COMPAQ
White Paper

Contents

Compaq Guide to PC Deployment

Network Installation of Microsoft Windows 98 on Compaq Armada Series of Personal Computers Using Microsoft Tools

Abstract: This guide provides information useful to departments charged with initial deployment of Microsoft Windows 98 over a network connection to Compaq Armada series of Personal Computers. Many of the deployment strategies explained in this Guide are also useful in a more general sense.

This paper and other relevant documents may be located at
http://www.compaq.com/solutions/pcsolutions/deployment/wp.html

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Compaq Guide to PC Deployment - Network Installation of Microsoft Windows 98 on Compaq Armada Series of Personal Computers Using Microsoft Tools.

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Assumptions

The following assumptions are made in this paper:

• You understand how to create a network boot diskette used to access the Microsoft Windows 98 installation share

• You understand or can locate information on how to configure the non-hardware specific portions of Microsoft Windows 98 for your specific installation (i.e. networking configuration, optional components, etc.)

• You know what hardware must be supported.

• You can access the Web and download the appropriate SoftPAQs containing the device driver software from http://www.compaq.com/support. Instructions for downloading and extracting SoftPAQs are provided at www.compaq.com/support.

• The deployment team has access to the *Microsoft Windows 98 Resource Ki*t.

• Microsoft's InfInst and Batch98 utilities are required. These are found both on the Windows 98 CD-ROM and in the *Microsoft Windows 98 Resource Ki*t.

• Each client computer has a licensed copy of Windows 98.

High Level Overview of the Process

The following steps outline the network installation process:

1. Copy Microsoft Windows 98 to the server.

2. Download all of the necessary device drivers, agents and applications (SoftPAQs) from the Compaq Web site at www.compaq.com/support.

3. Create an MSBatch script to automate installation of Windows 98.

4. Integrate drivers into Windows 98 on server share using the InfInst tool. (Please reference Step 3 of the Base OS Layout for full details).

5. Set up a network share and copy the installation files (Windows 98, device drivers, agents, and other applications) to it.

6. Modify the MSBatch script to execute setup programs for Compaq agents and utilities.

7. Boot the client computer with the network boot diskette.

8. Flash the system ROM (if necessary). See Appendix B - Remote ROM Flash Utilities.

9. Run Windows 98 Setup on the client computer.

Conventions

Installation share refers to the location on a network drive where the Windows 98 operating system files to be deployed exist.

The path *server**share* refers to the path for the network drive and network share containing the installation share.

References to Microsoft Documentation

The following resources should be used when deciding how to deploy Microsoft Windows 98:

- The *Microsoft Windows 98 Resource Kit*. This is a very useful resource for understanding the deployment strategies described in this paper. It gives specific information on the options used to automate the installation of Windows 98. Sections of particular interest include:

  - Part 1: Deployment and Installation (Chapters 1 – 5)

  - Appendix C: Windows 98 INF Files

  - Appendix D: MSBATCH.INF Parameters for Setup Scripts

  - Microsoft's Knowledge Base, located on the Web at http://support.microsoft.com/support, contains articles describing known installation issues and solutions.

- SETUP.TXT from the Windows 98 CD provides useful information about setting up Windows 98 and describes some known issues.

Hard Drive and Hardware Preparation

You should make file system decisions **before** installing the operating system. Microsoft Windows 98 supports both FAT16 and FAT32. The hard drive on the target system should be partitioned and formatted prior to running the Windows 98 Setup program.

Ensure that all factory-installed Compaq hardware is properly connected in each target computer. Refer to the Guide to Features and Upgrades included with the Compaq Armada Series computers if you have any questions regarding how the hardware is installed in the system.

Base OS Layout

Operating System File Layout

The Microsoft Windows 98 setup files should be placed on a network share. The Compaq device drivers and software should be integrated into this network share. This allows the end user to boot their system from a network boot diskette and start the Windows 98 Setup program from the network share (For more information regarding the creation of a network boot diskette, please reference the White Paper titled *Network Installation of Microsoft Windows on Compaq Armada Series of Personal Computers Using the Multi-NIC Boot Utility)*. The installation will proceed as described in the MSBATCH.INF file that must be provided for automated installations.

Perform the following steps to configure the installation files:

1. Obtain the required drivers for the systems you will be supporting. This can be done by downloading the appropriate SoftPAQs, located on the Web at http://www.compaq.com/support/. Each SoftPAQ should be stored and executed in its own directory. Refer to the following sections for specific information regarding individual device driver sets.

2. Copy the \Win98 directory (and all of its subdirectories) from the Microsoft Windows 98 CD to the network share.

3. Use Batch98 from the *Microsoft Windows 98 Resource Kit* (also found on the Windows 98 CD in the \tools\reskit\batch directory) to configure an MSBatch file to automate the installation. This file can be created manually. This paper will show you how to edit this file to add support for Compaq software.

•   Use InfInst.exe from the *Microsoft Windows 98 Resource Kit* (also found on the Windows 98 CD in the \tools\reskit\infinst directory) to integrate Compaq and Microsoft INFs into the Windows 98 installation share. This is done by executing INFINST.EXE and providing the paths to both the INF to add to Windows 98 Setup and to Windows 98 SETUP.EXE. InfInst integrates the support information into the installation share. See the InfInst help file (located in the same directory as the InfInst utility) for more information. Refer to the following sections for more details on integrating each driver type and for errata for specific driver sets.

•   Add any other software to be installed to the installation share. Additional software can be installed via the MSBATCH.INF file. See the *Microsoft Windows 98 Resource Kit* for more information on adding additional software to be installed using this process. The installation share is now ready. To perform installation, complete the following steps:

Note: These steps may be automated using batch files.

---

1. Boot the target system from a bootable MS-DOS diskette containing network drivers configured for the NIC in the system.

2. Log on to the network (as required) and map a drive to the network share where the Windows 98 installation files reside.

3. Partition and format the hard drive (as necessary). If you want to use the FAT32 file system, you should enable large hard drive support in FDISK and create the desired partitioning size.

4. Execute the Windows 98 SETUP.EXE program and specify the MSBATCH.INF file as a command line parameter (i.e. SETUP.EXE /is MSBATCH.INF).

Integrating Video Drivers

General Process

1. Download each required SoftPAQ to its own directory and execute the SoftPAQ. For video driver SoftPAQs, specify –f as a command line option to the SoftPAQ. This will extract the SoftPAQ out into a flat (single) directory.

2. Use InfInst to integrate video drivers into the installation share. In InfInst, specify the location of the INF file that came with the driver set and the location of the Windows 98 SETUP.EXE file. Press the "Add Inf" button.

3. The video driver is now integrated into the Windows 98 installation files.

Integrating NIC Drivers

General Process

1. Download each required SoftPAQ to its own directory and execute the SoftPAQ.

Warning: Do not specify –f as a command line option to the SoftPAQ, except as specified below in the errata for each NIC. Because NIC driver sets may contain identically named drivers for NDIS3 and NDIS4 in the same SoftPAQ, extracting out to a flat directory structure will cause filename conflicts in these cases.

---

2. Use InfInst to integrate NIC drivers into the installation share. In InfInst, specify the location of the INF file that came with the driver set and the location of the Windows 98 SETUP.EXE file. Press the "Add Inf" button.

3. The NIC driver is now integrated into the Windows 98 installation files.

Specific Errata

Intel NIC

1. There are 3 INF files: CPQSET.INF, NETCPQI.INF and OEMSETUP.INF. Select NETCPQI.INF to install the Intel NIC support.

2. Edit the NETCPQI.INF after it has been placed in the operating system source location and take out the directory entries from the [SourceDisksFiles] section. That is, change:

   ```
   nt\n100nt.sy_=1
   nt\n100.sy_=1
   ndis\dos\n100.dos=1
   dos\n100odi.com=1

   to

   n100nt.sy_=1
   n100.sy_=1
   n100.dos=1
   n100odi.com=1
   ```

   This also needs to be done to the following sections:

   ```
   [N100.ndis4.CopyFiles]
   [N100.ndis3.CopyFiles]
   [N100.ndis2.CopyFiles]
   [N100.odi.CopyFiles]
   ```

NetFlex3 (TLAN)

1. After extracting the SoftPAQ, there are 2 directories to choose the driver set from: NFLX3\DISK1\Win95\NDIS3 and NFLX3\DISK1\Win95\NDIS4. Select the NDIS4 directory for Windows 98.

2. There are 2 INF files: NETFLX3.INF and OEMSETUP.INF. Select NETFLX3.INF to install the NetFlex3 NIC support for Windows 98.

INTEGRATING AUDIO DRIVERS

General Process

- ESS 1868 & 1869 audio adapters are natively supported in Windows 98. No additional drivers are required.

Integrating Modem Drivers (US Only)

General Process

1. Download each required SoftPAQ to its own directory and execute the SoftPAQ

2. Use InfInst to integrate modem drivers into the installation share. In InfInst, specify the location of the INF file that came with the driver set and the location of the Windows 98 SETUP.EXE file. Press the "Add Inf" button.

3. The modem driver is now integrated into the Windows 98 installation files.

Note: The following is an example of the change that must be made to the modem .inf file for all platforms:

[SourceDiskNames]
1 = %LT.disk%, , 0001

change to

[SourceDiskNames]
1 = %LT.disk%,,,c:\windows\system\precopy

Integrating Management Agents (Intelligent Manageability)

General Process

- Download each required SoftPAQ to its own directory and execute the SoftPAQ. For agent SoftPAQs, specify –f as a command line option to the SoftPAQ. This will extract the SoftPAQ out into a flat (single) directory.

- Add the SETUP.EXE program for each agent to the RunOnce\Setup registry entry using the MSBATCH.INF file. For example:

   [Install]
   AddReg=CPQ.App.Setup

   [CPQ.App.Setup]

HKLM,%KEY_RUNONCE_SETUP%,"IM Agents",,"\\server\share\IM\Setup.exe -s -SMS"

[Strings]
KEY_RUNONCE_SETUP="SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce\Setup"

IMPORTANT: Intelligent Manageability needs to be the last application installed in the MSBATCH.INF.

Other Compaq Software (Power Management, Security, etc.)

General Process

1. Download each required SoftPAQ to its own directory and execute the SoftPAQ. For Compaq Software SoftPAQs, specify –f as a command line option to the SoftPAQ. This will extract the SoftPAQ out into a flat (single) directory.

2. Add the SETUP.EXE program for each application to the RunOnce\Setup registry entry using the MSBATCH.INF file. For example:

   [Install]
   AddReg=CPQ.App.Setup

   [CPQ.App.Setup]
   HKLM,%KEY_RUNONCE_SETUP%,"WinDiags",,"\\server\share\WinDiags\Setup.exe -s -SMS "
   HKLM,%KEY_RUNONCE_SETUP%,"Safety Guide",,"\\server\share\SCG\Setup.exe -s -SMS "

   [Strings]
   KEY_RUNONCE_SETUP="SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce\Setup"

Appendix A

Sample MSBATCH.INF file

; This sample file was created using Batch98 and manually modified
; This file must be customized to match deployment needs
; MSBATCH.INF

[BatchSetup]
Version=3.0 (32-bit)
SaveDate=07/19/98

[Version]
Signature = "$CHICAGO$"
LayoutFile=layout.inf

[Setup]
Express=1
InstallDir="c:\windows"
InstallType=3
ProductKey="xxxxx-xxxxx-xxxxx-xxxxx-xxxxx"
EBD=0
ShowEula=0
ChangeDir=0
OptionalComponents=1
Network=1
System=0
CCP=0
CleanBoot=0
Display=0
DevicePath=0
NoDirWarn=1
TimeZone="Central"
Uninstall=0
NoPrompt2Boot=1

[System]
Locale=L0409
SelectedKeyboard=KEYBOARD_00000409

[NameAndOrg]
Name="Deploy"
Org="Compaq Computer Corp"
Display=0

[Network]
ComputerName="OEMComputer"
Workgroup="Workgroup"
Description="OEMComputer"
Display=0
PrimaryLogon=VREDIR
Clients=VREDIR
Protocols=MSTCP,NETBEUI
Security=SHARE
Services=SNMP

[MSTCP]
LMHOSTS=1

```
LMHOSTPath="C:\WINDOWS\lmhosts"
DHCP=1
DNS=0
WINS=D
```

[VREDIR]
```
LogonDomain="WorkGroup"
ValidatedLogon=0
```

[OptionalComponents]
```
"Accessibility Options"=1
"Accessibility Tools"=0
"Briefcase"=0
"Calculator"=1
"Desktop Wallpaper"=0
"Document Templates"=1
"Games"=1
"Imaging"=1
"Mouse Pointers"=0
"Paint"=1
"Quick View"=1
"Windows Scripting Host"=1
"WordPad"=1
"Dial-Up Networking"=0
"Dial-Up Server"=0
"Direct Cable Connection"=0
"HyperTerminal"=0
"Microsoft Chat 2.1"=0
"Microsoft NetMeeting"=1
"Phone Dialer"=1
"Virtual Private Networking"=0
"Baseball"=0
"Dangerous Creatures"=0
"Inside your Computer"=0
"Jungle"=0
"Leonardo da Vinci"=0
"More Windows"=0
"Mystery"=0
"Nature"=0
"Science"=0
"Space"=0
"Sports"=0
"The 60's USA"=0
"The Golden Era"=0
"Travel"=0
"Underwater"=0
"Windows 98"=0
"Desktop Themes Support"=0
"Microsoft FrontPage Express"=1
"Microsoft VRML 2.0 Viewer"=0
"Microsoft Wallet"=0
"Personal Web Server"=1
"Real Audio Player 4.0"=0
"Web Publishing Wizard"=0
"Web-Based Enterprise Mgmt"=0
"Microsoft Outlook Express"=1
"Baltic"=0
"Central European"=0
"Cyrillic"=0
"Greek"=0
"Turkish"=0
"Audio Compression"=1
```

```
"CD Player"=1
"Macromedia Shockwave Director"=1
"Macromedia Shockwave Flash"=1
"Media Player"=1
"Microsoft NetShow Player 2.0"=0
"Multimedia Sound Schemes"=0
"Sample Sounds"=0
"Sound Recorder"=1
"Video Compression"=1
"Volume Control"=1
"America Online"=1
"AT&T WorldNet Service"=1
"CompuServe"=1
"Prodigy Internet"=1
"The Microsoft Network"=1
"Additional Screen Savers"=0
"Flying Windows"=1
"OpenGL Screen Savers"=0
"Backup"=0
"Character Map"=0
"Clipboard Viewer"=1
"Disk compression tools"=1
"Drive Converter (FAT32)"=1
"Group policies"=0
"Net Watcher"=1
"System Monitor"=0
"System Resource Meter"=0
"Web TV for Windows"=0
"WaveTop Data Broadcasting"=0
```

[Printers]

InstallLocationsMRU]

[Install]
AddReg=Run.Installed.Components,Skip.PCMCIA.Wizard,Registry.WinUpdate,CPQ.App.Setup

[CPQ.App.Setup]
; Add the appropriate network locations for every \\server\share listed below
HKLM,%KEY_RUNONCE_SETUP%,"Win Diags",,"\\server\share\WDiags\setup.exe -s -SMS "
HKLM,%KEY_RUNONCE_SETUP%,"Desktop Management",,"\\server\share\DTM\setup.exe -s -SMS "
HKLM,%KEY_RUNONCE_SETUP%,"Remote Services",,"\\server\share\RSdriver\setup.exe -s -SMS "
HKLM,%KEY_RUNONCE_SETUP%,"S&CG",,"\\server\share\SCG\setup.exe -s -SMS "

[Run.Installed.Components]
HKLM,%KEY_INSTALLEDCOMPS%\>BatchSetupx,,,">Batch 98 - General Settings"
HKLM,%KEY_INSTALLEDCOMPS%\>BatchSetupx,IsInstalled,1,01,00,00,00
HKLM,%KEY_INSTALLEDCOMPS%\>BatchSetupx,Version,,"3,0,0,0"
HKLM,%KEY_INSTALLEDCOMPS%\>BatchSetupx,StubPath,,"%25%\rundll.exe
setupx.dll,InstallHinfSection Installed.Components.General 4 %10%\MSBATCH.INF"
HKLM,%KEY_INSTALLEDCOMPS%\>Batchwu,,,">Batch 98 - Windows Update"
HKLM,%KEY_INSTALLEDCOMPS%\>Batchwu,IsInstalled,1,01,00,00,00
HKLM,%KEY_INSTALLEDCOMPS%\>Batchwu,Version,,"3,0,0,0"
HKLM,%KEY_INSTALLEDCOMPS%\>Batchwu,StubPath,,"wupdmgr.exe -shortcut"

[Installed.Components.General]
AddReg=Browser.Settings, Proxy.Settings

[Registry.WinUpdate]
HKLM,Software\Microsoft\Windows\CurrentVersion\Policies\Explorer,NoDevMgrUpdate,0x10001,0
HKLM,Software\Microsoft\Windows\CurrentVersion\Policies\Explorer,NoWindowsUpdate,0x10001,0

[Browser.Settings]
HKCU,%KEY_IEXPLORERMAIN%,"Start Page",,"http://www.compaq.com"
HKCU,%KEY_IEXPLORERMAIN%,"First Home Page",,"http://home.microsoft.com/runonce.asp"
HKCU,%KEY_IEXPLORERMAIN%,"Search Page",,"http://home.microsoft.com/search/search.asp"
HKLM,%KEY_IEXPLORERMAIN%,"Search Bar",,"http://home.microsoft.com/search/search.asp"
HKCU, "SOFTWARE\Microsoft\Internet
Explorer\Help_Menu_URLs","Online_Support",,"http://support.microsoft.com/support"

[Proxy.Settings]
HKCU,%KEY_INTERNETSETTINGS%,ProxyEnable,1,01,00,00,00
HKCU,%KEY_INTERNETSETTINGS%,ProxyOverride,,";<local>"
HKCU,%KEY_INTERNETSETTINGS%,ProxyServer,,"proxy.YourCompany.com:8080"

[Skip.PCMCIA.Wizard]
HKLM,System\CurrentControlSet\Services\Class\PCMCIA,SkipWizardForBatchSetup,,1

[Strings]
KEY_INSTALLEDCOMPS="SOFTWARE\Microsoft\Active Setup\Installed Components"
KEY_IEXPLORERMAIN="Software\Microsoft\Internet Explorer\Main"
KEY_INTERNETSETTINGS="Software\Microsoft\Windows\CurrentVersion\Internet Settings"
KEY_RUNONCE="SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce"
KEY_RUNONCE_SETUP="SOFTWARE\Microsoft\Windows\CurrentVersion\RunOnce\Setup"