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What's New in NetWare 4.02

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NetWare 4.02 includes a number of features that make it a more robust operating system. For example, it has been enhanced with a new NetWare Directory Services (NDS) installation. The NetWare Administrator utility also includes several enhancements. Furthermore, updated print utilities provide enhanced stability, and a new NetWare Client Kit for DOS/ MS Windows ships with NetWare 4.02. This AppNote outlines these new aspects of NetWare 4.02.

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Introduction

NetWare 4.02 includes enhancements in such areas as installation, administration utilities, and print utilities. In addition, NLMs, client software, and third-party disk drivers have all been upgraded.

New Installation Procedures

NetWare 4.02 has been enhanced with a new NetWare Directory Services (NDS) installation. Two options are available, custom and simplified.

The custom installation is the same as the 4.01 NDS installation, while the simplified option installs NDS with default settings after requesting the time zone, organization name, and a password for the ADMIN

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object.

NDS Installation Assumptions

When no other NDS trees are detected, simple and custom options are available.

When NDS trees are detected, the tree selected for the server to be installed into determines the type of installation. A tree with multiple containers will use the custom option. A tree with a single container will use the simplified option. (You can switch to custom by pressing the <F4> key.)

NLM Version Checking

A basic NLM version checking process has been implemented as part of the NetWare 4.02 installation. During an upgrade, each NLM (files with .NLM, .DSK, and .LAN extensions) is compared with the file being installed. If the file residing on the file server is newer than the file being installed, the install program offers the following options:

- Overwrite existing file
- Never overwrite existing file
- Always overwrite existing file
- Abort file copy

Partition Creation/Replication Assumptions

In NetWare 4.02, partitions will *not* be created during installation. Any new container objects created during server installation will be part of the existing partition that the server is being added to.

Also, NetWare 4.02 servers being installed into an existing Directory tree will receive a replica only under the following conditions: (1) There are fewer than three replicas of the partition that the server is being installed into; (2) the server being installed is a NetWare 3 upgrade to NetWare 4; and (3) a bindery exists.

Note: There is a bindery upgrade option available under "Maintenance Options" and then "Directory Options" which allows the bindery to be upgraded separately from the installation procedure.

NDS Server Removal Assumptions

In NetWare 4.02, the procedure for removing a server from a tree has become more robust. Installation and removal assumptions are noted below.

Install determines that it is safe to remove Directory Services from this server when:

- All replicas are in the "ON" state
- All other servers in the tree that participate in synchronization operations with that server are up

If the server being removed from the tree holds a master copy of any given partition, INSTALL allows another replica of that partition to be changed to the master.

If the server being removed from the tree holds the only replica of a given partition, INSTALL selects other servers in the tree that can be used to create another replica of the partition on and then switches the new replica to master.

If the server being removed from the tree holds only Read/Writes or Read Only replica of any partition, the replica is deleted and the server uninstall process continues.

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When a filer server is removed from the Directory tree, the file system trustee assignments are backed up to the SYS volume of the server. If the server is installed in the same tree without the SYS volume being destroyed, the trustee assignments will be restored.

The following will also be true:

- The server's Volume objects will be deleted.
- All incoming connections will be removed.
- The Directory Services files will be deleted from the server that was removed.

DOS/Windows Client Installation

The following is a list of changes to INSTALL.EXE for the workstation client software. (The version of INSTALL.EXE that ships with NetWare 4.02 is version 1.11. The previous version was 1.1.)

- INSTALL.EXE can be renamed so it can be called from a batch file. The batch file can set the NWLANGUAGE variable for the user before INSTALL is run.
- INSTALL.CFG is used instead of INSTALL.EXE to determine whether the first installation disk is in the drive.
- The extra disk swap to the INSTALL disk (after the driver is selected and before the driver is copied) has been removed.
- INSTALL now checks the version of the message file with the version of INSTALL.EXE. INSTALL will not load a message file with the wrong version.

Enhancements to NetWare 4 Utilities

Several of the NetWare 4 utilities have been enhanced in NetWare 4.02. The following sections describe the changes to the NetWare Administrator utilities (NWAdmin and NETADMIN), the DOS command-line utilities, and the print utilities.

NetWare GUI Administrator

The graphical NetWare Administrator utility (NWAdmin) includes the following enhancements.

Browser Features. The Browser Filter allows administrators to select a subset of objects in a context by specifying the classes to view and/or a filter which limits the names returned from NDS. For example, a filter might limit browsing to all users whose names start with "A". Also, filter specifications can be saved.

The Browser Sort allows administrators to select order of classes displayed in the browser. Sort preferences can also be saved.

The Browser Redo removed the 1800 entry limit to the browser and increased the speed of opening contexts with large numbers of entries.

The number of entries viewable is limited to the amount of available memory on the workstation. A container with 1800 objects can be opened within seconds and a 40,000+ container can be opened in about 10 minutes, depending on network and workstation performance.

Browser Find is a navigation feature for finding entries in the browser. The Find feature is activated by typing the first characters of the entry you are trying to find. The dialog box appears and allows you to go directly to the specified entry. In addition, the full contents of the browser can be printed.

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A Save Browser States feature allows the user to save positions, filters, sort preferences, and contexts of all active browsers. Upon re-entry into NWADMIN, these states are restored as the user had them saved.

Other Enhancements. The NetWare GUI Administrator also has the following enhancements:

- *Faster MPEW (dialog boxes)*. Multi-Page Edit Widget (MPEW) dialogs are loaded on demand instead of all loading initially. This allows the Details screen to come up faster.
- *Distinguished Alias*. The browser displays a special icon that distinguishes Alias objects and specifies the class of object assigned an alias.
- *Typeless Names*. Object type designations (CN=, OU=, O=,...) have been removed from NDS names. For example, object CN=USER.0U=ENG.O=ABC is displayed as USER.ENG.ABC.

NetWare DOS Administration

The DOS-based NetWare Administrator utility (NETADMIN) includes the following enhancements:

- *Search*. NETADMIN can search for NDS objects and exchange search query files with NWAdmin.
- *Alias*. The object class field in NETADMIN displays ALIAS/USER to distinguish an Alias object from the real object.
- *Typeless Names*. Object type designations (CN=, OU=, O=,...) have been removed. For example, object CN=USER.0U=ENG.O=ABC is displayed as USER.ENG.ABC.
- */ver Option*. This option shows all files and versions required to run NETADMIN (for example, type NETADMIN /ver).

NetWare DOS Command-Line Utilities

An improved set of text utilities is included with NetWare 4.02. Utilities that have enhanced functionality are WHOAMI, SETPASS, and UIMPORT. For information about the enhancements, see the specified utilities' help function.

All command-line utilities have a /ver switch to allow you to know the version.

Updated Print Utilities

The updated print utilities provide enhanced stability as well as the following features.

Print Server Log File Limit. You can limit the size of your print server log file by using PCONSOLE. If the print server log is not monitored regularly, it can grow until it uses all available disk space. Limiting the size of the file prevents this problem. You should monitor the file, however, because no more information is recorded after the maximum size has been reached.

Print Server Auto-Reconnect. With NetWare 4.02, if a queue resides on a remote server and that server goes down for any reason, service for that queue resumes automatically when the server comes back up.

Hold Features. In NetWare Administrator, the print queue Job List page now provides a Hold status button, allowing you to hold a print job in a queue without printing it. The job can be activated later with the Resume button.

A new Hold option is available with CAPTURE and NPRINT. This feature allows you to send a print job to a queue without having it print. Sample syntax is as follows:

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```
CAPTURE P=P17 L=1 J=<jobname> H
```

To release the hold on the job, you can use either PCONSOLE (toggle the User Hold option to No) or NetWare Administrator (click on Resume).

Accessing Print Job Configurations. In NetWare 4.02, you can use CAPTURE or NPRINT to access a specific print job configuration in container objects anywhere on the Directory tree. If the container object is in a context other than your current context, the command syntax is similar to the following:

```
CAPTURE P=P17 L=1 J=<jobname>:<context>
```

You can specify any context anywhere in the tree if you have rights to the context or user you specify. If you specify a user rather than a container object, the command syntax is similar to the following:

```
CAPTURE P=P17 L=1 J=<jobname>:CN=<user>.<context>
```

Be sure to include "CN=" in the syntax when specifying a user rather than a container object.

Print Layout Page. In NetWare Administrator, NetWare 4.02 offers a visual "snapshot" of the print payout for a particular container object or print server. This feature can be accessed from the Details page for the container object or print server you wish to monitor.

The status of the print server and each element on the display are represented visually through trouble icons in the first column.

Viewer for PSERVER Auditing Log. You can now view the print server auditing log from NetWare Administrator as well as from PCONSOLE.

Other Changes

This section lists miscellaneous changes and updated files that are included with NetWare 4.02.

DynaText Documentation Viewer

The content of the NetWare documentation has not changed with NetWare 4.02. However, the documentation has been converted from Novell ElectroText to DynaText. The DynaText viewer offers all the functionality of ElectroText, plus the following:

- Quicker response times for scrolling and searching
- Enhanced graphical user interface, including a toolbar
- Capability to insert notes or bookmarks into online manuals
- Inline graphics

Server Libraries

Revision E of the server libraries is included with NetWare 4.02. The following table shows the sizes of the libraries in revision E.

CLIB.NLM	207,663 bytes
DSAPI.NLM	43,361 bytes
MATHLIB.NLM	9,076 bytes
MATHLIBC.NLM	11,657 bytes

Note: Since the release of 4.02, the libraries have been updated to Revision G, which is available on

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NetWire.

Revised NLMs

The VREPAIR and CDROM NLMs have both been revised.

Enhancements to VREPAIR include the following:

- Runs faster on servers with large amounts of memory by caching disk writes
- No longer scrolls information off the screen when translated into languages such as Italian

Enhancements to CDROM include the following:

- Wider range of compatibility for third-party CD-ROMs
- CDs will mount as NetWare volumes two or three times faster, depending on the hardware and server utilization.

High Capacity Storage System (HCSS)

A load parameter has been added that sets the frequency with which a NetWare volume that supports HCSS is scanned for files to be migrated. HCSS in the KDECDAEM.NLM scans the hard disk for files to migrate every 60 seconds.

The following are parameters that you can specify when loading the KDECDAEM.NLM:

```
LOAD KDECDAEM M <seconds> P <seconds> W <seconds> F <percent>
```

where *<seconds>* is a value from 10 to 2073600 (10 seconds to 24 days) and where *<percent>* is a value from 0 to 100.

M *<seconds>*	This sets the frequency that determines when scanning for files to migrate takes place. Set the number higher to decrease the frequency.
P *<seconds>*	This sets the amount of time between checks that determine whether or not the upper threshold for the amount of space used on the HCSS volume has been reached.
W *<seconds>*	This sets the amount of time between checks that determine whether or not the threshold for the amount of free space on an HCSS cartridge has been reached.
F *<percent>*	This sets the percent of free space on an HCSS cartridge that must exist before a warning will be issued.

For example, the following command sets both the Migrate Polling and Threshold check polling to one hour:

```
LOAD KDECDAEM M 3600 P 3600
```

Storage Management System (SMS)

The following SMS files are included with NetWare 4.02:

TSA400.NLM	127464	06-21-94	2:36p
SBACKUP.NLM	234976	08-17-93	1:56p
TSA_DOS.NLM	77820	11-08-93	8:46a

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SMDR.NLM	41362	10-28-93	5:11p
TSA_SMS.COM	17724	10-18-93	4:37p
TSA_OS2.NLM	7814	05-11-93	1:54p
WS_MAN.NLM	35146	12-16-93	10:51a

Updated Disk Drivers

The following third-party disk drivers have been certified and updated.

Adaptec

AHA1510.DSK
AHA1520.DSK
AHA1542.DSK
AHA1640.DSK
AHA1740.DSK
AIC7770.DSK

Always

IN2000.DSK
AL6000.DSK

Buslogic

BT4x.DSK

DPT

PM11NW40.DSK
PM12NW40.DSK

Future Domain

FUTD_4.DSK
FUTXPT.DSK
FUTASPI.DSK
SIM950_4.DSK
SIM18_4.DSK

OS/2 Requester Files

The following files changed in the 2.10 requester are shipping with NetWare 4.02:

NWTOOLS.EXE	README.DOC
NWTOOLS.DLL	LOGIN.EXE
INSTALL.EXE	CX.EXE
INSTALL.HLP	NLIST.EXE
INSTALL.DOC	MAP.EXE
INSTALL.DLL	

The NetWare Client Kit for OS/2 2.10 supports the following:

- 100 percent compatibility with DOS NETX 3.32
- Enhanced mode MS-Windows applications
- RPL (Remote Program Load)

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- User-configurable default login drive
- Redirection of up to nine parallel ports under an OS/2 session
- Localized OS/2 client kit
- Stable global environment for DOS and MS-Windows

NetWare Client Kit

Version 1.1 of the NetWare Client Kit for DOS/MS-Windows ships with NetWare 4.02. This kit includes the 1.1 version of the VLMs. Updated libraries (DLLs) have been added to the client kit to support the new Windows-based NetWare administration utility.

Novell DOS 7

All bootable diskettes (License, Install, and so on) that are part of the "red box" have been reworked to boot with Novell DOS 7.

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