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SmartStart Scripting Toolkit Server Deployment Guide: Windows 2000 Network Deployment for Service Providers

Abstract: This Installation Guide focuses on high volume Windows 2000 Server deployments for the ISP or ASP businesses (Internet Service Providers or Application Service Providers). It provides a comprehensive step-by-step procedural checklist to aid Service Providers with learning the Compaq *SmartStart* Scripting Toolkit for their first-time deployments. Compaq provides a more comprehensive document on the components and options of the *SmartStart* Scripting Toolkit at <http://www.compaq.com/manage/toolkit.html>. Instead, this guide is intended to provide a quick start for the most highly automated method of the new *SmartStart* Scripting Toolkit: using a shared network drive as the source for the Windows 2000 operating system and *SmartStart* files. This guide is part one of two documents designed to assist Service Providers in rapid recovery of Exchange 2000 Servers.

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SmartStart Scripting Toolkit Server Deployment Guide: Windows 2000 Network Deployment for Service Providers

Installation Guide prepared by Messaging and Collaborative Applications, ISSG Solutions and Strategy

First Edition (December 2000)

Introduction

This guide is part one of two documents designed to assist Service Providers in rapid recovery of Exchange 2000 Servers. This document covers fully automated server deployment and the second document covers the Quick Online Server Recovery Solution for minimizing Exchange Server downtime. This guide is intended to provide a quick start for the most highly automated method of the new *SmartStart* Scripting Toolkit: using a shared network drive as the source for the Windows 2000 operating system and *SmartStart* files. To gain a full understanding of the automated deployment process, see <http://www.compaq.com/manage/toolkit.html> for a more comprehensive document on the components and options of the *SmartStart* Scripting Toolkit.

Network-Based Microsoft Windows 2000 Deployment

This scenario focuses on the deployment of Microsoft Windows 2000 from a shared network drive that contains all of the files necessary to set up the target server. It provides a comprehensive step-by-step procedural checklist to aid Service Providers with learning the *SmartStart* Scripting Toolkit for their first-time deployments. To deploy, the server is booted from a diskette containing specific instructions for that model of server and storage configuration. The network deployment method was chosen for this document to enable Service Providers to purchase *Compaq ProLiant* DL360 Servers in a configuration available without floppy or CDROM drives, yet still rapidly deploy the servers.

-
- **Note:** This symbol denotes changes in the deployment process if you wish to use a CDROM-based deployment instead of the network-based deployment method.
-

A network share containing the following files is made available to the target server:

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

Note: Because network-based operating system installations can take a long time over a 10 MB network, Compaq recommends network-based deployments over 100 MB networks.

Important Security Note

During the automated deployment of Windows 2000 from a network share it was determined that the entire process could be done with no user intervention. However, the system configuration diskette then represents a risk to a server; as it may be used to overwrite an existing configuration and operating system installation. To help prevent this, at the end of the process, the sample scripts change the boot order to place the A: drive later in the list (after CD and C: drive). Be certain to secure the location of the system configuration diskette and restrict access to the physical server hardware to prevent unauthorized use of these utilities.

Procedures

The entire process consists of 8 phases of advance configuration and individual steps as outlined below. For troubleshooting help, see Appendix D: Troubleshooting Tips.

Configuration Phases

The general network-based server deployment process consists of the following steps ([note that these are active hyperlinks within the electronic form of this document](#)):

1. Determine Applicability
2. Create the network source repository
3. Set network access and shared folders
4. Create a bootable system configuration disk with network software
5. Build the reference server and capture configuration
6. Test and debug the server deployment process
7. Test and debug the server deployment process
8. Maintain and update the network source repository

Step-by-Step Procedures

1. Determine Applicability

Check the Supported Configurations to determine if your hardware and operating system meets the requirements before proceeding.

2. Create the network source repository

Prerequisites: *SmartStart* CD version 4.80 or later, *SmartStart* Scripting Toolkit SOFTPAQ (SP14288) and two computers: one running Windows 95 or 98 and one running Microsoft Windows NT Server 4.0 (latest Service Pack preferred).

1. Extract the *SmartStart* Scripting Toolkit SOFTPAQ (e.g. SP14288.EXE) to a temporary working directory. You can obtain this SOFTPAQ file at:
<ftp://ftp.compaq.com/pub/softpaq/sp14001-14500/sp14288.exe>
2. Create the hierarchy and copy the files as shown in Figure 1 and Figure 2.

Note: The sample batch file (Create_Source.cmd) can be customized to automate the process of creating and keeping the directories up to date.

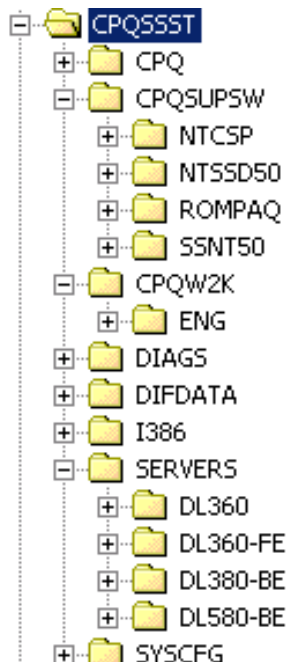
Sample source directory structure	Comments
	<p>CPQ: consists of files extracted from the SmartStart Scripting Toolkit SOFTPAQ (e.g. SP14288.EXE). All other directories are copied from the SmartStart CD.</p> <p>ENG: Location of UNATTEND.TXT file</p> <p>I386: Windows 2000 Advanced Server installation source files</p> <p>SERVERS: Folder for each unique server configuration due to variations in deployment process. Contains DL360-FE.BAT file for example.</p> <ul style="list-style-type: none"> • CDROM-based: place the server configuration files on the diskette.

Figure 1: Sample source directory structure

Files in the CPQ directory			
Name	Size	Type	Modified
ACR.EXE	178 KB	Application	6/15/2000 1:48 PM
COMPAQ.BAT	3 KB	MS-DOS Batch File	7/31/2000 4:30 PM
CONREP.EXE	154 KB	Application	7/11/2000 2:35 PM
CPQDISK.EXE	33 KB	Application	6/22/2000 10:36 AM
CPQFMT.COM	40 KB	MS-DOS Application	6/21/2000 10:32 AM
ERR.LOG	1 KB	Log File	7/31/2000 1:18 PM
FILECOPY.EXE	109 KB	Application	7/13/2000 12:42 PM
OUTPUT.TXT	0 KB	Text Document	7/31/2000 1:38 PM
PSYSPART.EXE	85 KB	Application	6/19/2000 3:12 PM
readme.txt	11 KB	Text Document	7/31/2000 11:53 AM
REBOOT.EXE	12 KB	Application	7/11/2000 2:05 PM
SETBOOT.EXE	12 KB	Application	7/11/2000 2:01 PM
SIGNDISK.EXE	10 KB	Application	7/11/2000 2:00 PM
STATEMGR.EXE	12 KB	Application	7/11/2000 11:02 AM
STBTORDR.EXE	22 KB	Application	7/11/2000 1:15 PM
SYSPART.EXE	33 KB	Application	6/15/2000 4:54 PM
VFLOP.EXE	8 KB	Application	7/11/2000 2:32 PM
xcopy.exe	4 KB	Application	4/23/1999 10:22 PM
XCOPY32.EXE	4 KB	Application	5/11/1998 7:01 PM
XCOPY32.MOD	41 KB	MOD File	5/11/1998 7:01 PM

Figure 2: Files in the CPQ directory

3. Set network access and shared folders

Note: During the installation process two files (OUTPUT.TXT and ERR.LOG) will be written to the network share. The account used during install will need write access to this share.

- During the CDROM based installation, these files will be written to diskette.

1. Create a user on the source server (example shown in Figure 3)
2. Share the folder and set permissions (example shown in Figure 3)

Example User Account	Password	Source Server and Workgroup	Share
SmartS	smarts	\REDLAB-EES RedLab-Group	CPQSSST = Read CPQSSST\CPQ = Allow Write

Figure 3: Example NT account used for network based installation

4. Create a bootable system configuration disk with network software

1. Create a bootable system configuration diskette that will be used to boot the target server and load Microsoft Networking and connect to the network share. Format a 1.44-MB diskette using the DOS FORMAT /S command under DOS version 6.22 or 7.0 (Windows 95 or 98).
2. Modify the Autoexec.bat and Config.sys files. The quickest way is to paste the text from Sample Script/Batch Files to a:\Config.sys and a:\Autoexec.bat. Make sure that all files referenced in the AUTOEXEC.BAT and Config.sys files are copied to the system configuration diskette (e.g. .SYS extensions).

- **Note:** See Diskette boot files for CDROM-based installations in Appendix C: Sample Script/Batch Files.

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

NOTE: The following instructions assume an Ethernet NIC is installed. For information on using the Network Client Administrator, refer to the online documentation for the utility.

- Choose Network Client v3.0 for MS-DOS and Windows.
- Choose any of the NICs from the list, for example, NE2000 compatible.
- When prompted, supply the Computer name, User name, Domain (or Workgroup) name, and Network protocol. This document assumes both TCP/IP and Dynamic Host Configuration Protocol (DHCP) are being used.

- Copy the proper DOS Network Device Interface Specification (NDIS) Network Interface Controller (NIC) driver from the SmartStart CD to A:\NET. For example for the integrated NC3163 on the DL360 as shown in Figure 4, we selected N100.DOS

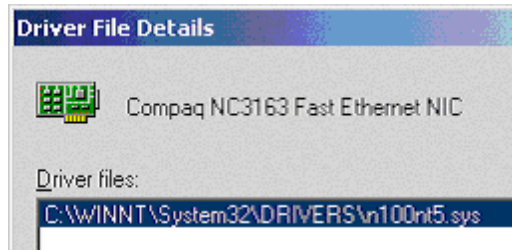


Figure 4: Compaq NIC NC3163 Driver File Details

- Modify the *SYSTEM.INI* file in the A:\NET directory so that it contains the following changes:

[Section] in System.ini	Comment
[network]	
computername=NETCLIENT	Generic name used during install that must not conflict with any other machine on the network
Username=SmartS	NT account granted access to the network share
workgroup=REDLAB-GROUP	Workgroup of the source server
logondomain=REDLAB-EES	Name of the source server
[network drivers]	
netcard= FILENAME.DOS	FILENAME.DOS is the name of the DOS NDIS driver file copied to the system, e.g. N100.DOS

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

```
[ms$ne2clone]
drivename=N100$
SLOT=0x0064
```

Note: In the case of dual port NICs such as the integrated NC3163 on the DL360, each port will have a slot address available to the DOS NDIS network driver on startup. You may need to boot to the diskette to generate the error informing you of the slot addresses if the above example does not apply to your situation. Slot 0x0064 in this case is the active port connected to the network, the other port has a terminator plug.

- Run the SignDisk Utility (from an Windows NT or Windows 2000 CMD prompt– not under Windows 95/98). The Sign Disk utility places a signature on the bootable system configuration diskette, forcing the system ROM to bypass the F1/F10 setup prompt.

-
- **Note:** For CDROM based installations, copy the Server Batch File (e.g. DL360-FE.BAT) to the system configuration diskette.
-

5. Build the reference server and capture configuration

1. Build the reference server hardware and configure disk arrays using SmartStart.
2. Configure the server CMOS using SmartStart or F10 configuration if system partition is installed
3. Capture the server configuration by running these utilities (see CAPTURE.BAT). Note that CAPTURE.BAT is called from the sample a:\Autoexec.bat if no existing Server script files are found in the \SERVERS\%CPQSERVER% folder. This helps to automate the process of capturing reference platforms, otherwise it is necessary to break autoexec.bat before it calls the server configuration batch file (e.g. DL360-FE.BAT).

Command	Purpose
CONREP /S A:\SERVER.HWR	Creates the hardware configuration script file for the specific server
ACR /C A:\ SERVER.ARY	Creates a disk array configuration script file
CPQDISK /R A:\ SERVER.PRT	Creates a script file that describes the disk partition and size of the first logical drive of the server it is run on

4. Move the resulting output files to the reference platform (e.g. SERVERS\DL360-FE) folder.

6. Modify the configuration script files

1. Change the CPQSERVER variable to match the directory name of specific server. See DL360-FE.BAT for an example. This will point to the directory SERVERS\%CPQSERVER%\ for server profile files.
2. Modify the configuration script files SERVER.HWR, SERVER.ARY, and SERVER.PRT if needed.
3. Modify UNATTEND.TXT in Appendix C: Sample Script/Batch Files if needed. Note that if the Product Code is not entered for "ProductID=" then Setup will stop and wait for it to be entered. SMRTSTRT.CMD has been added to UNATTEND.TXT to launch the *Compaq Support Paqs* for Windows 2000 (replacement for the former SSDs – Server Support Diskettes). The computer name will be randomly generated unless a Unique Database File (UDF) is used to specify server name. For more information on the parameters that can be specified by the UDF see:
WWW.MICROSOFT.COM/TECHNET/WIN2000/WIN2KSRV/TECHNOTE/UNATTEND.ASP

7. Test and debug the server deployment process

In the sample file DL360-FE.BAT are remarks “insert pause here until fully tested/debugged.” Change these to pause statements to insert breakpoints for fully testing the deployment process.

8. Maintain and update the network source repository

The file Create_Source.cmd can be used to keep the source files up to date when a new SmartStart CD is released. Add Windows 2000 Hotfixes and Service Packs to the source file directory and add an entry in UNATTEND.TXT so that they are applied to new installations.

Further Support

For troubleshooting help, see Appendix D: Troubleshooting Tips.

Compaq Resources

User Guide

If you encounter a problem, the user guide on the SmartStart Scripting Toolkit at <http://www.compaq.com/manage/toolkit.html> is your best option. If you have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Website

The Compaq website has information on this product as well as the latest drivers. You can access the Compaq website at <http://www.compaq.com>. For proactive notification of new updates, subscribe to ActiveUpdate on the Compaq website: www.compaq.com/activeupdate.

Compaq Authorized Reseller

For the name of your nearest Compaq authorized reseller: In the United States, call 1-800-345-1518. In Canada, call 1-800-263-5868. Elsewhere, see the Compaq website for locations and telephone numbers.

Compaq Technical Support

You may obtain technical telephone support for your product during the warranty period. A technical support specialist will help you diagnose the problem. In North America, call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week. Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the Compaq website. Access the Compaq website at <http://www.compaq.com>

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Hardware product serial numbers
- Hardware product model names and numbers

- Applicable error messages
 - Add-on boards or hardware
 - Third-party hardware or software
 - Operating system type and revision level
 - Detailed, specific questions

Conclusion

Using Compaq *SmartStart* technology, the new *SmartStart* Scripting Toolkit provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process, cuts time and associated cost from each server deployed, making it possible to scale server deployments to high volumes in rapid fashion. This Installation Guide demonstrates how to use the *SmartStart* Scripting Toolkit to rapidly deploy Windows 2000 Servers.

Appendix A:

Supported Configurations

The *SmartStart* Scripting Toolkit utilities currently support the following hardware and operating systems. The following table lists this configuration information.

Table A-1: Supported Configurations

Operating System

Microsoft Windows NT 4.0	Novell NetWare 5.1
Microsoft Windows 2000 Server	Microsoft Windows 2000 Advanced Server

Compaq Servers

Compaq <i>ProLiant</i> ™ DL 360	Compaq <i>ProLiant</i> ML 350
Compaq <i>ProLiant</i> DL 380	Compaq <i>ProLiant</i> ML 370
Compaq <i>ProLiant</i> DL 580	Compaq <i>ProLiant</i> ML 530
Compaq <i>ProLiant</i> ML 330	Compaq <i>ProLiant</i> ML 570

Compaq Storage Controllers

Compaq <i>Smart-2/P</i> Array Controller	Compaq <i>RAID Array Host Controller IP</i>
Compaq <i>Smart-2DH</i> Array Controller	Compaq <i>Smart 3200</i> Array Controller
Compaq <i>Smart Array 221</i> Host Controller	Compaq <i>Integrated Smart Array</i> Controller
Compaq <i>Smart Array 431</i>	Controller Compaq <i>Smart Array 4200</i> Controller
Compaq <i>Smart-2SL</i> Array Controller	Compaq <i>RA4000</i> Array Controller 64-Bit/66 -MHz Fibre Host Bus Adapter

For an updated list of supported hardware, refer to the Compaq website:

www.compaq.com/smartstart/toolkit

Appendix B:

Support Utilities

The following tools are used within the batch files to automate the deployments:

Boot Utilities

The boot utilities are used in the batch file to tell the server when and how to boot. During configuration and setup, the server may need to reboot several times. The boot utilities allow the user to customize how this is accomplished.

Set Boot Utility

The Set Boot utility (SetBoot.exe) is used to tell the server what device to boot to on the next reboot. This utility does not actually perform the reboot. This is useful when the installation process will reboot the server, the server can boot from different devices, and you need to control what device the server boots from. This utility sets the boot order for the next reboot only.

Reboot Utility

The Reboot utility (Reboot.exe) is used to reboot the server during the installation process. Like the Set Boot utility (described above), this utility will set which device the server will boot to next. Unlike the Set Boot utility, the Reboot utility will actually perform the system reboot. If no parameter is specified, the server will reboot to the default boot device as defined by the system configuration.

Set Boot Order Utility

The Set Boot Order utility (StBtOrdr.exe) is used to change the boot order for the server for all reboots following this command. This utility changes the servers default boot order for all reboots and not just the next reboot. This utility does not reboot the server.

Disk Utilities

Disk utilities are used to manipulate the logical disks during the servers setup.

Compaq Disk Formatting Utility

The Compaq Disk Formatting utility (CPQfmt.exe) is used to format a hard drive. When setting up a new system the hard drives may need to be formatted before an operating system can be installed. This utility formats the hard drive (up to a 4GB partition).

Note: The partition size may be extended beyond 4GB, for Windows NT 4 and Windows 2000 installations, using the unattended text file. Refer to the SmartStart Scripting Toolkit *ReadMet.txt* file for more detailed information.

System Partition Update Utility

The System Partition Update utility (SysPart.exe) is used to change the partition type of the partitions on the hard drive. It can be used to change the DOS partition in the master boot record to an EISA system partition in the master boot record and vice versa.

Populate System Partition Utility

The Populate System Partition utility (PSysPart.exe) is used to copy the system partition files to an EISA system partition on the hard drive.

Miscellaneous System Utilities

These utilities are used to control various steps in the installation process or setup a diskette for use during the installation process.

State Manager

The State Manager utility (StateMgr.exe) is used to manage persistent state information between system reboots. The utility can set and read a state variable in the batch file process. The state variable can be any word (8 characters or less) and the value can be an integer number between 0 and 254. This utility can also be used to clear the state variable.

Sign Disk Utility

The Sign Disk utility (SignDisk.exe) creates a signature on the boot disk that allows the system ROM to bypass the F1/F10 prompt. This allows the system to continue running without user input enabling an unattended setup. This utility is not intended for use during the batch file execution. It is designed to run once, from a workstation, on each bootable diskette that is created.

Note: This utility will operate under a DOS window in Windows NT and Windows 2000. It does not work when run under Windows 95/98.

Virtual Floppy Utility

The Virtual Floppy utility (Vflop.exe) controls the status of the Remote Insight Lights-Out Edition Virtual Floppy Drive. The utility allows the user to set the boot and write-protect properties for the Virtual Floppy Drive from a script, without using a Web browser.

IMPORTANT: The Virtual Floppy utility requires that Virtual Floppy Drive functionality on the Remote Insight Lights-Out Edition board is setup properly.

Note: For more information on the Compaq Remote Lights-Out Edition, refer to the Compaq website: www.compaq.com/manage/remote-lightsout.html

Appendix C:

Sample Script/Batch Files

a:\Config.sys

```
DEVICE=A:\HIMEM.SYS
DEVICE=A:\NET\EMM386.EXE NOEMS
DEVICE=A:\SETVER.EXE
DEVICE=A:\SMRTSCSI.SYS
device=a:\net\ifshlp.sys
DOS=HIGH
BUFFERS=30
files=40
STACKS=9,256
switches=/f
lastdrive=z
```

a:\Autoexec.bat

```
REM *** Modify the next line for specific type of server to deploy ***
SET CPQSERVER=DL360-FE
```

```
path=a:\net
a:\net\net initialize
a:\net\netbind.com
a:\net\umb.com
a:\net\tcptr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
a:\NET\net logon SmartS smarts /yes /savepw:no < a:\NET\password.txt
```

```
REM \\Server\Share specific to your environment
net use s: \\SourceServer\CPQSSST
```

```
REM Check whether this is a Target for deployment or Reference Server
IF EXIST s:\servers\%CPQSERVER%\%CPQSERVER%.HWR GOTO DEPLOY
REM Skips this section if the profiles are found else creates them
```

```
s:
cd \cpq
CALL S:\CPQ\CAPTURE.BAT %CPQSERVER%
S:\CPQ\REBOOT A:
GOTO :EXIT
```

```
:DEPLOY
call s:\servers\%CPQSERVER%\%CPQSERVER%.BAT
```

```
:EXIT
```

a:\NET\password.txt

smarts

Create_Source.cmd

REM This file Creates the Source Structure for files need by SmartStart Scripting Toolkit
REM Note: xcopy command uses /D for Date comparison, so this can be used for refreshing files

REM Use this variable to specify the CD-ROM drive location

SET CDROM=L:

REM Set the source for the SmartStart Scripting Toolkit SP14288.EXE (or change the SP number)

SET CPQSSTK="N:\product\CPQ Scripting Tool\"

Echo This batch file will create the source directories for the SmartStart Scripting Toolkit

Echo Be sure to edit the %0 file for proper source path locations or to continue...

pause

md \CPQ

CD CPQ

COPY %CPQSSTK%\sp14288.exe

sp14288.exe -s

DEL sp14288.exe

Echo Insert the latest SmartStart CD into drive %CDROM% or edit the %0 file to correct this path

pause

md \CPQSUPSW\

md \CPQSUPSW\NTCSP

md \CPQSUPSW\NTSSD50

md \CPQSUPSW\ROMPAQ

md \CPQSUPSW\SSNT50\

md \DIAGS

md \DIFDATA

md \SYSCFG

xcopy %CDROM%\CPQSUPSW\NTCSP /D /E

xcopy %CDROM%\CPQSUPSW\NTSSD50 /D /E

xcopy %CDROM%\CPQSUPSW\ROMPAQ /D /E

xcopy %CDROM%\CPQSUPSW\SSNT50\ /D /E

xcopy %CDROM%\DIAGS /D /E

xcopy %CDROM%\DIFDATA /D /E

xcopy %CDROM%\SYSCFG /D /E

MD \CPQW2K

MD \CPQW2K\ENG

copy CPQ\SAMPLES\W2K\UNATTEND.TXT \CPQW2K\ENG

REM The source file is cmdlines.txt but cmd.txt is expected by GUICMD.EXE (see Unattend.txt)

COPY \cpqsupsw\ssnt50\ssnt\compaq\cmdLINES.txt \cpqsupsw\ssnt50\ssnt\compaq\cmd.txt

Echo Insert the Windows 2000 CD into drive %CDROM% or edit the %0 file to correct this path

pause

md i386

xcopy %CDROM%\i386 i386 /D /E

Sample ftp method of obtaining SOFTPAQ

getsp14288.cmd

```
rem Open ftp and call the text file containing ftp commands
ftp -s:getsp14288.txt
```

getsp14288.txt

```
rem Assumes direct ftp connection (no proxy)
open ftp.compaq.com
mget ftp.compaq.com/pub/softpaq/sp14001-14500/sp14288.exe
quit
```

CAPTURE.BAT

```
REM This will capture the Server profile and copy to the %1 directory
S:\CPQ\CONREP -S SERVER.HWR
S:\CPQ\ACR /C SERVER.ARY
S:\CPQ\CPQDISK /R SERVER.PRT
XCOPY SERVER.* ..\SERVERS\%1\%1.*
```

SETPHASE.txt

```
0
```

DL360-FE.BAT

```
REM Change the CPQSERVER variable to match the directory name of specific server
set CPQSERVER=DL360-FE
```

```
REM Use SETPHASE.TXT file (above) to reset phase of server to 0 if nec. to start over
REM Create SETPHASE.TXT in the location below, the file will be deleted after Phase 0
set
```

```
s:\cpq\statemgr /w Phase < S:\SERVERS\%CPQSERVER%\SETPHASE.TXT
del S:\SERVERS\%CPQSERVER%\SETPHASE.TXT
```

```
REM -----
```

```
REM    Get the Current State
```

```
S:
cd \cpq
echo Retrieving State Information....
s:\cpq\statemgr /r Phase
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 ----- State0 Configure System Hardware -----

echo Running System Configuration Utility...
s:\cpq\conrep -l s:\SERVERS\%CPQSERVER%\%CPQSERVER%.HWR
echo Setting State Information...
s:\cpq\statemgr /w Phase 1
REM insert pause here until fully tested/debugged

                                                                    rem (DL360.BAT continued)

:State1
REM ----- State1 Configure Array -----

echo Configuring Array Controllers if any...
s:\cpq\acr /i s:\SERVERS\%CPQSERVER%\%CPQSERVER%.ARY /o
echo Setting State Information...
s:\cpq\statemgr /w Phase 2
REM insert pause here until fully tested/debugged
s:\cpq\reboot a:

:State2
REM ----- State2 Create System Partition -----

echo Creating Disk Partition...
s:\cpq\cpqdisk /w s:\SERVERS\%CPQSERVER%\%CPQSERVER%.PRT
echo Enabling system partition update
\cpq\syspart /update: enable
echo Setting State Information...
s:\cpq\statemgr /w Phase 3
REM insert pause here until fully tested/debugged
s:\cpq\reboot a:

:State3
REM ----- State3 Populate System Partition and Format/Populate Boot Partition-----

echo Populating System Partition
s:\cpq\syspart /update: disable
s:\cpq\psyspart /S:s:
echo Setting State Information...
s:\cpq\statemgr /w Phase 4

REM insert pause here until fully tested/debugged
REM reboot to hide system partition
s:\cpq\reboot a:
```

```
:State4
REM ----- State4 Copy files to Boot Partition -----
echo Formatting the Boot Partition as DOS...
s:\cpq\cpqfmt c:

echo Create Driver Directory and Copy Drivers...
call s:\cpq\compaq2.bat

copy s:\SERVERS\%CPQSERVER%\unattend.txt c:\
REM insert pause here until fully tested/debugged

s:
cd \i386

rem (DL360.BAT continued)

echo Set State to allow Floppy Disk Removal During Windows 2000 Install...
s:\cpq\statemgr /w Phase 5
winnt /s:s:\i386 /U:c:\unattend.txt

:State5
REM ----- State5 Removes need to Floppy or Vfloppy from boot

s:\cpq\statemgr /w Phase 6
echo The Windows 2000 Installation Will Continue After the Reboot...
echo.
s:\cpq\VFLOP /B:NEVER /P:OFF

REM Change boot order -- A: (configuration diskette) no longer first boot
s:\cpq\stbtodr CD C: A: Tape
s:\cpq\reboot c:

:State10
:State9
:State8
:State7
:State6

REM *** End of Batch File ***
```

Compaq2.bat

rem This file corrects the Compaq.bat file and adds Win2kSP1

```
rem Copy Windows2000 Service Pack from source
if exist c:\$oem$\$2\sp1\sp1network.exe goto CPQCOPY
COPY s:\1386\SP1\sp1network.exe c:\$oem$\$2\sp1\
```

:CPQCOPY

rem -----

rem Copy drivers to the \$OEM\$\\$1\net and scsi Directories

rem -----

```
xcopy \cpqsupsw\ntssd50\cpq32fs2\*. * c:\$oem$\$1\drivers\scsil\*. *
xcopy \cpqsupsw\ntssd50\int100\*. * c:\$oem$\$1\drivers\net\*. *
xcopy \cpqsupsw\ntssd50\netfix3\*. * c:\$oem$\$1\drivers\net\*. *
xcopy \cpqsupsw\ntssd50\cpqarray\*. * c:\$oem$\$1\drivers\scsil\*. *
xcopy \cpqsupsw\ntssd50\cpqarray2\*. * c:\$oem$\$1\drivers\scsil\*. *
xcopy \cpqsupsw\ntssd50\adpu160m\*. * c:\$oem$\$1\drivers\scsil\*. *
xcopy \cpqsupsw\ntssd50\int100\*. * c:\$oem$\$1\drivers\net\*. *
```

rem -----

rem Copy scsi drivers to the \$OEM\$\textmode Directories

rem -----

```
xcopy \cpqsupsw\ntssd50\adpu160m\*. * c:\$oem$\textmode\*. *
xcopy \cpqsupsw\ntssd50\cpqarray2\*. * c:\$oem$\textmode\*. *
xcopy \cpqsupsw\ntssd50\cpqarray\*. * c:\$oem$\textmode\*. *
xcopy \cpqsupsw\ntssd50\cpq32fs2\*. * c:\$oem$\textmode\*. *
```

```
xcopy \cpqsupsw\ssnt50\ssnt\compaq\quicklch\eng\*. * c:\quicklch\eng\*. *
xcopy \cpqsupsw\ntcsp\*. * c:\$oem$\$1\ntcsp\*. *
xcopy \cpqsupsw\ntssd50\cpq32fs2\*. * c:\$oem$\$1\$win_nt$.~ls\*. *
xcopy \cpqsupsw\ssnt50\ssnt\compaq\txtsetup.oem c:\$oem$\$1\$win_nt$.~ls\
xcopy \cpqsupsw\ssnt50\ssnt\compaq\cmsisu.exe c:\
xcopy \cpqsupsw\ssnt50\ssnt\compaq\txtsetup.oem c:\$oem$\textmode\
xcopy \cpqsupsw\ssnt50\ssnt\compaq\txtsetup.oem c:\$oem$\$1\drivers\scsil
xcopy \cpqsupsw\ssnt50\ssnt\compaq\compaq.bmp c:\$oem$\
copy \cpqsupsw\ssnt50\ssnt\compaq\cmd.txt c:\cmd.txt
copy \cpqsupsw\ssnt50\ssnt\compaq\cmdlines.txt c:\cmdlines.txt
copy \cpqsupsw\ssnt50\ssnt\compaq\cpqclean.cmd c:\cpqclean.cmd
copy \cpqsupsw\ssnt50\ssnt\compaq\reboot.inf c:\reboot.inf
copy \cpqsupsw\ssnt50\ssnt\compaq\guicmd.exe c:\guicmd.exe
copy \cpqsupsw\ssnt50\ssnt\compaq\cpqbfile.exe c:\cpqbfile.exe
REM *** End of Batch File ***
```

UNATTEND.TXT

[Data]

```
AutoPartition=1
MsDosInitiated="0"
UnattendedInstall="Yes"
```

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

[GuiRunOnce]
    "C:\guicmd.exe"
    "C:\cpqbfile.exe"
    "C:\$oem$\$2\SP1\sp1network.exe"
    "c:\$oem$\$1\ntcsp\SMRTSTRT.CMD"
    "C:\CPQclean.cmd"
    "%systemroot%\system32\rundll32.exe setupapi,InstallHinfSection DefaultInstall 129 c:\reboot.inf"

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

[Identification]
    JoinWorkgroup=Workgroup

[LicenseFilePrintData]
    AutoMode=PerServer
    AutoUsers=16

[MassStorageDrivers]
    "Adaptec Ultra160 Family Manager Set"=OEM
    "Compaq Drive Array Controllers"=OEM
    "Compaq Integrated Dual Channel Wide Ultra2 SCSI Controller"=OEM
    "Compaq Integrated Wide Ultra2 SCSI Controller"=OEM
    "Compaq Smart Array Controllers"=OEM
    "Symbios Logic C8100 PCI SCSI Host Adapter"=RETAIL
    "Symbios Logic C896 PCI SCSI Host Adapter"=RETAIL
    "Symbios Logic C8xx PCI SCSI Host Adapter"=RETAIL

[NetOptionalComponents]
    SNMP=1

[Networking]
    InstallDefaultComponents=Yes

[OEM_Ads]
    Logo=Compaq.bmp
```

rem UNATTEND.TXT continued

[OEMBootFiles]

ADPU160M.SYS
CPQ32FS2.SYS
CPQARRAY.SYS
CPQARRAY2.SYS
TXTSETUP.OEM

[Proxy]

Proxy_Enable=0
Use_Same_Proxy=0

[RegionalSettings]

Language=00000409
LanguageGroup=1

[TapiLocation]

AreaCode=425
CountryCode=1
Dialing=Tone
LongDistanceAccess="9"

[Unattended]

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

[UserData]

ComputerName=*
FullName=SmartStart
OrgName=Compaq
ProductID= *** If Product Code not entered then Setup will prompt ***

Diskette boot files for CDROM-based installations

- **Note:** For CDROM based installations use the following diskette boot files. Note that a CD-ROM must be prepared with the Compaq and Microsoft source files. Follow all licensing agreements when creating this installation CD.
-

a:\Config.sys

```
DEVICE=HIMEM.SYS
DEVICE=SETVER.EXE
DEVICE=SMRTSCSI.SYS
DEVICE=FWS2ASPI.SYS /CDBOOT
DEVICE=CPQIDECD.SYS /D:CPQCDROM
DEVICE=FWS2CD.SYS
DEVICE=A:\NET\IFSHLP.SYS
```

a:\Autoexec.bat

```
PATH = A:\;S:\CPQ
MSCDEX.EXE /D:CPQCDROM /L:S
SMARTDRV.EXE D+ S 1024 1024
S:
CD \CPQ
CALL A:\DL360.BAT
```

Appendix D:

Troubleshooting Tips

The most frequent causes of process failure found during testing and use of the SmartStart Scripting Toolkit were as follows:

CONREP, ACR or CPQDISK will not run

Unsupported Server model -- Can only run the unattended operating system installation on older ProLiant Servers but not the SmartStart Scripting Toolkit utilities.

Windows 2000 installation does not create the boot partition (fails with error message “Invalid System Disk” or “Could not find a place for the swap file”)

Unsupported RAID controller – Usually must run Windows 2000 installation manually and press F6 to specify the additional driver for the RAID controller.

Automated Process Fails to configure the Server properly

Check for these errors:

- Reference Server Configuration mismatch with Target Server
- %CPQSERVER% Variable Name not correctly entered in batch files (e.g. SERVER.HWR instead of DL360.HWR)

Unable to locate Intel-based NIC drivers

The Intel-based NIC drivers are not included in the original distribution of the Microsoft Windows NT 4.0 Server operating system. Consequently, updated NIC drivers must be obtained from the Compaq website: <http://www.compaq.com/support/files/server/us/index.html>

IRC (Integrated Remote Console) functions disabled

For Compaq server products that feature the Integrated Remote Console (IRC), CONREP cannot read the IRC user passwords from the IRC configuration space because IRC user passwords are write-only. Consequently, the IRC user passwords are not included in the CONREP script file. When CONREP replicates the source server IRC configuration onto the target server, the IRC user passwords are not replicated. As a workaround, use an ASCII text editor to add the IRC user passwords to the CONREP script file before using CONREP to replicate the source server configuration onto the target server.

If CONREP has already been used to replicate the source server configuration onto the target server, use the Compaq System Configuration Utility (SCU) to enter the IRC user passwords into the IRC configuration space on the target server.

IMPORTANT: When SCU saves the target server configuration, SCU disables the IRC function of the server if it detects the presence of IRC user names but no IRC user passwords. To avoid disabling the IRC function, ensure that IRC user passwords are entered into the IRC configuration space of the target server before saving the configuration.

Unable to boot from other than the A: drive on ML330 or ML350 server

Use a signed diskette on an ML330 or ML350 server only if the system ROM dates of the server are one of the following:

- ML330 6/17/2000 or later
- ML350 6/17/2000 or later

If a signed diskette is used on an ML330 or ML350 with system ROM dates before those listed, you will not be able to boot from any device other than the A: drive. Booting only from the A: drive will prevent the operating system from completing the installation. As a workaround, use an unsigned diskette. When the F1/F10 setup prompt displays during the first boot cycle, press the F1 key to indicate to the system ROM that it should boot the unconfigured server. After the first boot, the server will install in an unattended fashion.

Operating System Partition limited to 4,000-megabytes (4 GB).

CPQDISK is limited to creating 4,000-megabyte partitions. When reading the partition table from an existing drive, the utility limits the partition to 4,000 megabytes and writes a note to the partition information file. To extend the partition size on a Microsoft Windows 2000 server, the following entries have been inserted into the UNATTEND.TXT file:

[Unattended]

ExtendOemPartition=1

FileSystem=ConvertNTFS

These entries increase the partition size to use the available disk space and will convert the partition to the NTFS file system. Refer to the Microsoft Windows 2000 documentation for details on these parameters.