COMPAQ
Integration Note

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Prepared by OS Integration Engineering

Compaq Computer Corporation

Contents

Migrating from NetWare 4.1x to NetWare 5

Abstract: The Novell NetWare 5 operating system continues the evolution of NetWare into a full-service intranet/Internet access platform, with scalability for businesses of all sizes. And NetWare 5 incorporates the same powerful distributed networking services, including robust directory services and file/print capability on which you depend.

New features designed into NetWare 5 include support for an IP environment; ConsoleOne management application; enhanced directory and catalogue services; Novell Storage Services; and support for other industry-standard products; such as, Oracle 8, Java, ActiveX, and CORBA.

Although Novell fully supports its earlier network operating systems, it also provides the tools and support to upgrade those systems to NetWare 5. This Integration Note will guide you through your migration process from a NetWare 4.1x server-based network to a NetWare 5 networking system.

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Notice

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Integration Note prepared by OS Integration Engineering

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Upgrade Process Overview

The process to upgrade an existing NetWare 4.1x server to NetWare 5 includes the following tasks, or phases:

- Meet the upgrade requirements
- Choose the upgrade method and network protocol
- Prepare for the upgrade
- Install the Novell Client on workstations
- Install NetWare 5
- Verify the upgrade

Phase 1: Meet the Upgrade Requirements

Before upgrading your NetWare 4.1x server to NetWare 5, the server, client workstations, and the network must meet certain hardware and software requirements.

Server Requirements

To upgrade an existing NetWare server, both 500 MB of disk space available on volume SYS and 50 MB of disk space available on the boot partition are required. For the boot partition, Compaq recommends at least 70 MB. However, you may want to make the boot partition even larger, depending on the amount of server memory and the size of your storage devices—such as hard disks and CD-ROMs. A larger boot partition also allows the server to perform a memory dump to the local drive if required for troubleshooting server problems. In fact, if you want to install all the programs available with NetWare 5, you might need as much as 1 GB.

However, the suggested minimum boot partition is all that is required to start the computer and load the NetWare operating system. To determine the optimal size of a boot partition, just add the amount of server memory to the minimum size of the boot partition (50 MB). For example, a server with 64 MB of RAM would have a boot partition of 114 MB (64 MB + 50 MB = 114 MB). When creating the boot partition, NetWare 5 requires that the partition be formatted by MS-DOS 3.3 or later.

To install NetWare 5 documentation in one language on the server, you will need an additional 409 MB of disk space. However, if space is limited, you always have the option of viewing the manuals directly from CD-ROM.

The following list summarizes the minimum system requirements to upgrade your NetWare 4.1x server to a NetWare 5 server.

- A server-class PC with a Pentium or higher processor
- A VGA or higher resolution display adapter (SVGA recommended)
- 50 MB of available disk space on the DOS partition

- 500 MB of available disk space on volume SYS
- 64 MB of RAM (128 MB is recommended to run Java-based applications)
- One or more network boards
- A CD-ROM drive that can read ISO 9660-formatted CD-ROMs.

Compaq servers that meet these requirements are listed in Appendix A.

Client Workstation Requirements

To avoid any conflicts, all network users must be running the latest version of the client software. Make sure that the client workstations have sufficient resources and the required software to install the appropriate Novell Client.

IMPORTANT: Novell Client for Windows 95/98 and Novell Client for Windows NT require long filename support included on all NetWare 5 servers. If users connect to NetWare 3 and NetWare 4 servers, you must install and load the appropriate name spaces.

Table 1. Novell Client workstation hardware and software requirements

Platform	Hardware	Software
Microsoft Windows 95/98	486 processor or better	Microsoft Windows 95/98
	Minimum 28-MB free disk space	
	Minimum 16-MB RAM	
Microsoft Windows NT	Minimum hardware requirements for Microsoft Windows NT 4.0	Microsoft Windows NT 4.0
DOS and Microsoft Windows 3.1x	386 processor or better	One of the following operating systems:
	Minimum 15-MB free disk space	Caldera 7.02 (Novell DOS 7)
	Minimum 8-MB RAM	MS-DOS 6.x
	A memory manager	PC-DOS 5.x, 6.x, or 7.0
		Microsoft Windows 3.1x or Microsoft Windows for Workgroups 3.11

Novell Client for Windows NT and Novell Client for Windows 95/98 support Network Driver Interface Specification (NDIS) drivers. Novell Client for DOS and Windows 3.1x support Open Data-Link Interface (ODI) drivers. The NetWare ODI support provided by Compaq can be found on the Compaq Support Software for Novell Products (Novell SSD), available on the SmartStart CD or on the website http://www.compaq.com.

IMPORTANT: ODI drivers are not installed on Microsoft Windows 95/98 or Microsoft Windows NT. However, if you are upgrading an older version of the client and have ODI drivers currently installed, these drivers are still supported. If you are installing for the first time, NDIS drivers will be installed. If you do not already have the necessary NDIS drivers, you can obtain them from the Microsoft Windows 95/98 or Microsoft Windows NT 4.0 CD-ROM. Compaq NDIS drivers for Windows NT can also be downloaded from the Compaq Support Software for Microsoft Windows NT on the website http://www.compaq.com.

Windows 95/98 Incompatibilities

The following network components conflict with Novell Client for Windows 95/98. If any of these network components are installed, the client installation program detects the conflict and removes the conflicting network components.

- Microsoft File and Printer Sharing for NetWare Networks
- Microsoft Client for NetWare Networks
- Microsoft Service for Novell Directory Services (NDS)
- Novell NetWare Workstation Shell 3.x (NETX)
- Novell NetWare Workstation Shell 4.0 and later (VLM) clients
- Novell Internetwork Packet Exchange (IPX) ODI protocol (the 16-bit module for the NETX and VLM clients)

Windows NT Incompatibilities

- **Microsoft SMB Client Support over IPX** — The Novell Client for Windows NT coexists with the Microsoft SMB Client over IPX networks. The Microsoft SMB Client utilizes NetBIOS when communicating over IPX, which increases the utilization of your network. You can prevent the Microsoft SMB Client from communicating over NetBIOS by modifying your workstation configuration. Unbind the workstation and server from NWLink NetBIOS in the Network Properties page.
- **Envoy for Windows —** Envoy for Windows (both version 1.0 and version 1.0a) will allow you to open and view documents, but might require you to reboot when you try to exit the application. If you experience this problem, go to the Novell Services Support website http://support.novell.com and search for the file *EVYNT.EXE*. This self-extracting executable file produces two files—one .EXE file and one .DLL file. Copy both of these files to your ENVOY directory.
- **Microsoft File and Print Services —** The Novell Client for Windows NT software is not compatible with Microsoft File and Print Services for NetWare (FPNW). Although FPNW advertises itself as a NetWare 3.12 server, FPNW does not truly emulate a 3.12 server. As a result, when a client attaches and attempts to use features that are available only on 3.12 servers, FPNW will not be able to respond properly. (A fix is available from Microsoft, but Novell testing indicates that, at this time, the fix still does not provide a complete solution.)
- **NVER** — The NVER command does not work with Novell Client for Windows NT. Attempting to use this command may cause the command window to stop responding.
- **Attachmate Irma** — Attachmate Irma v3.02 does not work with the Novell Client for Windows NT at this time. Attachmate recommends that customers use the 32-bit version of Irma with Novell Client for Windows NT.
- **RCONSOLE and the Japanese Version of Microsoft Windows NT** — *RCONSOLE.EXE* currently does not work on NEC PC98 systems using the Japanese version of Novell Client for Windows NT.
- **Novell 3270 LAN Workstation v1.2x (*WSLANWIN.EXE)*** — Novell cannot support this application on Microsoft Windows NT 4.0 because this application cannot handle SPX

SENDs that complete in true asynchronous fashion. If the SPX SEND is made synchronous, then the application works fine.

- **VIPX and VLMSUP Commands in *AUTOEXEC.NT*** — When you run SETUPNW /A /ACU, SETUPNW places the VIPX and VLMSUP commands at the end of your *AUTOEXEC.NT* file. This is normally not an issue. However, if you load a DOS TSR, such as BREQUEST for Btrieve applications, VIPX and VLMSUP must be loaded first. To fix this problem, edit the *AUTOEXEC.NT* file so that these VIPX and VLMSUP are loaded before the DOS TSR command.

- **Files Marked Execute-only Do Not Execute** — Because of a problem with the way 16-bit subsystems process executables, only Win32 files can be marked Execute-only and work properly.

- **DiscView Software for a DISCPORT-Tower by Microtest** — When you attempt to access one of these CD-ROMs, the current process might crash because of an apparent bug in the Microtest software. When using this software with NetWare 4.1 or later, the client might crash. To resolve this problem, update the Microtest software on the server.

- **Microsoft Word 7** — If you remove any NetWare volume while using Word 7, a Dr. Watson error occurs. Therefore, do not remove any volumes while using Word 7.

- **SFLOGIN** — SFLOGIN 32 v2.01 and all prior releases are incompatible with this client. For more information, visit the Netoria website http://www.netoria.com. If an incompatible SFLOGIN version is detected during installation, it will be disabled to avoid serious workstation problems.

DOS and Windows 3.1 x Incompatibilities

There are no known incompatibilities.

Phase 2: Choose the Upgrade Method and Network Protocol

Step 1: Determine the Upgrade Method

You can choose one of two ways to upgrade your current NetWare 4.1x server to NetWare 5:

- Across-the-wire migration

- Same-server migration

Knowing which upgrade method to choose is your first important step to upgrading your system to NetWare 5.

Across-the-Wire Migration

Across-the-wire migration allows you to change the server name and internal IPX address. This method consists of the following general steps:

Schedule the migration during off-peak hours when there are no users on the network

1. Unload all network services except LAN communications on the old server.
2. Install NetWare 5, Novell SSD, and Compaq Integration Management Tools on the new server hardware that meets the operating system requirements.
3. Establish your files and directories, using one of the following methods:
   - Migrate the files and directories from the old server to the new server using a file migration utility that maintains all of the file system and volume information. The RexxWare Migration Toolkit and the Computer Associates *VOLUME COPY* (included in ARCserve 6.x) are both capable of performing this task.
   - Restore the verified backup server.
4. Remove the old server hardware from the network (if necessary).
5. Verify the upgrade.

Same-Server Migration[CCB1]

The same-server method allows you to maintain the server name and internal IPX address, and does not require new server hardware. However, the existing Compaq server must meet the NetWare 5 requirements. The same-server method consists of the following four general steps:

Schedule the migration during off-peak hours when there are no users on the network

1. All network services must be unloaded except LAN communications on the old server.
2. Remove the server from the network (if it contains any replicas and is not the only server on the network).
3. Install NetWare 5, Novell SSD, and Compaq Integration Management Tools on the server hardware that meets the operating system requirements.
4. Verify the upgrade.

Step 2: Choose the Networking Protocol(s)

Before NetWare 5 installation, you will need to select one of the following protocol options for your NetWare server:

- Internet Protocol (IP) with IPX Compatibility Mode
- IP only
- IPX only
- IP and IPX

IP with IPX Compatibility Mode

When IP is selected, passive support for IPX is also provided. That means if an IP or an IPX request arrives at the server, NetWare 5 will process both of the requests. This passive support for IPX is called Compatibility Mode and is automatically enabled to provide service for applications that require IPX.

IP only

IP can be installed with the IPX Compatibility Mode disabled. When IPX Compatibility Mode is disabled, the server will process only IP packets. Consequently, applications that require IPX will not function properly.

Note: You can disable Compatibility Mode by removing the SCMD command from the server *AUTOEXEC.NCF* file.

IPX only

The traditional Novell protocol, IPX, will allow you to continue using IPX-based applications. If only IPX is installed on your server, it will actively process IPX packets and ignore packets using other protocols, such as IP.

IP and IPX

If you have network clients or applications that require IPX and IP, you can install both protocols. Both protocols can be bound to a single network board. When selected, both IP and IPX protocols are actively supported. The server will process IP requests using IP; the server will broadcast and reply to IPX requests using IPX.

Phase 3: Prepare for the Upgrade

There are certain "housekeeping" duties you must perform before starting your upgrade to NetWare 5. Correct preparation reduces the chances of meeting with problems or anomalies, during or after the upgrade.

To prepare for upgrading to NetWare 5 complete the following:

- Gather the required materials.
- Backup the NetWare 4.1x server files.
- Prepare the server for NetWare 5 installation.
- Update the Novell Directory Services (NDS) to v5.15 or later on NetWare 4.10 servers and to v6.00 or later on NetWare 4.11 servers.
- Install Novell Licensing Services.

Step 1: Gather the Required Materials

Gather the following materials and have them readily accessible for the upgrade.

- NetWare 5 CD-ROM and license diskette
- Compaq Systems ROMPaq Firmware Upgrade
- Compaq SmartStart v4.20 or later, or Novell SSD v5.03 or later
- Compaq Management CD
- For mixed NetWare environments, NetWare Support Pack v6.0 or later
- Client workstation operating system updates (service packs, patches, and so forth)

Step 2: Backup the NetWare 4.1x Server Files

There is always the chance that data can be lost or corrupted during an upgrade. Therefore, it is important that you make at least two full backups of all files stored on the server using a NetWare NDS-aware application—regardless of the upgrade method you choose. Perform this procedure after hours, if possible, to avoid interrupting service or access.

Do not attempt an upgrade without a backup.

File-by-file backups can be time-consuming, but this backup method is the most accommodating during an upgrade. A file-by-file backup usually offers a reliable verification method, which can be accomplished during the backup process. Some third-party backup applications also allow you to compare the contents of the tape(s) to the disks that you have backed up.

In addition, copy and print the server configuration files (.NCF). Having the hard copies of the configuration files will help you reconfigure your server after the upgrade.

Step 3: Prepare the Server for NetWare 5 Installation

Performing a same-server upgrade requires you to remove the NetWare 4.1x server from the network. Depending on your network design, you may have to complete certain tasks to prepare the server for the NetWare 5 installation.

- Notify users.
- Update the firmware on your Compaq server.
- Prepare the boot partition, if necessary.

Refer to the Novell Online Documentation for detailed instructions on performing these tasks. The Online Documentation can be viewed from the website http://www.novell.com.

Notify Users

Some users never log off of the network, leaving their workstation constantly running. Before downing the server, notify users in advance, giving them a chance to log off of the server to be upgraded or replaced. Use the DISABLE LOGIN command to prevent users from logging in, and load MONITOR to clear all connections.

Update the Server Firmware

All Compaq servers and most Compaq options have onboard firmware (operating program in ROM) which can be updated easily. Compaq has simplified the process of upgrading firmware by providing ROMPaqs. Flashing the ROM using the Compaq utility ROMPaq replaces the existing contents of the ROM with a newer version. This is a convenient way to distribute new firmware and keep your Compaq products updated with the latest capabilities.

Table 3. ROMPaq utilities

System ROMPaq	For updating the system ROM in all Compaq servers supporting Flash ROM to be sure that the server can utilize all the capabilities of the new hardware.
Option ROMPaq	For updating the onboard ROM on all Compaq options that support flashing to take advantage of expanded capabilities.

Before migrating, use a ROMPaq to upgrade the server system ROM to one dated 7/15/98 or later, unless your server is a ProLiant 1850R, which requires system ROM 7/15/98 or later.

To run System ROMPaq,

1. Place the System ROMPaq diskette in the server floppy diskette drive.
2. Down and power cycle (cold boot) the server.
3. Press **Enter** at the Welcome screen.
4. At the Select a Device screen, select the server from the list of programmable devices. This may be the only item in the list. Press **Enter.**
5. At the Select an Image screen you will see the following:

Device to reprogram:	*your server*
Current ROM revision:	*date of existing ROM version*
Select Firmware Images:	*date of latest ROM version*

   Press **Enter.**
6. Review the information on the Caution screen.

Device to reprogram:	*your server*
Current ROM revision:	*date of existing ROM version*
Select Firmware Images:	*date of latest ROM version*

   Press **Enter** to reprogram the system ROM, or press **Esc** to discontinue reprogramming and return to the Select an Image screen.
7. *Reprogramming Firmware* indicates that the system ROM is being reprogrammed. Do NOT interrupt.

IMPORTANT: Interrupting the ROM reprogramming will leave the firmware in an unknown state. You may not be able to restart the server if this happens. You will be notified that reprogramming is completed.

8. When ROMPaq is finished reprogramming the system ROM, press **Esc** to exit the System ROMPaq Utility.
9. Remove the System ROMPaq diskette and restart the server by cycling the power (cold boot).

Prepare the Boot Partition

If your NetWare server does not meet the disk space requirements for the boot partition, you can either modify the size of your existing partitions using a third-party application—such as ServerMagic or Columbia Snapback—or create a new boot partition.

Creating a new boot partition will remove all data on the first hard disk. Additionally, creating a new boot partition will remove all partition types except the system partition created by the Compaq System Configuration Utility.

Compaq SmartStart Assisted Integration

Compaq SmartStart 4.2 or later provides complete NetWare 5 support. The Assisted Integration path of SmartStart guides you through the entire process of configuring your Compaq hardware and installing NetWare 5. SmartStart automatically installs the optimized drivers and utilities that support Compaq hardware running NetWare 5.

To configure your server using the SmartStart Assisted Integration path, follow these three steps:

1. Insert the SmartStart compact disc into the server CD-ROM drive and start the server.
2. Run the System Erase Utility and follow the instructions on your screen to restart the server.
3. The Compaq SmartStart application should run automatically. Follow the prompts to configure your Compaq server.

Manual Configuration

If you choose manual configuration, you can create and use a Compaq-specific bootable diskette with *CPQBOOT.EXE*, instead of FDISK, to create a boot partition and run the installation program. This diskette image is available on the NetWare 5 CD-ROM or can be downloaded from the website http://www.compaq.com.

1. Copy *CPQBOOT.EXE* from the \INSTALL directory on the NetWare 5 OS CD-ROM to a temporary directory under DOS or Windows on the PC.
2. Make the temporary directory the current directory.
3. Execute *CPQBOOT.EXE* from the temporary directory on the PC.
4. Follow the on-screen directions to create the bootable diskette.

Step 4: Update NDS on NetWare 4.1x Servers

Before you deploy your NetWare 5 server on the network, you should update the Novell Directory Services (NDS) on all NetWare 4.1x servers to ensure compatibility between servers.

Upgrading a NetWare 4.1x server to a NetWare 5 server involves maintaining the reliability of the NDS tree. NDS contains information about server objects, based upon the server name and object ID. Other servers in the NDS tree use the server internal IPX address as an external reference. If you change the server name, object ID, or internal IPX address, you can create problems in the NDS environment. Also, a server that is removed from the NDS tree can generate NDS and time synchronization problems. Review Table 2 for suggestions on how to deal with these problems.

Table 2. Server NDS and time synchronization tips

If the server,	then
has the master replica,	change the replica type and assign a new master replica.
has replicas of distributed partitions and participates in time synchronization activities,	remove the replicas and remove the server from a replica list before downing the server.
is a single reference time server,	designate one of the secondary-time servers as a temporary, single-reference-time server until it is reconnected.

If there are other NetWare 4.1x servers on the network, you must update NDS on all 4.1x servers in the tree to achieve NDS compatibility with NetWare 5. You can download the latest NetWare Support Pack or *DS.NLM* update from the website http://support.novell.com or from the Novell Support Connection Minimum Patch List.

Servers running NetWare version 4.11 should all be running *DS.NLM* v6.02 and *DSREPAIR.NLM* v4.62.

ds411p.exe; 3129051 bytes; Date/Time: 02-16-1999/7:06a

This update to NDS is required before installing one or more NetWare 4.11 servers or NetWare 5 servers into the same NDS tree.

Servers running NetWare version 4.10 should upgrade to *DS.NLM* v5.15 and *DSREPAIR.NLM* v4.59, and *DSMERGE.NLM* v1.63 before migrating to Netware 5.

ds410n.exe; 731805 bytes; Date/Time: 11-09-1998/4:37p

These files provide NetWare 5 compatibility fixes and also a Year 2000 fix. Novell strongly recommends that all NetWare 4.10 customers upgrade their NDS files to these new versions.

Note: The *DSREPAIR.NLM* addresses schema definitions not have been properly time-stamped if your tree began life as a NetWare 4.0 or NetWare 4.01 server. With the introduction of newer versions of *DS.NLM*, this could cause possible corruption with the Backlink attribute.

Single-Server Installation

Install the NetWare Support Pack using the Install Utility (*INSTALL.NLM).* Then follow these eleven steps:

1. Log in to the network as ADMIN or as a user with rights to SYS:SYSTEM on the NetWare 4.1x server. Rename the following files in the SYS:SYSTEM subsub-directory to *.OLD to preserve a backup copy:

   DS.NLM
   DSREPAIR.NLM

2. Decompress the NetWare Support Pack file on the server volume SYS:, on another server volume, or on a local client that is using RCONSOLE to run the installation.

Note: This file contains directory paths that could exceed the DOS limits. The file must be extracted in a root-level directory on your local drive or on a NetWare volume that accepts longer paths.

3. At the server console prompt, enter LOAD INSTALL.
4. Select Product Options.
5. Select Install a Product Not Listed.

6. Depending on where the NetWare Support Pack files are located, complete one of the following steps:
   - From the local volume SYS:, press **F3** and specify the path, including the volume name
   - From a different server on the network, press **F3** and specify the full path including the server name, for example,

     Server_Name\VOL1:\directory name

     This step prompts for a login name and password for the remote server.
   - From a local drive on a client using RCONSOLE, press **F4**.
7. Press **Enter**.
8. Press **F10** to accept the marked options and continue.

Note: If the option to back up files is not selected, you will not be able to uninstall the Support Pack.

9. Press **Enter** to end.
10. After you have finished copying the files, review the .NCF files for accuracy. Then bring down the server and restart it to complete the installation of the intraNetWare Support Pack.
11. In order to activate the purge fixes (*PRGFREFX.NLM*), the PURGE /ALL DOS command must be run at the root of all the server volumes. In addition, *VREPAIR.NLM* should be run until there are no errors.

Note: Newer files already existing on the server will not be overwritten. You must first check the version number. If they have the same number, they are date checked.

Multiple-Server Installation

If you have multiple 4.1x servers in your tree, use NDS Manager to quickly deploy *DS.NLM*, *DSREPAIR.NLM*, and *ROLLCALL.NLM* throughout your tree from a single point of contact.

1. Decompress the NetWare Support Pack file on a server SYS: volume.

Note: This file contains directory paths that could exceed the DOS limits. The file must be extracted in a root-level directory on your local drive or on a NetWare volume that accepts longer paths.

2. Console operator rights are required to complete the installation. From a workstation, run the *CCNWLITE.EXE* program located in the IWSP6 directory.

Step 5: Install Novell Licensing Services (NLS)

Installing NLS on a NetWare 4.1x server extends the NDS schema as required by NLS and configures the server to be a License Service Provider. This task involves three primary steps.

1. Load the SETUPNLS command at the console prompt.
2. If *SETUPNLS.NLM* detects an old schema in the NDS database, the screen displays

   Old NLS schema extensions detected. Convert old NLS objects?

   - Select Yes. If you select No, you may have to reinstall licenses.

- Log in to either the NDS tree or to a container. Remember to enter the administrator's complete name. For example, enter admin.vmp.

3. Select Yes to allow *SETUPNLS.NLM* to make modifications to the NDS schema as required by NLS.
4. Select whether to remove the old schema extensions.
5. *SETUPNLS.NLM* might display this dialog box:

   Do You Wish to Remove Old Schema Extensions?

   - If old NLS objects did not convert in Step 2a, select No.
   - Otherwise, select Yes.

6. *SETUPNLS.NLM* sets up the NetWare 4.1x server to be a License Service Provider (LSP). Press **Enter** to complete the installation, then press **Enter** to return to the console prompt.

Phase 4: Install the Novell Client on Workstations

Before users can access network resources, the Novell Client must be installed on client workstations. Novell Client software allows you to connect to a NetWare network from a Microsoft Windows 95/98, Microsoft Windows NT, or DOS/Windows workstation. The client application also includes utilities to configure and optimize the client.

You can install the Novell Client separately, or you can install it during a Microsoft Windows NT or Microsoft Windows 95/98 installation. Installing the client at the same time as the operating system, however, involves copying files to the server and visiting the workstation. If you want to automatically set client properties during installation, a multiple workstation installation can save you a lot of time. However, it also requires more preparation than a single workstation installation. After login, the Novell Client can be automatically installed on a workstation using the Automatic Client Upgrade (ACU). This procedure does not necessitate user interaction.

Automatic Client Upgrade (ACU)

The Novell Automatic Client Upgrade (ACU) process provides a way to automatically upgrade from earlier Novell Client software to the latest Novell Client software. ACU uses version numbers to determine whether or not the client needs to be upgraded. This upgrade happens when users log in and varies depending on the way that users log in to the network. But the process essentially requires five tasks:

- Inform users of the recommended upgrade.
- Copy client installation files.
- Grant rights to the new directory containing the client installation files.
- Create a configuration file.
- Modify the appropriate login script or profile script.

Step 1: Inform Users of the Recommended Upgrade

Let users know in advance about the upgrade so they understand what is happening and why their working environment is changing. Users will need to log out of their workstations and log in again in order for the Novell Client upgrade to run.

If workstations have older software, ACU upgrades the client software when users log in and then restarts the workstation. Users see system messages as ACU upgrades their workstations. If workstations already have the latest version of the client software, the client login continues and completes as usual.

Step 2: Copy Client Installation Files

Create a directory to copy the files required for the Novell Client installation. Microsoft Windows 95/98 also requires installing operating system (.CAB) files.

Note : The installation files require a lot of disk space. If you do not copy the installation files, you will be prompted to enter the path to the files. Therefore, to conserve space, you can keep the files on the compact disc and mount the compact disc as a volume on the server.

1. Enable the long name space on the NetWare volume you will use to store the installation files.
2. Log in to the server as Admin or a user with Admin rights.
3. Create an ACU directory on the server for each client operating system on the network.

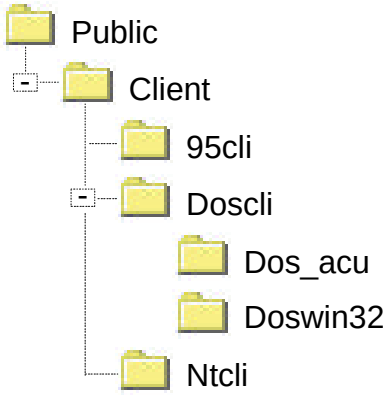

Figure 1. Sample directory layout for client directories

4. Copy the files required for Novell Client installation into the associated workstation operating system directory.

Table 4. Files to copy to the server from the Novell Client CD-ROM

Current Login Method	Required Directories
DOS	DOSWIN32\ DOS_ACU\
Microsoft Windows with DOS Login	DOSWIN32\ DOS_ACU\
Microsoft Windows	DOSWIN32\
Microsoft Windows 95/98	WIN95/98\IBM_*LANGUAGE*

Current Login Method	Required Directories
Microsoft Windows NT	I386

Step 3: Grant Rights to the New Directory

Make sure that all clients scheduled for automatic upgrade have Read and File Scan rights to the install directory. To ensure that users have the appropriate effective rights to the appropriate installation directory, create Group objects, and then assign users to the groups using NetWare Administrator.

Step 4: Create a Configuration File

To get information (such as where to copy drivers during installation), the Novell Client reads a configuration file. This file should be stored in the directory corresponding to the workstation operating system. To determine whether a workstation should be upgraded, ACU uses the Client Version section of the configuration file.

Any text editor can be used to update a configuration file to meet your network needs. However, the Novell Client Install Manager can also tailor Microsoft Windows 95/98 and NT configuration files. Refer to the Novell Online Documentation for detailed explanations of each configurable parameter.

To use the Novell Client Install Manager,

1. Start the Novell Client Install Manager located on the Z.E.N.works CD-ROM in the PRODUCTS\WIN95/98\IBM_LANGUAGE\ADMIN directory.
2. In the Novell Client Install Manager, under the File menu, click New File. Then click Windows 95/98 or Windows NT.
3. Modify the Configuration option in the Installation Options List box as needed and set the parameters in the property pages.

Note: You can set up one workstation the way you want all of the workstations to be set up, and then import the settings from that workstation's registry and save them to the configuration file.

4. Save the configuration file. DOS, Windows, and Windows 95/98 will retrieve configuration information from specific files. Table 5 lists the expected filenames.

Table 5. Configuration filenames

Current Login Method	Configuration Filename
DOS	*INSTALL.CFG*
Microsoft Windows with DOS Login	*SETUP.INI*
Microsoft Windows	*SETUP.INI*
Microsoft Windows 95/98	*NWSETUP.INI*
Microsoft Windows NT	*UNATTEND.TXT*[1]

Step 5: Modify the Appropriate Login Script or Profile Script

Use NetWare Administrator to modify the appropriate login script or profile script with the command to run the Novell Client upgrade and the path to the configuration file. Refer to the

[1] You can name this file whatever you choose because the configuration filename is specified in the login script command.

Login script modification table for the login script command to initiate the installation of the Novell Client.

Note: If you are using the bindery-based Microsoft Client for NetWare Networks, the login script that corresponds with the type of login (bindery or NDS) must be modified in order for the Automatic Client Upgrade to work. The system login script (PUBLIC\NET$LOG.DAT) should be edited for bindery-based client software.

Table 6. Login script modifications

Current Login Method	Login Script Command
DOS	#F:DOSWIN32\INSTALL
Microsoft Windows with DOS Login	EXIT “WIN SETUP.EXE”
Microsoft Windows	@F:SETUP.EXE /ACU
Microsoft Windows 95/98	@F:SETUP.EXE /ACU /RB
Microsoft Windows NT	#F:SETUPNW.EXE /ACU /U:F:UNATTEND.TXT

A command to map the network drive is also required. As indicated earlier, you can name the configuration file whatever you like.

Note: DOS, Windows with DOS login, and Windows Methods require the *NWDETECT.EXE* program to compare the version stamp with the client type on the workstation.

Simultaneous Installation of Workstation OS and Novell Client

This can save a tremendous amount of time if you are installing the software on a number of workstations.

You can install Microsoft Windows NT or Microsoft Windows 95/98 and Novell Client for Windows NT at the same time. The workstation, however, must have a network connection before you can begin. You must also copy files to the server and actually visit the workstation. You should also gather the following materials and have them readily accessible:

- Microsoft Windows NT CD-ROM or Microsoft Windows 95/98 Upgrade CD-ROM
- Z.E.N.works CD-ROM

Now you can begin the installation.

Windows NT

1. Enable the long name space on the NetWare volume that you will use to store the installation files.
2. Create a directory to store the Microsoft Windows NT files and an I386 directory inside it.
3. Copy the contents of the I386 directory on the Microsoft Windows NT CD-ROM to the I386 directory created in Step 2.
4. Run *NETSETUP.EXE* from the ADMIN\\NETTOOLS\NETSETUP directory on the Microsoft Windows 95/98 Upgrade CD-ROM.
5. Inside the I386 directory, create a directory called OEM.

6. Inside the OEM directory, make a directory called NET.
7. Inside the NET directory, make yet another directory. You can name this directory whatever you want. In this example procedure, this directory is called NTCLIENT.
8. Use Microsoft Setup Manager to configure the Microsoft portion of the *UNATTEND.TXT* file. The Microsoft file *UNATTEND.TXT* includes several options that prompt for information during setup. If you do not provide answers to these prompts in the *UNATTEND.TXT*, a user must be present to answer the prompts as they appear. If you pre-configure the answers, Microsoft Windows NT installs without user intervention.
9. Use Novell Client Install Manager to edit the *UNATTEND.TXT* file. Novell Client Install Manager can be found on the Novell Client and Z.E.N.works CD-ROM in the directory

   PRODUCTS\WINNT\I386\ADMIN\

   The filename is *NCIMAN.EXE*.
10. Save the configuration file.
11. Copy the PRODUCTS\WINNT directory of the Novell Client and Z.E.N.works CD-ROM to the same directory you created in Step 5.
12. To install Microsoft Windows NT, log each workstation in to the network.
13. To start the installation, change to the I386 directory.
14. Enter the following on the command line.

    WINNT /S:<source_path>/B /U:<path_to_configuration_file>

    Example:
    WINNT /S:F:\I386 /B /U:F:\PUBLIC\WINNT40\I386\OEM\NET\NTCLIENT*UNATTEND.TXT*
15. The unattended install process automatically installs Microsoft Windows NT and Novell Client for Windows NT on each workstation.

Windows 95/98

Installing Microsoft Windows 95/98 and the Novell Client simultaneously requires some preparation, but simplifies the installation process and minimizes user interaction. The process requires the use of the following utility programs on the Microsoft Windows 95/98 Upgrade CD-ROM:

- *NETSETUP.EXE*
- *BATCH.EXE*
- *INFINST.EXE*

Install and Copy Files to the Server

1. Log in to the server and map a network drive to a volume that will be used to store the files required to run a simultaneous Microsoft Windows 95/98 and Novell Client installation.
2. Create two directories: one directory for Microsoft Windows 95/98 files and the other directory for Novell Client files.

3. Run *NETSETUP.EXE* from the ADMIN\NETTOOLS\NETSETUP directory on the Microsoft Windows 95/98 Upgrade CD-ROM.
4. Specify where *NETSETUP.EXE* places files. If this directory isn't already on the server, *NETSETUP.EXE* can create it for you. After specifying the destination for the Windows .CAB files, click OK.
5. Install the Microsoft Windows 95/98 source files by selecting Local Hard Drive from the Install menu.
6. Enter the path to the WINDOWS 95/98 .CAB files as the Path to Install From. These files are on the Microsoft Windows 95/98 Upgrade CD-ROM in the WIN95/98 directory.
7. Click OK. Then click Don't Create Default.
8. Click OK to bypass the Product Identification Number box.

   NETSETUP copies files to the WIN95/98 directory on the server. This takes between 15 to 45 minutes depending on CD-ROM speed, network connection, and network traffic.
9. After the files are copied, exit the Server Based Setup by clicking OK and then Exit.
10. Change the file attributes of *MSBATCH.INF* and *NETDET. INI* to Read/Write.
11. Copy Novell Client files located in the PRODUCTS\WIN95/98\IBM_LANGUAGE directory on the Z.E.N.works CD-ROM to the WIN95/98 directory on the server.

Note: Do not copy the files from the PRODUCTS\ADM32\IBM_LANGUAGE\BATCH95/98\NLS\LANGUAGE directory of the Z.E.N.works CD-ROM.

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12. Rename the .INF files or remove them from the WIN95/98 directory.
13. Copy the .INF files from the PRODUCTS\WIN95/98\IBM_LANGUAGE directory on the Z.E.N.works CD-ROM to the WIN95/98 directory.

Prepare .INF Files

1. Run *BATCH.EXE* on the Microsoft Windows 95/98 Upgrade CD-ROM, in the ADMIN\NETTOOLS*NETSETUP* directory.
2. Click Network Options.

   Deselect any protocols, services, clients, or other options that are checked.

   Select TCP/IP. Next select Settings, enter required data, and exit the dialog box. If the IPX/SPX Protocol client is required, select IPX/SPX Compatible Protocol.

   Click OK.
3. Click Installation Options
4. Select all options except Search Source Directory for Devices and Prompt for Startup Disk. Completing this step allows users to have minimal interaction while MSBATCH updates workstations.
5. Set Type of Installation to Typical.
6. Enter Installation Directory as C:\WINDOWS.
7. Set the time zone.
8. Click Printers ⇨ Don't Prompt to Install Printers during Setup.

9. Exit the Printer Setup dialog box by clicking OK.
10. Return to the untitled dialog box by again clicking OK. Omit Optional Components. Otherwise, selecting Optional Components negates the Typical settings selected earlier.
11. Click Done.
12. Save the file as *MSBATCH.INF* to the WIN95/98 directory on the server, and click OK.
13. Run the INF Installer (*INFINST.EXE*) from the ADMIN\NETTOOLS\NETSETUP directory of the Microsoft Windows 95/98 Upgrade CD-ROM to add the client to *MSBATCH.INF*.
14. Click Set Path, and enter the server path to specify where Installer places files. Click OK.
15. Click Install INF. Then, select *NWCLIENT.INF*. Click OK.

Note: Do not keep the existing *NETWARE.DRV* file even if it is newer than the *NETWARE.DRV* file that shipped with this Novell Client for Windows 95/98 software. Click No in response to the Version Conflict message.

IMPORTANT: We strongly recommend that you not skip files if prompted to do so. If the INF Installer cannot find a file, specify the path where you think the file is located. If the installer can not find a file, the client upgrade will not be successful.

16. Click OK at the small INF Installer Dialog Box; then click Exit at the main INF Installer Dialog Box.
17. Review the sample *MSBATCH.INF* file in the PRODUCTS\ADM32\IBM_LANGUAGE\ BATCH95/98\NLS\LANGUAGE directory of the Z.E.N.works CD-ROM to compare the registry keys shown in the sample *MSBATCH.INF* file with the one generated by the INF Installer.
18. Adjust as necessary to set the values of the client properties automatically during installation by placing values in the *ADMIN.CFG* file.

Install Microsoft Windows 95/98 and Novell Client for Windows 95/98

1. At the workstation to be upgraded, log in to the NetWare server from the command line.
2. Map a network drive to the directory containing *MSBATCH.INF*.
3. Enter SETUP to initiate the installation:

   SETUP /IW G:\WIN95/98*MSBATCH.INF*

   (where G: is the mapped network drive containing the *MSBATCH.INF)*

Phase 5: Install NetWare 5

Same-Server Upgrade

If your Compaq server meets the requirements and you have performed the tasks previously outlined, you can initiate the NetWare 5 installation by powering the server with the NetWare 5 Operating System CD-ROM in the CD-ROM drive.

- Be sure to indicate the correct option

  Is this a new server or an upgrade? | Upgrade from 3.1x or 4.1x

  on the Welcome to the NetWare Server Installation screen if you are performing a same-server upgrade. The default is New Server.

- No files are downgraded during a same-server upgrade. If you applied the latest intraNetWare Support Pack and updated NDS, some of the existing files may be newer. NetWare will prompt you before downgrading existing files to an older version. Keep the newer files.

NetWare 4.1x Migration

If your Compaq server meets the requirements and you have performed the tasks previously outlined, you can now initiate the NetWare 4.1x migration by starting the server with the backup diskettes created in Phase 3, Step 2. Insert these backup diskettes into the floppy drive, and insert the NetWare 5 CD-ROM in the CD-ROM drive. The Compaq diskette creates a boot partition and provides NetWare 5 with the necessary information to configure your Compaq server.

Phase 6: Verify the Upgrade

The NetWare 5 upgrade was successful if applications are running properly and users are able to access network resources.

Step 1: Restore File System

If you installed NetWare 5 on a new Compaq server and need to migrate files, you can use a copy utility to restore files from the source server or from a backup tape media.

File copy operations can be performed using NetWare Administrator or other utilities, such as the Compaq Console File Manager (*CPQFM.NLM*). The Compaq File Manager is available on the *Compaq and Novell Power Resource Paq*, which is available from the Compaq and Novell Partnership website. These utilities maintain NDS rights and properties associated with volumes, directories, and files. Third-party utilities, such as the Cheyenne Copy Manager, a feature of ARCserve, also allow you to scan for and detect viruses during the copy operations.

Step 2: Install Other Utilities and Insight Agents

The Compaq Survey Utility and Compaq Insight Manager modules are not overwritten during a same-server upgrade. However, you need to install the version of these utilities that are compatible with NetWare 5 to get the same value-added-server protection.

1. Insert the Compaq SmartStart CD-ROM and mount it as a volume.

   CDROM

2. Load the Compaq Maintenance Utility.

   SMST420:CPQMAINT

3. Install the Compaq Survey Utility.
4. Install the Compaq Insight Agents.
5. Exit the Compaq Maintenance Utility.

Appendix A

Table 7: Novell yes, tested and approved Compaq servers

Bulletin	Product	CPU	Bus
45305	Proliant 1200	Pentium® II/233	EISA/PCI, PCI
43963	ProLiant 1500 5/166	Pentium™166	EISA/PCI, EISA, PCI
44046	ProLiant 1500 5/200	Pentium™ 200	EISA/PCI, EISA, PCI
42744	ProLiant 1600	Pentium® II/300	EISA/PCI, PCI
44487	ProLiant 1600	Pentium® II/450	ISA/PCI,PCI
47116	ProLiant 1600	Pentium® II/450	ISA/PCI, PCI
45923	ProLiant 1600	Pentium® II/450	ISA/PCI, PCI
45216	ProLiant 1850R	Pentium® II/450	ISA/PCI, PCI
45343	ProLiant 1850R	Pentium® II/400	ISA/PCI, PCI
47117	ProLiant 1850R	Pentium® II/450	ISA/PCI, PC!
45924	ProLiant 1850R	Pentium® II/450	ISA/PCI, PC!
45963	ProLiant 2000	Pentium™ 90	EISA
43803	ProLiant 2500	Pentium Pro™ /200	EISA/PCI, PCI
46147	ProLiant 2500	Pentium® II/333	EISA/PCI, PCI
45345	ProLiant 2500	Pentium® II/333	EISA/PCI, PCI
46146	ProLiant 2500	Pentium Pro™ /200	EISA/PCI, PCI
45346	ProLiant 3000	Pentium® II/333	EISA/PCI, PCI
46148	ProLiant 3000	Pentium® II /333	EISA/PCI, PCI
43874	ProLiant 4500	Pentium™166	EISA
43443	ProLiant 5000 6/166	Pentium® Pro/166	EISA/PCI, EISA, PCI
43444	ProLiant 5000 6/166	Pentium Pro™/200	EISA/PCI, EISA, PCI
45427	ProLiant 5500	Pentium® Pro/200	EISA/PCI, PCI
47044	ProLiant 5500	Pentium® Pro/200	EISA/PCI, PCI
45428	ProLiant 5500R	Pentium® II Xeon®/400	ISA/PCI, PCI
47045	ProLiant 5500R	Pentium® II Xeon®/400	ISA/PCI, PCI
42884	ProLiant 6000	Pentium® Pro/200	EISA, PCI
45983	ProLiant 6000	Pentium® II Xeon®/400	ISA Proprietary, PCI, PCI (64-bit)
47118	ProLiant 6000	Pentium® II Xeon®/400	ISA Proprietary, PCI, PCI (64-bit)
47046	ProLiant 6000	Pentium® Pro/200	EISA, PCI
44047	ProLiant 6000	Pentium® II Xeon®/400	ISA Proprietary, PCI, PCI (64-bit)
47047	ProLiant 6500	Pentium® II Xeon®/400	ISA, PCI
46003	ProLiant 7000	Pentium® II Xeon®/400	ISA Proprietary, 64-bit PCI Hot Plug, 32-bit PCI Hot Plug
47050	ProLiant 7000	Pentium® II Xeon®/400	ISA Proprietary, 64-bit PCI Hot Plug, 32-bit PCI Hot Plug

Table 7: Novell yes, tested, and approved Compaq servers (continued)

Bulletin	Product	CPU	Bus
44048	ProLiant 7000	Pentium® II Xeon®/400	ISA Proprietary, 64-bit PCI Hot Plug, 32-bit PCI Hot Plug
44488	ProLiant 800	Pentium® II/400	ISA/PCI, PCI
46023	ProLiant 800	Pentium® II/400	ISA/PCI, PCI
47049	ProLiant 800	Pentium® II/450	ISA/PCI, PCI
44732	ProLiant 800	Pentium Pro™ /200	ISA 16, PCI
45347	ProLiant 800R	Pentium® Pro/200	ISA, PCI
44733	ProSignia 200	Pentium™/166	ISA, ISA/PCI, PCI
45344	ProSignia 200	Pentium® II/300	ISA, ISA/PCI, PCI
46043	ProSignia 200	Pentium® II/300	ISA, ISA/PCI, PCI
46149	ProSignia 300	Pentium™/90	EISA/PCI, EISA, PCI
42883	Rack-Mountable ProLiant 6500	Pentium® Pro/200	EISA, PCI
42745	Rack-Mountable ProLiant 1600 2p	Pentium® II/400	ISA/PCI, PCI
42746	Rack-Mountable ProLiant 7000 4p	Pentium® Pro/200	ISA, PCI