot diskette and change to that subdirectory.
22. 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
```

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.

23. Delete the \NET subdirectory on the network boot subdirectory after all required files are copied from the \NET subdirectory on the local hard drive.
24. If a previously existing \NET subdirectory on the local hard drive was renamed, be sure that the subdirectory is renamed to its original name.
25. 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
```

26. 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
```

27. 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 might 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 enable 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 the Windows NT® 4.0, Windows® 2000, and Red Hat Linux 6.2 or 7.x operating systems by editing the startup and configuration files on the diskette. For additional information, see the "Creating the Bootable Server Configuration Diskette with Network Software" sections appropriate to each operating system in this document.

Command Line Unattended Erase

In This Section

Unattended Erase Overview

A command line unattended erase provides a method for administrators to return a ProLiant server back to the original "clean" state, erasing hard drives, and clearing system BIOS settings.

The instructions in this section provide the information necessary to create a boot configuration and diskette that performs a system erase.

CAUTION: Using this script will erase all data on the system without any prompts or warnings. To prevent data loss, be sure to back up all critical data before using this utility.

To create a command line unattended erase diskette, you need:

- System Erase utility 1.68 or later (ERASE.EXE)
- Reboot utility (REBOOT.EXE)
- Fast-Wide SCSI-2 ASPI driver (FWS2ASPI.SYS)
- ASPI driver (ASPICPQ.SYS)

Unattended Command Line Erase Utility Details

The unattended command line erase process includes the following tasks:

- Erasing all data from the server hard drive

- Returning the system BIOS settings to system defaults

Configuring Unattended Erase Files

The files created in this section are used to create a scripted system erase utility.

CAUTION: Using this script will erase all data on the system without any prompts or warnings. To prevent data loss, be sure to back up all critical data before using this utility.

1. Gather the system erase utility files and create a bootable diskette.

   Copy the following files to the bootable diskette:

   – ERASE.EXE

   – REBOOT.EXE

   – ASPICPQ.SYS

   – FWS2ASPI.SYS

2. Create the unattended erase batch file (SYSERASE.BAT)

   Create a batch file named SYSERASE.BAT with the following commands:

   ```
   ERASE.EXE -nolockup -jdmsaysnoui
   REBOOT
   ```

   STATEMGR.EXE will not work after ERASE.EXE has been executed. The system must be in a configured state before STATEMGR.EXE will function properly.

3. Execute the scripted erase batch file (SYSERASE.BAT).

Unattended Erase Sample Files

- CONFIG.SYS

  The CONFIG.SYS file on the server boot device should have the following device drivers loaded:

  ```
  lastdrive=z
  device = \fws2aspi.sys
  device = \aspicpq.sys /d
  ```

```
STACKS = 9,256
```

- AUTOEXEC.BAT

```
call syserase.bat
```

Network Teaming and Configuration

In This Section

Network Teaming and Configuration Introduction

The Network Teaming and Configuration Utility enables configuration of NICs and teams of network adapters. The scripting feature of the utility enables adapter configuration using a batch process. For additional information, refer to the *HP Network Adapter Scripting User Guide,* available with the Network and Teaming Configuration Component that ships with SmartStart.

Scripting functionality enables configuration of a target system based on configuration information saved from a source server. The target system is not required to be identical to the source server. The configuration of the source server cannot be duplicated in its entirety on the target system.

Both NICs and teams of NICs can be configured on the target system. When scripting is run, the NIC properties specified in the data file from the source server are used to modify the configuration of the NICs on the target system.

Advanced teaming capabilities are available through the NCU with a valid ProLiant Essentials Intelligent Networking Pack license. The Network Adapter License (nalicense) Utility can be used to add a license to the system or display licenses previously installed on the system. For information on how to use the Network Adapter License Utility, refer to the *Network Adapter License Utility User Guide* located on the Software and Documentation CD packaged with the adapter.

IMPORTANT: If licensed features are used, execute the Network Adapter License Utility first, then run the CQNICCMD utility to duplicate NIC teaming configuration on a target server.

When using scripting to configure the target systems, NICs are identified by their relative order in the system. The relative order is determined by the slot and port order in the system. NICs on the system board are assigned the lowest numbers, followed by NICs ordered by their slot number, lowest slot number first. Multiported NICs are ordered by ascending port number within each slot.

NICs on the target system are configured to match the corresponding NIC number on the host system. The first NIC on the target system is configured using data from the first NIC on the source server, the second NIC on the target system is configured according to the saved data for the second NIC on the source server, and so on. If the target system has more NICs than the source server, then the extra NICs retain their current settings. If the target system has fewer NICs than the source server, data for additional NICs on the source server is ignored.

Corresponding NICs on the source and target systems do not have to be of the same type since the only properties that are configured from the source data are properties that are common to all NICs.

The target system will be configured with the same number of teams that were present on the source server.

Teams are created on the target system consisting of the same relative NICs that were teamed on the source server. For example, if NICs 3 and 5 were teamed on the source server, then that teaming information is saved in the data file, and NICs 3 and 5 are teamed on the target system during the scripted configuration. In general, the NICs on the team on the target system do not have to be the same type of NICs that were teamed on the source server. However, some NICs cannot be teamed and if an attempt is made to form a team with invalid combinations of NICs, an error will occur. For example, teams with no common speed capabilities cannot be teamed on a load balancing team.

An error will occur in the configuration if the NICs forming the team on the source server are not present on the target system. For example, if NICs 3 and 5 are teamed on the source server but the target system has only four NICs, an error will be reported and the configuration will fail.

When teams are configured on the target system, the team properties will be set to the values read from the data file for the corresponding team on the source server. Properties not specified in the data file (and properties specified with invalid data values) will be configured using their default settings.

If no teams were configured on the source server, no teaming information will be written to the data file and configuration of the target system will consist only of configuring individual NICs.

Script Conversion

Scripts created with previous versions of the Network Configuration Utility are supported. However, HP recommends that you re-create the script using the latest version of the Network Configuration Utility. Several operating modes in previously generated scripts have been changed and are converted as follows:

- Manual is converted to Network Fault Tolerance Only.
- SmartSwitch is converted to Network Fault Tolerance Only with Preference Order.
- For SmartSwitch Teams, the existing PreferredPrimaryNic attribute determines which team member should be ranked higher than others within the PreferredPrimaryRanking attribute.

All other unspecified parameters use the default value.

Scripting Application (CQNICCMD)

CQNICCMD is a Windows® 2000 and Windows® Server 2003 utility that processes a network adapter configuration script file to duplicate the NIC Teaming configuration of a source ProLiant server to a target server. The utility can be run from the command line in a DOS window, from the **Run** option on the Windows® Start menu, or from a Windows® command file.

The CQNICCMD utility is installed with the Network and Teaming Configuration Component that ships with SmartStart. To execute the CQNICCMD utility from the command line, the Network and Teaming Configuration Utility must be closed.

HP recommends that you use this application as part of the SmartStart Scripting Toolkit DOS Edition deployment. However, the application can be used outside of this environment, and these steps should be followed when using the scripting application.

1. Configure NIC teaming on the source server.
2. Generate a script file on the source server by clicking **Save** in the Network Teaming Configuration user interface or selecting `CQNICCMD /S` in the Command Line utility.
3. Modify the script file as necessary.

   If you modify the script file, HP recommends that you run `CQNICCMD /P` to check the syntax of the modified file and check the log file for errors and warnings. The default location of the log file is `\cpqsystem\log\cpqteam.log` on the system drive. The syntax of the `/P` option is `cqniccmd /p` *filename.*
4. Install the Network Teaming and Configuration Utility on the target system.
5. Run the Command Line utility with the following syntax:
   `cqniccmd /c` *filename*
6. Check the log file for errors and warnings. The default location of the log file is \cpqsystem\log\cpqteam.log on the system drive.

CQNICCMD Command Line Syntax

```
CQNICCMD [/S] [/D] [/C] [/P] [/L] [/F]
```

Only one of the following configuration options can be specified at a time: `/S, /D, /C, /P.`

The `/L` argument can be used with any of the configuration options. The `/F` argument can only be used with the `/C` configuration option .

CQNICCMD Command Line Arguments

Argument	Description
/S	This configuration option causes the source server configuration to be saved. The name of the XML configuration data file must be specified and the path to the data file must exist. This option is identical to saving the source server configuration by clicking **Save** in the Network Teaming Configuration user interface.
/D	This configuration option causes all teams on the target server to be dissolved, all VLANs to be removed, and 802.1p/q Packet Tagging to be disabled for all NICs that had no VLANs. No additional arguments are required or allowed with this option.
/C	This configuration option applies the configuration specified in the data file to the target system. An existing XML configuration data file must be specified following the target switch. A space following the switch is optional. Any teams that exist on the target server will be dissolved before the configuration is applied, all VLANs will be removed, and 802.1p/q Packet Tagging will be disabled.
/P	This option is identical to the /C option, except that the configuration options are not applied to the target system. This is useful for syntax checking the XML data file.
/L	This option can be used to change the name and location of the cpqteam.log default log file that is created in \cpqsystem\log on the system drive. The supplied path must exist. An invalid log file name will cause the configuration to terminate with no changes. HP recommends this option only in batch files.
/F	This option causes all errors, including those errors normally treated as non-fatal errors, to be treated as fatal errors. This argument can be used only with the /C option.

CQNICCMD Command Line Example

```
/S
cqniccmd /Sc:\Compaq\teamcfg.xml
cqniccmd /S c:\Compaq\teamcfg.xml
cqniccmd /S"c:\Compaq\teamcfg.xml"
/D
cqniccmd /D
/C
cqniccmd /Cc:\Compaq\teamcfg.xml
cqniccmd /C c:\Compaq\teamcfg.xml
cqniccmd /C"c:\Compaq\teamcfg.xml"
/P
cqniccmd /Pc:\Compaq\teamcfg.xml
cqniccmd /P c:\Compaq\teamcfg.xml
```

```
cqniccmd /P"c:\Compaq\teamcfg.xml"
/L
cqniccmd /Cc:\Compaq\teamcfg.xml /Lc:\Compaq\config.log
cqniccmd /C c:\Compaq\teamcfg.xml /L
c:\Compaq\config.log
cqniccmd /C"c:\Compaq\teamcfg.xml"
/L"c:\Compaq\config.log"
/F
cqniccmd /F /C c:\Compaq\teamcfg.xml
```

CQNICCMD Usage Example

To use the CQNICCMD utility in Microsoft® Windows® 2000 unattended installs, insert the command line into the CMD.TXT file as shown in the following example.

```
REM *** The file names are dependent on the version of
REM *** SmartStart that is used.
c:\ntcsp\setupc /use-latest
waitonprocess setup50.exe 120
REM *** The optional cqniccmd command line allows for
REM *** NIC team configuration during Windows 2000
REM *** unattended install
c:\winnt\system32\cqniccmd /c c:\teamcfg.xml
c:\cmsisu.exe
delfile c:\cmsisu.exe
delfile c:\unattend.txt
deldir c:\ntcsp
deldir c:\quicklch
```

Refer to "Microsoft Windows Server 2000 Deployment ("Microsoft Windows 2000 Deployment" on page 43)" for more information on using CMD.TXT.

NIC Configuration Properties

The properties that are configured on the target server NICs from the source server data are properties that are common to all HP NICs. These properties include:

- SpeedDuplex—Determines the current speed and duplex of the NIC. Possible values include Auto/Auto, 10/Half, 10/Full, 100/Half, 100/Full, and 1000/Full. The default is Auto/Auto. The value must be valid for the NIC on the target system.
- PreferredPrimaryRanking—Determines the preferred primary ranking of the NIC. This value is written only for NICs that are teamed.
- DualChannelGroup—If dual channel teaming is used, this property identifies the group to which the NIC belongs. The default is 0. This value is written only for NICs that are teamed. For non-dual channel teams, the value is always 0.
- ConfiguredPortCost—Defines the port cost for the NIC. The default is 0. This value is written only for NICs that are teamed.
- DefaultVlanID—Determines the VLAN ID used for any untagged packets received by the NIC. This property only applies to NICs for which VLANs are defined.
- NetworkAddress—This value is written only for NICs that are not teamed. It allows the burned-in address to be overridden with a locally administered address. A null value will always be written to the XML data file because locally administered addresses must be unique. A null value is valid and indicates that the network address will be the burned-in address. This value must be a valid unicast address if it is edited.

Team Configuration Properties

The team configuration properties that are configured on the target server include:

- TeamName—Determines the unique identifier for the NIC team. Each team name on the target system must be unique.
- OpMode—Determines operating mode of the team. Possible values are Auto, StaticDualSlb, DynamicSingleSlb, StaticSingleSlb, FailOnFault, PrefPrimary, and TransmitLoadBalancing.

If the OpMode is StaticDualSlb, the team is considered to be using advanced teaming. A valid ProLiant Essentials Intelligent Networking Pack license must be on the target system for advanced teaming options to be configured on the target server. If a valid license does not exist, an error message will be written to the log and the script will exit without performing any actions.

- LoadBalAlgorithm—Determines the team load balancing algorithm. Possible values are MACAddress, IPAddress, TCPConnection, RoundRobin, and Auto.
- TeamNetworkAddress—Establishes the MAC address for the NIC team. A value will always be written to the XML data file. A null value is valid and will cause a default address to be computed. This value must be a valid unicast address if it is edited.
- TxHeartBeatMode—Enables or disables the heartbeat signal transmitted between the team NICs. Possible values are Enabled or Disabled.
- RxHeartBeatMode—Enables or disables the heartbeat signal received between the team NICs. Possible values are Enabled or Disabled.
- TxHeartBeatInterval—Determines how frequently the heartbeat signals are transmitted. The range of acceptable values is 3 to 60. Values less than 3 will be set to 3, while values greater than 60 will be set to 60.
- RxHeartBeatInterval—Determines how frequently the heartbeat signals are received. The range of acceptable values is 3 to 60. Values less than 3 will be set to 3, while values greater than 60 will be set to 60.
- RxPathValidationVlanID—Determines the VLAN on which Receive Path Validation Heartbeat Frames will be transmitted. This value is only written when a VLAN is defined for the team. The default is the VLAN on the team with the lowest VLAN ID at the time the team is created.
- FastPathEnabled—Enables or disables the port cost with path cost monitoring feature. Possible values are Enabled or Disabled.

  If the FastPathEnabled is set to Enabled, the team is considered to be using advanced teaming. A valid ProLiant Essentials Intelligent Networking Pack license must be on the target system for advanced teaming options to be configured on the target server. If a valid license does not exist, an error message will be written to the log and the script will exit without performing any actions.

- FastPathSpanningTreeType—Determines the spanning tree protocol. Possible values are IEEE 802.1D and Cisco PVST+. The default is IEEE 802.1D. FastPathSpanningTreeType is only relevant if FastPathEnabled is enabled.
- FastPathVlanID—Determines the VLAN ID to be used for path cost monitoring. This value is written only if a VLAN is defined for the team. FastPathVlanID is only relevant if FastPathEnabled is enabled.
- ActivePathEnabled—Allows the team member to send a packet to a remote node and receive a reply to determine that the team member sending the packet has a path to the echo node. The absence of a reply within the specified time period can be used to determine when a team member should be disabled. Possible values are Enabled or Disabled. The default is Disabled. If Enabled, a valid echo node IP address must be entered.

  If the ActivePathEnabled is set to Enabled, the team is considered to be using advanced teaming. A valid ProLiant Essentials Intelligent Networking Pack license must be on the target system for advanced teaming options to be configured on the target server. If a valid license does not exist, an error message will be written to the log and the script will exit without performing any actions.
- EchoNodeTime—Determines the interval at which packets are transferred to the echo node. The default is 3 seconds.
- EchoNodeTimeout—Determines the maximum time to wait for a response from the echo node before considering the team member failed. The default is 3 seconds.
- EchoNodeAddress—(Optional) Determines the MAC address of the echo node.
- EchoNodeIPAddress—(Required) Determines the IP address of the echo node.
- ActivePathVlanID—Determines the VLAN ID to be used for the Active Path validation. This value is written only if a VLAN is defined for the team. ActivePathVlanID is only relevant if ActivePathEnabled is enabled.
- CriteriaRanking—Determines the priority of the redundancy mechanisms used in selecting the next port to become the Primary port. Possible values are: 2 = User Preference Order, 1 = Active Path, 0 = Fast Path. Format is 0:1:2.

- DefaultVlanID—Determines the VLAN ID used for any untagged packets received by the team. This property only applies to teams that have VLANs defined.

NIC Teaming XML Script Example

The XML data file consists of the following XML elements:

- `<teamingconfig>`—Brackets the entire data file and is required
- `<nic>`—Defines NIC properties
- `<team>`—Defines teams and their properties
- `<vlan>`—Defines VLANs and their properties

The "relnics" attribute of the `<team>` element lists the NICs that are to be configured on the team.

The following example is a typical NIC teaming script.

```
<teamingconfig>
<!--  The comment lines in this file make it    -->
<!--  convenient to reference <nic> and <team>   ->
<!--  elements within the file.  It is          -->
<!--  recommended that these comment lines      -->
<!--  remain unchanged if the user edits the    -->
<!--  file.    -->
<!--              -->
<!-- Version Data -->
<!--              -->
<version UtilityVersion="8.00.0.9" ScriptVersion=
   "2.1" />
<!--              -->
<!-- Adapter Data -->
<!--              -->
<!-- <nic> element 1 -->
<nic>
   <property id="SpeedDuplex" value="Auto/Auto" />
   <property id="NetworkAddress" value="" />
</nic>
<!-- <nic> element 2 -->
<nic>
```

```
   <property id="SpeedDuplex" value="Auto/Auto" />
   <property id="PreferredPrimaryRanking" value=
      "0" />
   <property id="DualChannelGroup" value="0" />
   <property id="ConfiguredPortCost" value="0" />
</nic>
<!-- <nic> element 3 -->
<nic>
   <property id="SpeedDuplex" value="Auto/Auto" />
   <property id="PreferredPrimaryRanking" value=
      "1" />
   <property id="DualChannelGroup" value="0" />
   <property id="ConfiguredPortCost" value="0" />
</nic>
<!-- <nic> element 4 -->
<nic>
   <property id="SpeedDuplex" value="Auto/Auto" />
   <property id="NetworkAddress" value="" />
   <property id="DefaultVlanId" value="20" />
<!-- <vlan> element 1 -->
<vlan>
   <property id="VlanId" value="20" />
   <property id="VlanName" value="VLAN 20" />
</vlan>
</nic>
<!--           -->
<!-- Team Data -->
<!--           -->
<!-- <team> element 1 -->
<team relnics="2 3">
   <property id="TeamName" value=
      "HP Network Team #1" />
   <property id="OpMode" value="Auto" />
   <property id="LoadBalAlgorithm" value="Auto" />
   <property id="RxHeartbeatInterval" value="3" />
   <property id="TxHeartbeatInterval" value="3" />
   <property id="RxHeartbeatMode" value="Enabled" />
   <property id="TxHeartbeatMode" value="Enabled" />
   <property id="FastPathEnabled" value="Enabled" />
   <property id="FastPathSpanningTreeType" value=
      "IEEE 802.1D" />
   <property id="EchoNodeTime" value="3" />
   <property id="EchoNodeTimeout" value="3" />
   <property id="CriteriaRanking" value="0;1;2" />
```

```
   <property id="ActivePathEnabled" value=
      "Enabled" />
   <property id="EchoNodeIPAddress" value=
      "192.168.0.2" />
   <property id="EchoNodeAddress" value=
      "00-02-A0-03-03-03" />
   <property id="TeamNetworkAddress" value="" />
   <property id="DefaultVlanId" value="10" />
   <property id="RxPathValidationVlanId" value=
      "10" />
   <property id="FastPathVlanId" value="10" />
   <property id="ActivePathVlanId" value="10" />
<!-- <vlan> element 1 -->
<vlan>
   <property id="VlanId" value="10" />
   <property id="VlanName" value="VLAN 10" />
</vlan>
</team>
</teamingconfig>
```

Error Handling and Reporting

Errors can occur for a variety of reasons, including differences between the source and target system NICs or because of errors introduced by editing the XML data file. The software performs extensive error checking as the XML data file is read and processed.

When invalid property values are detected, a warning error message will be written to a log file and configuration will continue with either default or existing values.

The configuration software returns a completion code as an error level that can be examined in a Windows® command file. Successful completion returns an error level of 0. Non-fatal errors return a completion code of 1. An invalid log file returns an error level of 2. Other fatal errors return a completion code of 3 or greater. The specifics about all errors can be determined by viewing the log file.

Technical Support

In This Section

Reference Documentation

For support software and drivers, refer to the HP software and drivers website (http://www.hp.com/support/files).

For more information on the Toolkit, refer to the additional documentation found at the Toolkit website (http://www.hp.com/servers/sstoolkit).

For more information on unattended installation, refer to:

- Operating system documentation
- Deployment Resources Roadmap: A Guide to Deploying Windows NT® Server 4.0 (http://www.microsoft.com/ntserver/techresources/deployment/NTserver/DeployRoadmap.asp)
- Microsoft® Windows® 2000 Guide to Unattended Setup (http://www.microsoft.com/technet/prodtechnol/windows2000pro/deploy/unattend/sp1unatd.mspx)
- Windows® Server 2003 Technical Reference (http://www.microsoft.com/resources/documentation/WindowsServ/2003/all/techref/en-us/default.asp)
- Automating the NetWare 5 Installation with a Response File (http://www.novell.com/documentation/nw51/index.html?page=/documentation/nw51/othr_enu/data/a2zj6s4.html)

- Automating the NetWare 6 Installation with a Response File (http://www.novell.com/documentation/lg/nw6p/index.html?page=/documentation/lg/nw6p/othr_enu/data/hz8pck9v.html)
- Automating the NetWare 6.5 Installation with a Response File (http://www.novell.com/documentation/lg/nw65/index.html)
- Red Hat Linux KickStart HOWTO (http://www.linux.org/docs/ldp/howto/KickStart-HOWTO.html)

For help creating a network DOS boot diskette, refer to:

- Microsoft® boot diskette ftp site (ftp://ftp.microsoft.com/bussys/clients/msclient)
- HP software and drivers website (http://h18000.www1.hp.com/support/files/desktops/us/download/6682.html)

Operating System Information

For information about Microsoft® Windows® operating systems, refer to the Microsoft® website (http://www.microsoft.com).

For information about Novell NetWare operating systems, refer to the Novell website (http://www.novell.com).

For information about Linux operating systems, refer to one of the following websites:

- Red Hat Linux (http://www.redhat.com)
- SUSE LINUX (http://www.suse.com)
- UnitedLinux (http://www.unitedlinux.com)

HP Contact Information

For the name of the nearest HP authorized reseller:

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

- In other locations, refer to the HP website (http://www.hp.com).

For HP technical support:

- In North America:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (http://www.hp.com).
- Outside North America, call the nearest HP Technical Support Phone Center. For telephone numbers for worldwide Technical Support Centers, refer to the HP website (http://www.hp.com).

Acronyms and Abbreviations

ACR

Array Configuration Replicator

ATA

Advanced Technology Attachment

BIOS

Basic Input/Output System

ConRep

Configuration Replication utility

CPQDISK

Disk Partition Creation utility

CPQLODOS

Lights-Out DOS utility

DHCP

Dynamic Host Configuration Protocol

HYPERCFG

Integrated ATA RAID Replication utility

iLO

Integrated Lights-Out

IP

Internet Protocol

IPX

internetwork packet exchange

LAN

local-area network

LOM

Lights-Out Management

MAC

medium access control

NFS

network file system

NIC

network interface controller

OEM

original equipment manufacturer

RAID

redundant array of inexpensive (or independent) disks

RILOE

Remote Insight Lights-Out Edition

RILOE II

Remote Insight Lights-Out Edition II

SIGN DISK

Sign Disk utility

SMB

Server Message Block

SYSTYPE

System Type utility

VLAN

virtual local-area network

XML

extensible markup language

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