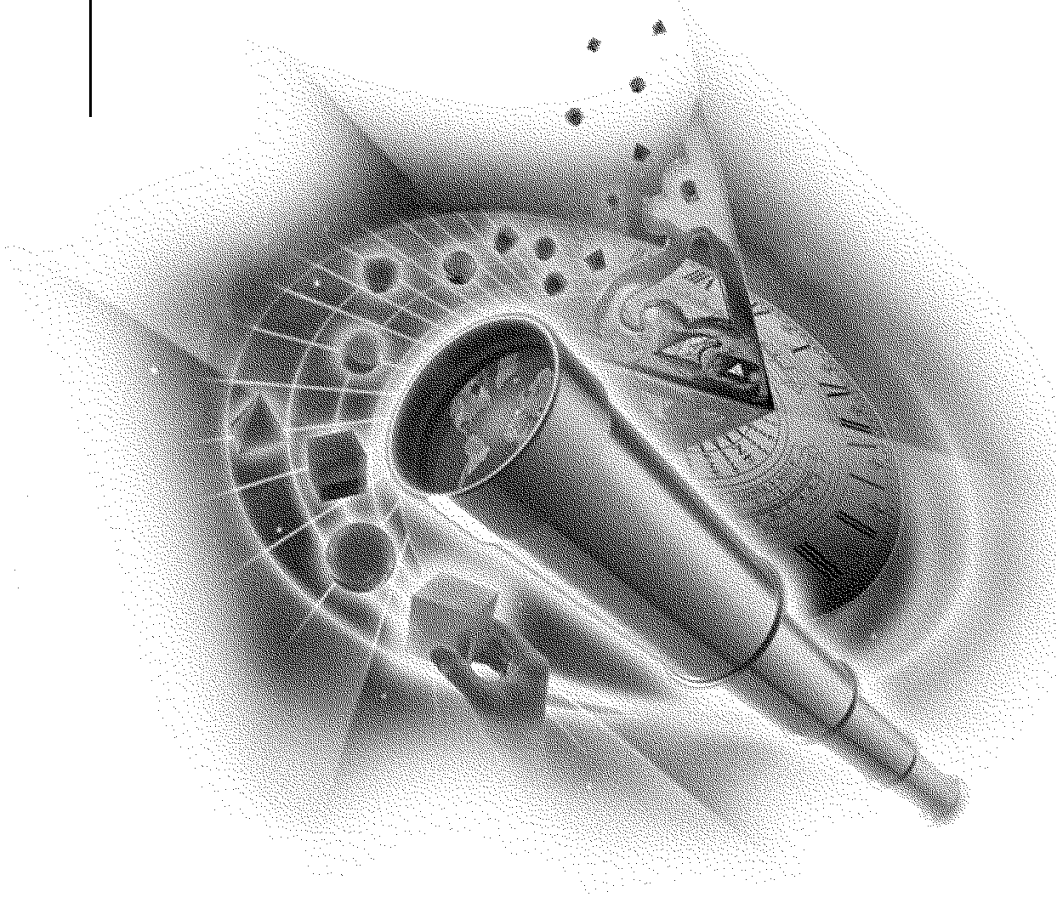


Quick Start



Novell®

NDS™ eDirectory™
THE E-DIRECTORY FOR E-BUSINESS

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Online Documentation: To access the online documentation for this and other Novell products, and to get updates, see www.novell.com/documentation.

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NDS eDirectory Overview

NDS™ eDirectory™ is a highly scalable, high-performing, secure directory service. It can store and manage a billion Directory objects. NDS natively supports the directory standard LDAP v3 over Secure Socket Layer (SSL).

For more information, see Product Information (www.novell.com/products/nds), Product Support (support.novell.com), Online Forums (news://forums.novell.com), Product, Catalog (www.novell.com/catalog), or Product Documentation (www.novell.com/documentation).

Product Features

NDS offers the following features:

Some of these features provide improvements over previous versions of Novell Directory Services™.

- ◆ Increased NDS capacity
- ◆ Increased performance for Directory reads, writes, and searches
- ◆ ConsoleOne™ management
- ◆ Increased Lightweight Directory Access Protocol (LDAP) v3 performance
- ◆ Improved DSREPAIR utility (or ndsrepair on Solaris)
- ◆ BULKLOAD utility for adding, modifying, and deleting NDS objects in a batch process (or ndsbulkload on Solaris)
- ◆ Extended naming support, including “dc=” naming and unique ID

NDS DATA STRUCTURE

NDS uses a highly-scalable, indexed database instead of the fixed-length record data store used by earlier NDS versions. Instead of using TTS, NDS uses log files to back out and roll forward transactions in the event of a system failure.

Management Utilities

- ◆ ConsoleOne

Use ConsoleOne to configure SSL for LDAP and to manage very large NDS trees across multiple platforms.

- ◆ NetWare Administrator

Use NetWare Administrator to manage small and medium NDS trees across multiple platforms.

- ◆ NDS Manager

Use NDS Manager™ (NDSMGR32.EXE) included with NetWare® 5 to manage partitions and replicas.

BULKLOAD

You can use the BULKLOAD utility to create, modify, and delete NDS objects in a batch process. The BULKLOAD utility uses LDAP Data Interchange Format (LDIF) files for batch processing, which can be generated from most e-mail programs.

DSREPAIR

The DSREPAIR utility is enhanced to work with the NDS across multiple platforms. The DSREPAIR utility can:

- ◆ Perform structure checks of the database automatically without closing the database and without user intervention.
- ◆ Perform index checks.
- ◆ Repair the database without closing the database or locking out users.
- ◆ Reclaim free space by discarding empty records.

LDAP Services

Novell's implementation of LDAP is LDAP v3 compliant. It includes the following features in this release:

- ◆ Complete management through the ConsoleOne utility
- ◆ Tighter integration with NDS
- ◆ Enhanced search capabilities with a Referral option

SCHEMA

NDS offers the following enhancements to schema management:

- ◆ You can use ConsoleOne to manage the schema.
- ◆ ASN1 IDs uniquely identify each attribute and class in the schema.
- ◆ The Domain class (a container class) is added to the schema.
- ◆ You can create auxiliary classes so that applications can associate a set of properties with specific objects rather than an entire class of objects.

Product Limitations

- ◆ There is no print option or print management from ConsoleOne.
- ◆ When searching NDS across replicas on multiple servers, the search results might not be properly sorted.
- ◆ Object sorting in non-English environments might not work properly.
- ◆ Schema Manager does not generate schema reports.

You can use Schema Manager in NDS Manager to generate schema reports.

- ◆ DSMERGE.NLM won't work on a server running NDS.

You can use DSMERGE.NLM from another server if you have performed all schema enhancements on both trees.

Installing NDS eDirectory

NDS RUNS ON THE FOLLOWING PLATFORMS:

- ◆ NetWare
- ◆ Windows* NT*
- ◆ Solaris

Also refer to the readme files at the root of each product platform directory for complete installation instructions.

PREPARING TO INSTALL

- 1 Save all server information before installing the software.
- 2 Download the files used in the installation.
- 3 If necessary, perform and test any hardware upgrades prior to installing NDS.
- 4 Ensure that DSREPAIR is updated.
- 5 Update the tree's schema.

This step is conditional, depending on where NDS is installed first.

Enabling Secure LDAP Connections

Although this procedure demonstrates how to perform the task in ConsoleOne, NetWare Administrator can perform the same task.

- 1 In ConsoleOne, right-click the Security object at the [Root] of the tree and click New > Object.
- 2 Click NDSPKI: Certificate Authority > OK, then follow the online instructions.
- 3 Right-click the LDAP Server container, then click New > Object.
- 4 Click NDSPKI: Key Material > OK, then follow the online instructions.
- 5 Expand the LDAP Server container.
- 6 Right-click the Key Material object you created for the SSL certificate, then click Refresh LDAP Server Now > Close.
- 7 Export the self-assigned CA from NDS.
 - 7a Right click the Key Material Object.
 - 7b Select Properties.
 - 7c Choose Trusted Root Certificate under the Certificates tab.
 - 7d Select Export.
- 8 Install the self assigned CA in all browsers that establish secure LDAP connections to NDS.

This procedure allows you to import the trusted root into the browser.

IMPORTING THE TRUSTED ROOT INTO THE BROWSER

To import the trusted root into Netscape* Navigator:

- 1** Click File > Open Page > Choose File.
- 2** Open the trusted root file exported in Step 4 of "Enabling Secure LDAP Connections."

This launches the New Certificate Authority wizard.

- 3** Follow the online prompts, then check the box labeled "Accept this Certificate Authority for Certifying Network Sites."

The New Certificate Authority wizard does not display if you do not have the correct file extension registered on your workstation. This is typically the case if you installed Internet Explorer 5 and/or Windows NT Service Pack 4 or greater.

To fix this problem:

- 3a** Exit Navigator and run the file x509.REG (located in <Install_dir>\NDS\x509.reg on Windows NT, SYS:PUBLIC on NetWare, and the Windows directory on the product CD).
- 3b** Rename the trusted root certificate file you exported to .x509 extension, then import the certificate into Navigator.

To import the trusted root into Internet Explorer:

- 1** Click File > Open > Browse.
- 2** Locate and select the trusted root file exported in Step 4 of "Enabling Secure LDAP Connections."

Complete the New Site Certificate wizard to install the trusted root into Internet Explorer.

Quick Start on NetWare

Minimum System Requirements on NetWare

- ❑ NetWare 5 server.
- ❑ NetWare 5 Support Pack 2 or later.
- ❑ Administrative rights to [Root] to modify the schema.
- ❑ ConsoleOne™ administrator workstation with a 200 MHz processor or faster and a minimum of 64 MB of RAM.

The workstation must be running the NetWare 5 (or newer) Novell® Client™ software before executing the ConsoleOne SETUP.EXE.

- ❑ The Novell Cryptography Support Modules (NICI 1.3 or later) downloaded from <http://www.novell.com/products/cryptography> if you need ephemeral key support for SSL connections.

Preparing to Install on NetWare

- ♦ If you are upgrading your hardware in conjunction with the NDS™ upgrade, install the new hardware and test it with the existing network operating system and NDS™ version before upgrading to NDS eDirectory™. This allows you to isolate any problems to the appropriate cause.
- ♦ Run the appropriate DSREPAIR.NLM.
 - ♦ If your first installation of NDS is on a NetWare 5 server holding a replica of the [Root] partition, you don't need to run DSREPAIR.
 - ♦ If you are upgrading from NDS 8 to NDS eDirectory™, you must first run DSREPAIR.NLM (version 6.31).
 - ♦ If your first installation of NDS is on a NetWare 5 server that does not hold a replica of [Root], you must first run the appropriate DSREPAIR version on the server holding a replica of [Root].

- 1 From the product download page, click the link to the Readme File, and download the appropriate version of DSREPAIR from the NDS 8 Quick Reference Page.

Different versions of DSREPAIR are available. Run the version of DSREPAIR that corresponds to the version of NetWare or NDS you are upgrading.

- 2 After locating and downloading the appropriate DSREPAIR from the product download page, copy the appropriate DSREPAIR.NLM to the SYS:SYSTEM directory of your server.
 - 3 At the server console, run DSREPAIR and select Advanced Options Menu > Global Schema Operations > Post NetWare 5 Schema Update.
 - 4 Enter the Admin name (example:.Admin.Company) and password.
 - 5 Modify the server AUTOEXEC.NCF file.
- ♦ If you install NDS using RCONSOLE, include the following commands in the server's AUTOEXEC.NCF file:

```
REMOTE [password]
```

```
RSPX
```

- ♦ If you install NDS using the Java-Based Remote Console, include the following commands in the AUTOEXEC.NCF file:

```
SPXS
```

```
SPXSRCONAG6 [password] [TCP port] [SPX port]
```

Installing NDS eDirectory on NetWare

To install NDS, you need to do the following:

- Install Support Pack 2
- Install NDS

INSTALLING SUPPORT PACK 2

- 1 Download and expand the Support Pack 2 or later software from support.novell.com/products/nw5/patches.htm to a directory on the NetWare 5 server.
- 2 At the server console, start NWCONFIG.NLM.
- 3 Select Product Options > Install a Product Not Listed.

- 4 Press F3 (F4 if you're using RCONSOLE) and specify the path to the expanded Support Pack 2 files.
- 5 Follow the online instructions to install the Support Pack.
- 6 Reboot the server.

INSTALLING NDS

- 1 Download and expand the NDS from www.novell.com/download/ to a single directory on the NetWare 5 server.
- 2 At the server console, start NWCONFIG.NLM again.
- 3 Click Product Options > Install a Product Not Listed.
- 4 Press F3 (F4 if you're using RCONSOLE), and specify the path to the NDS files.

When the files are copied, the server automatically reboots.

- 5 Make sure all volumes are mounted.

If you're not sure whether all volumes are mounted, run the following command at the server console:

```
MOUNT ALL
```

- 6 Switch to the NWConfig screen by pressing Ctrl+Esc, then select the number corresponding to the screen.
- 7 Enter the administrator's login name (with context) and password.

The installation upgrades LDAP.

- 8 Press Esc to close the upgrade status log.

You are prompted to reboot.

- 9 Click Yes > Restart Now.

The server reboots, and the NDS upgrade is complete.

Repeat this procedure for each NetWare 5 server you want to upgrade to NDS. If you do not configure LDAP for SSL, you receive an error message.

Configuring NDS eDirectory Cache Size on NetWare

By default, NDS uses 8 MB of RAM for cache. This setting allows NDS to run on servers without requiring more RAM. If you have sufficient RAM to increase the NDS and BULKLOAD cache size, you can significantly increase the efficiency of NDS for large databases by allocating more RAM to the NDS cache.

To set the cache size, use the following command at the server console:

```
SET DSTRACE = !mb[bytes]
```

The smallest tested cache size is 0 and the largest is 2 GB. NDS runs with either amount.

Loading Directory Objects from LDIF Files on NetWare

Use BULKLOAD to create, modify, or delete NDS objects in a batch process.

BULKLOAD uses LDIF files for batch processing.

BULKLOAD can produce keypairs for each user when the user Password field is included. (The process runs considerably slower when you include the user Password field.)

To use BULKLOAD, you must first create your LDIF file. After you create the LDIF file, follow the steps below:

- 1 Copy the LDIF file to the SYS:SYSTEM directory of a server running NDS.
- 2 At the server console, start BULKLOAD.NLM.
- 3 When prompted, log in as a user with the NDS rights needed to perform the operations (add, delete, or modify objects and properties).
- 4 Select Apply LDIF File to run the batch process.

Enabling Domain Containment on NetWare

NDS does not automatically provide LDAP support for a Domain object to contain other container objects. To enable this functionality, before or after installing NDS, complete the following steps:

- 1** Ensure that replica-holding 4.x servers have the latest version of NDS:
 - ◆ NetWare 4.11 must have NDS version 602 or later.
 - ◆ NetWare 4.10 must have NDS version 517 or later.

Earlier versions of NDS receive schema changes properly but do not propagate them to child replicas.
- 2** Copy the appropriate version of DSREPAIR to the SYS:SYSTEM directory of a server holding a replica of the [Root] partition.
 - ◆ For a NetWare 4.10 or 4.11 server, copy DSREPAIR.NLM from \DSREPAIR\4X.
 - ◆ For a NetWare 5 server, copy DSREPAIR.NLM from \DSREPAIR\5X.
 - ◆ For a server running NDS, use DSREPAIR.NLM installed automatically with the update.
- 3** From the server console, run DSREPAIR and select Advanced Options Menu > Global Schema Operations > Optional Schema Enhancements.

Quick Start on Windows NT

Minimum System Requirements on Windows NT

NDS™ on Windows NT does not require a NetWare server to perform to full capacity.

- ❑ NT server 4.0 with Service Pack 3 or higher and an assigned IP address.
- ❑ Pentium 200 with 64 MB RAM and a monitor color palette set to a number higher than 16.
- ❑ Administrative rights to the NT server and to all portions of the NDS tree that contain domain-enabled User objects. For the first NDS installation, you need administrative rights to the root of the tree to extend the schema.
- ❑ A supported version of NetWare, only if used in a mixed NetWare/NT environment.
 - ◆ NetWare 4.11 server with Support Pack 6 or higher. The NDS™ version of NetWare 4.11 servers must be 5.99a or later.
 - ◆ NetWare 4.2.
 - ◆ NetWare 5 with Support Pack 2.
- ❑ Workstations running Novell Client™ for Windows 95 3.0 or higher or Novell Client for Windows NT 4.5 or higher.

Preparing to Install on Windows NT

To install NDS eDirectory™ into an existing NDS tree, a copy of DSREPAIR provided on the CD must be run on the server containing the master of the [ROOT] replica. Depending on the version of NetWare and NDS, the following versions of DSREPAIR must be run:

- ♦ NetWare 5: /PATCHES/NETWARE/NW5X/DSREPAIR.NLM
- ♦ NetWare 4.11: /PATCHES/NETWARE/NW4X/DSREPAIR.NLM
- ♦ NDS 8: /PATCHES/NETWARE/NDS6/DSREPAIR.NLM

- 1 Copy the appropriate DSREPAIR.NLM onto your server.
- 2 At the server console, run DSREPAIR, and select Advanced Options Menu > Global Schema Operations > Post NetWare 5 Schema Update.
- 3 Enter the Admin name (example: .Admin.Company) and password.

Installing NDS eDirectory on Windows NT

Click Help for detailed information on each installation screen and for help in using NDS.

- 1 At the NT server, log on as Administrator or as a user with administrative privileges.
- 2 Run SETUP.EXE from the downloaded file.
- 3 Select which components to install.

You can install the components separately or together. The following instructions describe how to install the components separately. If you install them together, all installations are completed.

- ♦ Install Novell Directory Services

Installs NDS in an NT-only or mixed NT/NetWare server environment. See "Installing Novell Directory Services."

- ♦ Install NDS Management Utilities

Installs NetWare Administrator, NDS Manager™, and ConsoleOne™. See "Installing NDS Management Utilities."

INSTALLING NOVELL DIRECTORY SERVICES

- 1** Follow the online instructions in the Installation Wizard.

You can install Novell Directory Services into the existing tree or create a new tree.

This installation requires the licensing diskette.

- 2** When prompted, reboot the server.

If you select only Installing Novell Directory Services as a component, the Domain Object Wizard, which integrates NT Domains into NDS, does not appear.

INSTALLING NDS MANAGEMENT UTILITIES

After running SETUP.EXE, select Installing Management Utilities. This installs NDS management utilities, including ConsoleOne, NDS Manager, and NetWare Administrator, and creates a Share called SYS: on the NT server.

Quick Start on Solaris

Minimum System Requirements

- ♦ Solaris* 2.6 or Solaris 7 (SPARC* platform edition).
- ♦ A minimum of 64 MB of RAM. To run the NDS server and LDAP server a minimum of 128 MB RAM is recommended.
- ♦ 21 MB of disk space to install the NDS server (including LDAP server and Novell Public Key Cryptography Services). Add 35 KB of disk space per 100 certificates and 3 MB per 1000 NDS™ User objects in the replica.
- ♦ Windows* 95/98 or Windows NT* workstation with 64 MB of RAM and 125 MB of disk space.
- ♦ Novell® Client™ for Windows 95/98 version 3 or higher, or Windows NT version 4.5 or higher.

Preparing to Install

- ♦ Install the latest recommended Solaris 2.6 and Solaris 7 patches, till 1st September 1999. The patches are available at <http://access1.sun.com>.
- ♦ Enable the Solaris host, on which you are installing the product, for multicast routing.
- ♦ The time on all the servers in the network should be synchronized. Use Network Time Protocol (NTP) to synchronize time. Refer to `xntpd(1M)` for more information. If you want the synchronize time on Solaris servers with Netware servers, use `TIMESYNC.NLM` version 5.09 or above.

- ◆ To install NDS eDirectory into an existing NetWare NDS tree, run DSREPAIR on the server containing the master replica of the root partition from the CD.

On NetWare 5, run DSREPAIR from the /PATCHES/NETWARE/NW5X directory on the CD.

On NDS, run DSREPAIR from the /PATCHES/NETWARE/NDS8 directory on the CD.

Copy the appropriate DSREPAIR.NLM to the SYS:SYSTEM directory of your server. At the server console, run DSREPAIR and select Advanced Options > Global Schema operations > Post NetWare 5 Schema Update.

- ◆ All the replicas in the partition, into which you installing the product, should be in the ON state. This can verified using NDS Manager.
- ◆ For the first NDS installation, the administrator should have Write access to the [Root] of the tree.
- ◆ If there is a NetWare system in the network in which you are installing the product, verify that the SLP DA's are stable. Enter the command `display slp da`, at the NetWare server console, to view the status of the SLP DA (active or inactive).

NOTE: Please refer the Administrator's guide on the CD for more information.

Installing NDS eDirectory on Solaris

To install NDS on Solaris systems, you need to do the following:

- ◆ Run the Solaris installation program
- ◆ Install NDS Management Utilities

After completing the installation on the Solaris host, you need to run the Setup program on the Windows workstation that is going to be used for administration. This program installs ConsoleOne and the NDS administration utilities.

RUNNING THE SOLARIS INSTALLATION PROGRAM

- 1** On the SPARC Solaris system, log in as root.
- 2** Insert the product CD.
- 3** Change to the Solaris directory on the CD and run `nds-install`.
- 4** Choose to install the NDS Server.

The installation program proceeds to add various packages of the NDS Server component.

- 5** If the Install program cannot locate the NDS foundation Key file in the default locations (`/opt/nds` and the license diskette), you are prompted to enter the complete path to the NDS foundation Key file.

You are prompted if the path entered is not valid or the file cannot be located. If you skip the installation, you will not be able to create certificates.

- 6** The program asks for configuration information. Though you can configure the product later using `ndscfg`, we recommend that you configure now to ensure proper functioning of the product.
- 7** Enter the following configuration parameters in the `ndscfg.inp` file, which is opened in the default editor:

- ◆ Name (with full context) of the user with administration rights to the root of the tree
- ◆ Tree name
- ◆ Server context
- ◆ (Optional) DB files dir

- 8** (Optional) To install NDS in a new tree, specify the value "Yes" for the Create NDS Tree parameter.
- 9** (Optional) To install LDAP Services for NDS, specify the value "Yes" for the Install LDAP Services parameter.

Enter a name with full context (for example, `cn=yourldapgroup.ou=yourcontainer.o=yourorganization`) for the LDAP Group object. To create this object, specify the value "Yes" for the Create LDAP Group object parameter. If the specified context does not exist, the default LDAP Group object (LDAP Group <servername>) is created in the context where the server is located.

- 10** Save the information and close the editor.
- 11** Enter the password of the user with administration rights, when prompted.

INSTALLING NDS MANAGEMENT UTILITIES

You can install the Windows component either on Windows 95/98 or NT workstation.

- 1** Insert the product CD.
- 2** Run WINSETUP.EXE from the Windows directory on the CD.
- 3** Install ConsoleOne™ and NDS administration utilities. Select the desired option.
 - ♦ ConsoleOne - This option installs the ConsoleOne utility and copies the NDS-SE PKI and LDAP snap-ins.
 - ♦ Install NDS Administration Utilities - This option installs NDS Manager™ and NetWare Administrator.
- 4** Follow the instructions given in the Setup program.
- 5** (Optional) To install the Client DLL, run SETUP.EXE in the Install directory on the Windows system into which you have installed ConsoleOne.

NOTE: Using the Windows 95/98 or NT workstation, these NDS utilities can be installed on a NetWare volume also.