

# Novell Licensing

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ADMINISTRATION GUIDE



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# About This Guide

This guide describes how to install, configure, and monitor licensing using Novell Licensing and Metering Services. This guide is intended for network administrators and is divided into the following sections:

- ♦ Chapter 1, “Overview,” on page 9
- ♦ Chapter 2, “Managing Licensing and Certificates,” on page 15
- ♦ Chapter 3, “Metering Network and Product Usage,” on page 21
- ♦ Chapter 4, “Troubleshooting Novell Licensing Services,” on page 23
- ♦ Appendix A, “Key NLS Terms,” on page 27

## Documentation Updates

For the most recent version of the *Novell Licensing Administration Guide*, see the [NetWare 6.5 Documentation Web Site \(http://www.novell.com/documentation/lg/nw65\)](http://www.novell.com/documentation/lg/nw65).

## Documentation Conventions

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

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# 1

## Overview

Today, when you install or upgrade NetWare<sup>®</sup>, the server installation software automatically installs the Novell<sup>®</sup> Licensing Services (NLS) software. Using Novell iManager, you can install and manage license certificates in your eDirectory<sup>™</sup> tree and monitor NetWare usage. You can also monitor usage of Novell Licensing Services-enabled products.

The overview will help you understand Novell's User Access Licensing Model and how Novell licensing works.

- ◆ [“Understanding User Access Licensing” on page 9](#)
- ◆ [“How Novell Licensing Services Works” on page 11](#)
- ◆ [“What's Next” on page 14](#)
- ◆ [“What's New” on page 14](#)

## Understanding User Access Licensing

Managing network licenses has always been a challenge for network administrators. Each year, administrators prepare their software budgets by trying to determine the number of network and application licenses required. This task is often frustrating because of the complexity of software licensing. After administrators complete their budgets, they often find their budgets are inadequate because of changes in their company. In response to customer requests, Novell has changed its licensing model and made enhancements to its licensing utilities to simplify licensing management tasks.

Beginning with NetWare 6, NetWare uses a User Access License (UAL) model. With this model, you purchase licenses for the total number of eDirectory User objects that will log in to the network. When a User object logs in to the network, it obtains a license unit that allows them to access network services at any time, from any workstation. That license unit is reserved for that user. Users can access as many NetWare servers as they need while consuming only one license. If the user does not log in for more than 90 days, then the license is automatically released and made available to the next user that needs it.

In the User Access Model, non-User objects like Printers and ZENworks<sup>®</sup> do not consume user licenses.

## Comparing Licensing Models

In previous licensing implementations, users were granted access to network services on a server basis. This meant users consumed a license on each server that they logged in to. This is known as the Server Connection License (SCL) model. Earlier versions of NetWare (NetWare 5 and earlier) used the SCL model, where you purchased licenses for the total concurrent users on each NetWare server.

The Server Connection License model had drawbacks. It was difficult to plan and deploy, customers had to pay for multiple connections for the same person, and there was no easy way to count and audit licenses.

The following table shows the differences between the Server Connection Licensing Model and the User Access Licensing model.

| Feature  | User Access Licensing Model  | Server Connection Licensing Model   |
|--|--|---|
| License packaging  | Server and user license certificates available together or separately. | Server and user license contained in same license envelope.   |
| Search   | Search starts at the user's context and goes up the tree.              | Search starts at the server's context and goes up the tree.   |
| Context of licenses  | Install license certificates relative to users' contexts.              | Install license certificates relative to servers' contexts.   |
| License released when user logs out  | No.  | Yes.  |
| Connection-oriented objects (like Printer and ZENworks objects) consume a user or connection license | No.  | Yes, until the current Support Pack is installed. To download a Support Pack, see <a href="http://support.novell.com">Novell Support Connection (http://support.novell.com)</a> . |

The User Access Licensing Model is easier to plan and deploy because you just count the number of eDirectory User objects, customers pay for only one user license, and network usage can be monitored.

## Using Access Licensing with Server Connection Licensing

User Access Licensing can coexist on a network with servers that are using Server Connection licenses. Depending on the resources being accessed, a user might consume a User Access License and a Server Connection License simultaneously.

For example, a company has six NetWare 5.1 servers, each with a 50-user license. The company has 50 network users. The company upgrades four of the six servers to NetWare 6. When a user logs in to the network, he will consume one User Access License Unit, which will let him log in to any number of NetWare 6 servers. For each NetWare 5 server he logs in to, he will also consume a NetWare 5.1 Server Connection License unit, the same as he always has.

In order for all 50 users to log in to the four NetWare 6 servers, the administrator has to purchase just 50 user licenses.

## Monitoring Network Usage

Since managing network usage is now a network administrator's priority, Novell has released a metering tool that lets you see the total number of licenses being consumed and when a user last accessed the network. See "[Metering Network and Product Usage](#)" on page 21 for more information.

## Understanding Server and User Licenses

The User Access Licensing model uses server licenses and user licenses. These licenses are separate and distinct files.

### Using Server Licenses

During the NetWare server installation, you install a server license. Each server in the tree should have a server license associated with it. The server licenses should be installed at or above the eDirectory container where the Server object resides. If you need additional server licenses, you can download them for free from the [License Request Web Site \(http://www1.novell.com/eld/LRequest.jsp?ENCRYPTION=NW6\)](http://www1.novell.com/eld/LRequest.jsp?ENCRYPTION=NW6).

The server license determines the type of user licenses to be consumed. For example, if you install a NetWare 6 Demo server license, NLS will look for NetWare 6 Demo user licenses to be consumed. If a NetWare 6 Demo user license is not found, users will not be allowed access.

This is important to understand when changing licenses. For example, if you install NetWare 6 Demo licenses (both server and user) and later change to a volume licensing agreement like MLA, you need to install the server and user licenses for the MLA and then delete the demo license for both the server and user.

For more information, see [“Guidelines for Installing License Certificates” on page 16](#).

### Using User Licenses

User licenses are not assigned to servers. They are installed in the eDirectory tree in the same container as or in a container above the User objects that will consume the licenses. You must have enough user licenses for each user that will authenticate to eDirectory. For more information, see [“Guidelines for Installing License Certificates” on page 16](#).

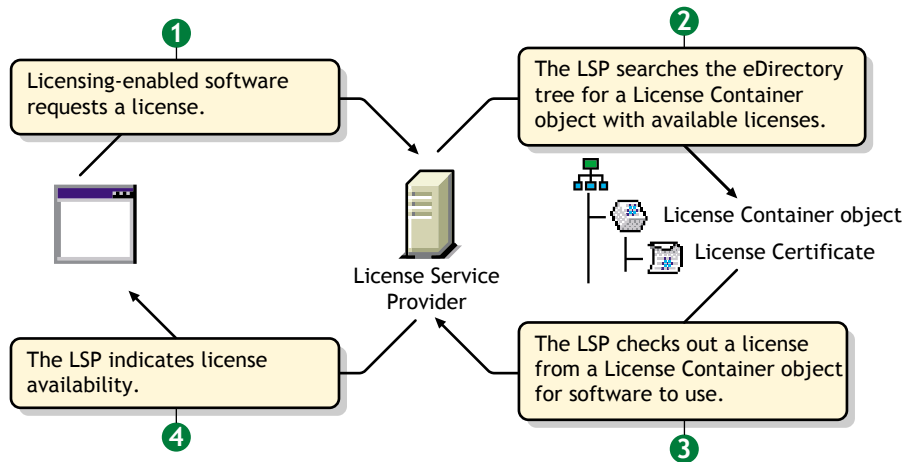
## How Novell Licensing Services Works

Novell Licensing Services is comprised of the following components:

- ◆ **NLS Clients** requests licensing services from license service providers.
- ◆ **License Service Provider** is software that you install and run on NetWare<sup>®</sup> servers.
- ◆ **NLSRUP.NLM** gathers network usage information
- ◆ **NetWare Remote Manager** lets you view version information about Novell Licensing Services.
- ◆ **Novell iManager** lets you install and manage license certificates in an eDirectory tree and monitor NetWare usage.

## How Novell Licensing Services Interacts with eDirectory

[Description: How NLS Works](#)

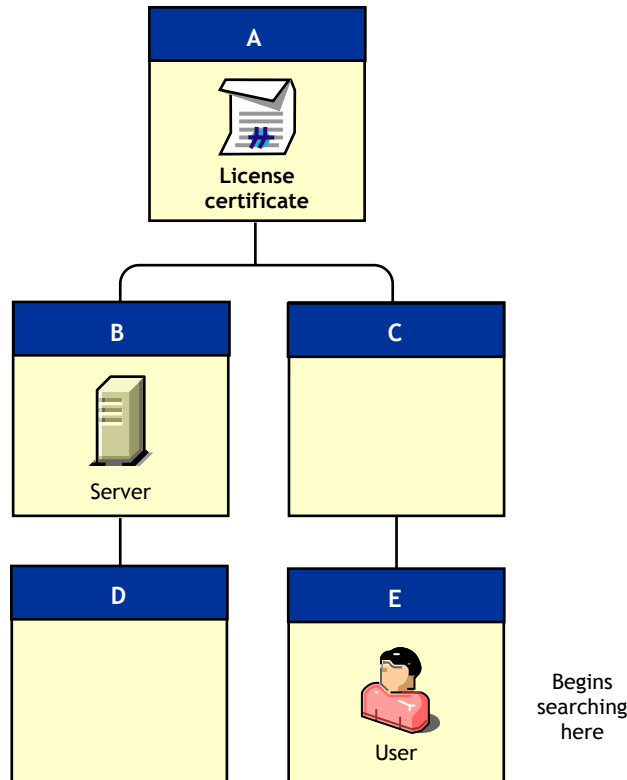


Corresponding with the above figure, the following sequence outlines how license service providers handle requests from NLS clients by interacting with the eDirectory database.

1. An application issues a request to the NLS client.  
In NetWare, for example, the server requests a license unit on behalf of the user that is connecting to the server. The server issues this request to the NLS client.
2. The NLS client library packages the request from the application and submits it to a license service provider.  
In NetWare, for example, the NLS client communicates with the license service provider on that server.
3. The license service provider examines the request and determines whether it can fill the request. It does this by checking the eDirectory context of the requesting client for the specific information or license unit being requested.  
In NetWare, for example, the license service provider searches the user's context for a NetWare license unit.
4. If the requested resource is available, the license service provider fills the request. If the license service provider cannot fill the request, it searches for a resource. Where an license service provider starts its search for a resource depends on what the requesting application has specified.  
The license service provider can check the next-higher context in eDirectory for the requested resources. The license service provider continues to search until it reaches the [Root] or Tree of the partition or the top of the tree, depending on how the license service provider is configured.  
In NetWare, for example, the license service provider starts in the user's context and searches up the eDirectory tree for a user license.

The following figure illustrates how an license service provider searches for a license certificate in the User Access Licensing model.

**Description: How the license service provider searches for a license**



In this example, the user accesses the network from context .E.C.A. To search for a license unit, the license service provider begins its search in the user's context—.E.C.A The license service provider searches up the tree to context A and finds an available license unit.

5. The license service provider returns status to the client library.

In NetWare, for example, if the license service provider finds a NetWare license unit, it returns a successful status to the library. Otherwise, it returns an error code.

6. The library returns status to the application.

In NetWare, for example, the library returns licensing status to the server.

7. The application determines action based upon the status of license units.

In NetWare, for example, the server determines an action. If the status is successful, the server allows a connection to the server. Otherwise, the server allows a grace connection if one is available, or denies service if a grace connection isn't available.

## Example of NLS Client Software on a Client Workstation

At your Windows 2000 workstation you want to use OptionsPlus, an NLS-enabled application. After you click the icon for OptionsPlus, that application loads on your client workstation.

OptionsPlus then requests a license unit. The NLS component (a .dll file linked to OptionsPlus software) locates a license service provider (an NLS component running on a server). That license service provider searches eDirectory for a License Certificate object that has license units available.

The license service provider responds to the NLS client in OptionsPlus and allows you to use the application.

## Example of NLS Client Software on a Server

When starting a server, NetWare loads and runs eDirectory and a license service provider, two necessary components of the NLS system.

Before completing its bootup, NetWare's policy manager uses NLS client software (an NLM™ library for NLS) to request a server base license from the license service provider.

The license service provider then queries eDirectory for a license certificate. If a license unit is available, the license service provider then grants the request for the policy manager, and the NetWare server is allowed to run.

NLS itself does not enforce licensing. Instead, it checks out a license unit or returns the appropriate error condition to the application. The policy manager part of the application then determines whether the user can use the application and how the error condition is reported.

## Example of Metering

A client workstation requests an application that is not NLS-enabled. ZENworks, integrated with NLS, requests a license unit on behalf of the application.

Depending on the response from NLS, Application Launcher in ZENworks chooses whether to load the application. Therefore, Application Launcher can be configured to request license units for applications that are not NLS-aware.

## What's New

- ◆ **NetWare Usage** reports have been moved from NetWare Remote Manager to Novell iManager. For more information, see [Chapter 3, "Metering Network and Product Usage," on page 21](#).

## What's Next

To properly implement and manage licenses, see the following sections:

- ◆ ["Guidelines for Configuring NLS" on page 15](#)
- ◆ ["Guidelines for Installing License Certificates" on page 16](#)
- ◆ ["Installing and Removing License Certificates" on page 16](#)
- ◆ ["Running a Usage or Audit Report" on page 21](#)

# 2

## Managing Licensing and Certificates

When you install a NetWare® 6 server, the installation program automatically installs Novell® Licensing Services (NLS) on that server. During the installation you can install server and user license certificates. For more information on placing license certificates, see [“Guidelines for Installing License Certificates” on page 16](#).

You can also use SNMP to view information about your network and licensing. See [“Using SNMP” on page 19](#).

The following tasks help you manage licenses on your network.

- ♦ [“Guidelines for Configuring NLS” on page 15](#)
- ♦ [“Verifying That Novell Licensing Services Is Installed” on page 16](#)
- ♦ [“Guidelines for Installing License Certificates” on page 16](#)
- ♦ [“Installing and Removing License Certificates” on page 16](#)
- ♦ [“Moving a License Certificate” on page 18](#)
- ♦ [“Managing Server License Assignments” on page 18](#)
- ♦ [“Viewing Licensing Information” on page 19](#)
- ♦ [“Using SNMP” on page 19](#)

### Guidelines for Configuring NLS

- Prepare the network.

If you are upgrading a server, the server should have a read/write replica of the partition where the NetWare® 6 server will be installed.

- Provide fault tolerance.

Two servers running NLS in a partition provide fault tolerance. If one server goes down, the other provides required licensing services.

We recommend that the master replica be on one of these servers.

- Upgrade existing NLS.

Before installing NetWare 6, ensure that your servers have the following Support Packs installed.

| NetWare Version | Support Pack                        |
|-----------------|-------------------------------------|
| NetWare 4       | NetWare 4 Support Pack 6a or later  |
| NetWare 5.0     | NetWare 5.0 Support Pack 4 or later |

| NetWare Version | Support Pack                        |
|-----------------|-------------------------------------|
| NetWare 5.1     | NetWare 5.1 Support Pack 2 or later |

**NOTE:** If you are running NetWare for Small Business or NetWare for Growing Business, you should install the corresponding Support Pack before upgrading to NetWare 6.

- Know where to install licensing certificates.

For more information, see [“Guidelines for Installing License Certificates” on page 16.](#)

## Verifying That Novell Licensing Services Is Installed

If you are unsure if NLS has been installed, or need to verify if NLS is actively running, complete the following:

- 1** At the server console GUI, click Novell > Install, and then look for an NLS entry.
- 2** Do one of the following:
  - ◆ If NLSLSP.NLM is running on the server, enter the following at the server console:
 

```
modules nls*
```
  - ◆ If NLS\_LSP\_servername is a leaf object in eDirectory, view this object in Novell iManager.

## Guidelines for Installing License Certificates

Use the following guidelines below when installing your license certificates in the eDirectory™ tree:

- ◆ Place user license certificates in or above the *users*’ eDirectory context. In the User Access Licensing model, NLS searches for a license certificate starting at the user’s context.
- ◆ Place server licenses in the server’s eDirectory context.
- ◆ Smaller companies can place license certificates at the topmost Organization container. Companies with more complex eDirectory trees should place license certificates lower in the tree, closer to the Organizational Unit that contains the User objects.
- ◆ If you want users in two different contexts to use the same license certificate, the certificate must be placed in a common container above the users’ contexts.

**Scenario:** A company has 10 users split across three organizational units: Accounting, Research, and Purchasing. In order for the 10 users to access the licenses, the licenses should be placed high enough in the tree for NLS to find it, typically in a container common to all of the organizational units or distributed through the three organizational units.

- ◆ Except for licenses provided to large companies with License Agreement contracts with Novell, a license cannot be installed in more than one container.
- ◆ If you have a remote site and a WAN link, place a license certificate in the remote site’s context.

## Installing and Removing License Certificates

You can install license units contained within a single license certificate or an envelope.



## About Single Certificates

When a certificate for an NLS-aware application is installed, NLS adds a License Container object to the tree and a License Certificate object to that container object. You select the context or location in the eDirectory™ tree for that License Container object.

You install license certificates by accessing envelope files (.NLF).

If you purchase and install additional license certificates, they will also be added to the eDirectory tree as objects in the appropriate License Container object.

## About Envelopes

An envelope is an .NLF file containing one or more license certificates. (The envelope might have just one certificate because it also contains other information associated with the product—for example, information for NIS-enabled installations.)

Envelopes let you install more than one license certificate at a time into License Container objects. For example, if you have purchased three products in a suite, you can use an envelope to simultaneously install license certificates for all three products.

When adding license certificates to the eDirectory tree, you should know where in the tree you want to install the license certificate. This location or context will determine who can use the license units associated with that license certificate. For more information on placing licenses, see [“Guidelines for Installing License Certificates” on page 16](#).

## Installing License Certificates

**1** In Novell iManager, click License Management > Install a License.

**2** Navigate to and select a license file, and then click Next.

The file might be on a diskette in drive A: or on a CD-ROM.

A sample path and filename for a license certificate is A:\LICENSE\43D211.NLS. A sample path and filename for an envelope is A:\LICENSE\43D23E.NLF.

The file, usually linked to an activation file (key), automatically retrieves the password (if one is available).

**3** Select the licenses to install, and then click Next.

Each license includes the user licenses and a server license. Each server must have a server license associated with it.

If the licenses are to be installed in different contexts, you should install the licenses one at a time.

If you choose to install a server license and one is already assigned to the server, the server license install will fail.

**4** Fill in the following fields:

**Location:** Browse to or enter the context where you want the licenses installed. User licenses should be installed at or above the user's context. You might want to install the licenses high in the tree so that they will be available to more users. Server licenses should be installed at or above the server's context.

**Server Assignment:** If you are installing a server base license, the Server Assignment field displays. Browse to or enter the fully distinguished name of the Server object you want the license assigned to.

**Enter an Activation Key:** This field displays only if you are required to provide an activation key to unlock a license. You can either enter the key as text or select an activation key file to be read from a disk.

The results of installing the licenses appears.

- 5** To install another license or to reinstall a license that failed, click Continue; otherwise, click Done.

## Deleting a License Certificate

- 1** In Novell iManager, click License Management > Delete License.
- 2** Navigate to and select a license to delete, and then click Next.
- 3** Confirm that this is the license to delete and click OK.

## Moving a License Certificate

- 1** In Novell iManager, click License Management > Move a License.
- 2** Navigate to and select a license to move, then click Next.
- 3** Navigate to and select the context where you want to move the license to, then click Next.  
A results screen displays.

- 4** Click OK.

## Managing Server License Assignments

### Assigning Licenses to a Server

Each server needs a server license. You need to install a server license only if you did not install licenses during the installation process or if the server license was deleted. To install a server license certificate, follow the steps in [“Installing License Certificates” on page 17](#).

### Modifying or Deleting Server Assignments

- 1** In Novell iManager, click License Management > Manage License Properties.
- 2** Navigate to and select a license file, then click Next.
- 3** Do one of the following:
  - ◆ Enter the fully distinguished name of the Server object you want the license assigned to.
  - ◆ Delete a server assignment by removing the server information from the field.
- 4** Click Done.

## Viewing Licensing Information

When you install a license certificate or create a metered certificate, a License Certificate object is added to the License Container object in the eDirectory database. If License Container object doesn't already exist, NLS creates it.

## Using Novell iManager

You can use Novell iManager to view information about licenses and their usage for the License Certificate container or license.

- 1** In Novell iManager, click License Management > Manage License Properties.
- 2** Navigate to and select a license file, then click Next.
- 3** Click the tab corresponding to the information you want to view.

## Using NetWare Remote Manager's Health Monitor

You can view a server's licensing information through the NetWare Remote Manager Health Monitor. You can also set trace information for NLS components by completing the following:

- 1** Log in to NetWare Remote Manager.  
See the *NetWare Remote Manager Administration Guide* for more information.
- 2** Click Health Monitor > Licensing Information.
- 3** (Optional) Click Licensing System Options to configure the trace settings or click Licensing System Report to view or e-mail a report about licensing on this server.

## Using SNMP

You can use SNMP to find out about licensing service events on your network.

### About SNMP and NLS

SNMP is a management interface and high-level protocol. General-purpose protocols such as IPX™, TCP/IP, and UDP can host SNMP. NLS takes events and errors, wraps them in one of these protocols, and sends them to a management utility or console.

For example, suppose you instruct SNMP to raise an event whenever a license unit is conveyed to a User object. Every time a license unit is conveyed, SNMP sends a packet to a management console. The console registers that event. As network administrator, you can view these packets at the management console.

With SNMP, you can send out a wide variety of different events. NLS provides a list of events and errors that the licensing service can send out notifications on. As network administrator, you choose the events that you are interested in. You can turn off all events, turn them all on, or turn on selected events.

For example, NLS sends broadcast messages. Using SNMP, you can send an SNMP message with the same content to a management console.

In short, SNMP enables you to be aware of what's happening on the network.

## Why You Need a Management Console

An SNMP management product—for example, OpenView\* or ManageWise®—resides on the network and registers itself as the management console. An SNMP agent (SNMP.NLM) runs on a NetWare server. The SNMP pieces on each server send the SNMP datagrams to the console. You use the console to track what's happening on the network.

You can place the management console anywhere on the network. This console reads the SNMP packets and displays their contents to you, as the network administrator. Typically these consoles are run on client computers for convenience, but that functionality can be implemented on any computer on the network.

## Three Configuration Files for SNMP

NLS uses three configuration files for SNMP. The configuration files allow the various systems which provide SNMP information to tailor that information to your needs as you manage the network. All three files are installed into SYS:\ETC.

**SNMP.CFG** lets you add descriptive strings that might be included in SNMP packets. These packets provide you with specific information, such as server name, computer hardware description, location, and whom to contact in case of an issue.

**NLSTRAP.CFG** lets you specify which NLS events and errors you want to track. NLSTRAP.CFG has a list of all possible events that NLS could ever send out. The file contains two lines for each event. The first line is a description. The second line enables or disables notification for that event. If the line begins with a pound sign (#), no message is sent.

By default, all lines (events) are commented out. To see an event, you edit NLSTRAP.CFG. The file contains a description at the top about the format and what to do with each value. You just turn on what you want to see.

If NLSTRAP.NLM detects an event that is enabled in the NLSTRAP.CFG file, NLSTRAP.NLM calls routines provided by SNMP.NLM to place the SNMP packet on the network.

**TRAPTARG.CFG** lets you specify all targets (or receivers) that are to receive SNMP trap messages generated by the SNMP agent (SNMP.NLM). It pairs targets with a protocol for SNMP packet addressing. For example, a server named PUFFIN in the IPX section of TRAPTARG.CFG instructs NLS to send SNMP messages to server PUFFIN using IPX.

## Implementing SNMP

- 1** Edit NLSTRAP.CFG to set events that you want to monitor.

Specify parameters by using a parameter keyword followed by the desired parameter value. Then unload and reload NLSTRAP.NLM. (The changes won't take effect until you reload NLSTRAP.NLM.)

- 2** Edit SNMP.CFG.
- 3** Edit TRAPTARG.CFG to specify all targets that are to receive SNMP trap messages.
- 4** Run the management console.
- 5** Load SNMP.NLM on a server.

SNMP.NLM (the SNMP agent) provides the APIs and framework to allow SNMP to work on NetWare. SNMP.NLM traps events, generates SNMP messages about the trapped events, and sends the messages to the management console.

- 6** At the management console, view the SNMP messages.

# 3

## Metering Network and Product Usage

From Novell® iManager, you can view NetWare® usage information from the NetWare Product Usage task. If a product is meter enabled, you can view usage information about that product also. The Metering task generates a statistic or a report of the number of users that logged in to the network over a specified period of time. If you are managing license agreement contracts, you will find this tool helpful as you prepare for audits.

**NOTE:** Metering information is available only on NetWare 6 servers running NetWare 6 support Pack 3 or later and NetWare 6.5 servers.

The following sections will help you monitor your network usage:

- ♦ [“Understanding How Metering Information Is Gathered” on page 21](#)
- ♦ [“Running a Usage or Audit Report” on page 21](#)
- ♦ [“Configuring the Metering Service” on page 22](#)
- ♦ [“Configuring Metering for a Server” on page 22](#)

### Understanding How Metering Information Is Gathered

Each server gathers information regarding authentications and saves the information in a database. A server is then assigned to be the collection server and the authentication information is passed to this server. The collection server gathers this information and displays it when requested by the metering. You can specify the collection server.

The metering tool uses `nwusage.nlm` and `nlsrup.nlm` to gather the usage information. Other NLM™ programs that support these modules include `connaud.nlm`, `nlsmeter.nlm`, and `nlsadapt.nlm`.

`Nlsrup.nlm` gathers information in its database only for NetWare 6 servers running in the same tree. Information is not available for NetWare 5 or NetWare 4 servers.

### Running a Usage or Audit Report

The usage and audit reports create a comma-separated value (.CSV) report that contains information about network usage. You can run a user report that includes all the usernames and their last network access or a node report that includes each nodes address, User object accessing the network from that address, last network access, and the server’s reporting the usage information.

In addition to the information provided in the usage report, the audit report includes additional information for Novell auditors and is digitally signed. You can view the report, but changes to the report will void the digital signature.

To run either report:

- 1** In Novell iManager, click NetWare Product Usage and then select the report you want to run.
- 2** Select the report settings.  
For more information about these settings, click Help.
- 3** Click OK, then follow the prompts.

## Configuring the Metering Service

To configure the metering service to function as needed on your network:

- 1** In Novell iManager, click NetWare Product Usage > Configure Service.
- 2** Modify the settings, then click OK.

For more information about these settings, click Help.

**HINT:** These parameters can also be set at the server console. Use the NLSLRUP HELP command to display the commands for setting the configuration options at the server console.

## Configuring Metering for a Server

To configure how a server participates with metering:

- 1** In Novell iManager, click NetWare Product Usage > Configure a Server.
- 2** Select the server you want to configure.
- 3** Modify the settings.  
For more information about these settings, click Help.
- 4** (Optional) Click Advanced if you want to view to do any of the following:
  - ◆ View a list of participating servers
  - ◆ View a recommendation for a collector server
  - ◆ Enroll the server in the collection of metering information
  - ◆ Display statistics about this server's participation in metering

**HINT:** These parameters can also be set at the server console. Use the NLSLRUP HELP command to display the commands for setting the configuration options at the server console.

# 4

## Troubleshooting Novell Licensing Services

This chapter contains tips, information about system messages and error codes, and a list of Technical Information Documents.

- ◆ “Tips” on page 23
- ◆ “Error Codes and System Messages” on page 24
- ◆ “TIDs” on page 25

### Tips

#### Unable to Get a Server Base License

**Problem:** The server console displays “Unable to get a Server Base license.”

**Action:** Delete and reinstall the license certificate. If you use Novell iManager, you must manually make a server assignment during the installation of the licenses certificate. (If you are an MLA account, do not make a server assignment.)

#### No Access To License Units

If License Service Provider objects are not well placed in the eDirectory™ tree. Some NLS clients might not have access to licensing services

Place license certificates as close as practical to the actual users but high enough in the eDirectory tree so that everyone who needs to access them can do so.

Consider the following guidelines:

- ◆ Place server license certificates so that NLS servers do not have to traverse slow WAN links to access license units.
- ◆ Place user certificates so that NLS do not have to traverse WAN links when users are authenticating to the tree.
- ◆ Place at least one License Service Provider object in a container near the root of the tree. Also, consider loading license service provider software on servers that many or most users log in to in the eDirectory tree. These two actions distribute requests for license units.
- ◆ Identify license certificates that many users throughout the eDirectory tree will use. Place these license certificates in a context near the root of the eDirectory tree.
- ◆ Identify license certificates that a small group will use. Place these license certificates in the same eDirectory context as those users' objects.
- ◆ Identify license certificates that larger groups will use. Place these certificates in the eDirectory context that represents the root-most context for the group.

## The System Erroneously Reports Duplicate Licenses

**Problem:** The system reports that duplicate licenses are installed in the eDirectory tree.

**Possible cause:** In a using earlier versions of NLS, you installed a license certificate, deleted it, and then reinstalled it elsewhere in the eDirectory tree. When the earlier NLS dredge process walks the eDirectory tree and looks for certificates, the dredge encounters the deleted certificate and considers it a duplicate.

**Solution:** If that license certificate was the only certificate in the License Container object, delete the License Container object where the certificate was installed and deleted. (Don't delete the License Container object if it contains other license certificates.)

**Solution:** Deploy the current version of NLS by installing the NetWare 4 Support Pack 6a and NetWare 5 Support Pack 4 on you servers.

## Error Codes and System Messages

Many messages for Novell® Licensing Services are self-documenting; information that you need appears on-screen with the message. Additional information about error codes are provided below. Other error codes are provided in [NLSLSP Messages](#) in *System Messages*.

### Error Code C0001002 Displays

| Possible Problem  | Possible Solutions  |
|---|---|
| You removed and reinstalled eDirectory™.  | See TID 2941280.  |
| The Server object and [Public] don't have enough rights.  | Make sure that the Server object (NLS_LSP_server) has the Browse right to the License Certificate objects.<br><br>Make sure that the Server object has the Read property right to "All Properties."<br><br>Make sure that [Public] has the Browse right to the License Container object where the license certificates are stored. See TID 2943750. |
| You deleted the server base license (a License Certificate object).   | Reinstall the license certificates. See TID 2943405.  |
| You removed the read/write replica from the NLS server. (The NLS server is running NLSLSP.NLM. It's the server that shows up in NetWare Administrator as NLS_LSP_server.) | See TID 2949634.  |
| Two NetWare 5 servers contain a replica of the [Root] or tree partition.  | See TID 2950971.  |



## Error Code C0001005 Displays

| Possible Problem   | Possible Solution   |
|--|---|
| The license certificate requires a server assignment but doesn't have one. | Assign a server. See <a href="#">"Modifying or Deleting Server Assignments"</a> on page 18. |

## TIDs

The following TIDs might help you resolve some issues relating to NLS on your network. The TIDs are available at the [Novell Support Web Site \(http://support.novell.com/search/kb\\_index.jsp\)](http://support.novell.com/search/kb_index.jsp).

| TID      | Description  |
|----------|--|
| 2943405  | What to do when the server is unable to obtain a valid server base license |
| 2944797  | Installing MLA certificates  |
| 2925689  | Renaming a server  |
| 2943157  | Moving a server to a different NDS context                                 |
| 2949634  | Responding to a C0001002 message   |
| 10065604 | Changing from Demo to Redbox Licensing                                     |
| 10027731 | Troubleshooting Licensing Issues.  |



# A

## Key NLS Terms

Since NLS is integrated with eDirectory™, you need to be familiar with the basics of eDirectory, especially eDirectory objects, partitions, and replicas of partitions. Understanding the following terms will help you maintain licensing and license units on your network.

- ◆ “Activation Key” on page 27
- ◆ “Envelope” on page 27
- ◆ “License Container Object” on page 29
- ◆ “License Certificate Object” on page 28
- ◆ “License Service Provider (LSP)” on page 29
- ◆ “License Unit” on page 30
- ◆ “Licensing Model” on page 30
- ◆ “NLS\_LSP\_servername” on page 30
- ◆ “NLS Client” on page 31
- ◆ “Notification” on page 31
- ◆ “Novell Licensing Services (NLS)” on page 31
- ◆ “Policy” on page 32
- ◆ “Policy Manager” on page 32
- ◆ “Search for a License Unit” on page 33
- ◆ “Stop” on page 33
- ◆ “Unlicensed Access” on page 33

### Activation Key

A sequence of numbers and letters; allows you to complete the installation of a license certificate for a product you purchased.

All license certificates require an activation key. Software vendors usually include the activation key in a .KEY file along with the certificate. This combination enables the Activation Key to be installed automatically during installation. However, if the installation program can't locate an Activation Key, a prompt allows you to enter it.

### Envelope

An .NLF file that contains one or more license certificates; a convenient way of packaging multiple license certificates to be distributed as a single file.

Because multiple license certificates can exist in an envelope, envelopes allow you to install several license certificates at the same time. Envelopes can contain an embedded activation key for license certificates.

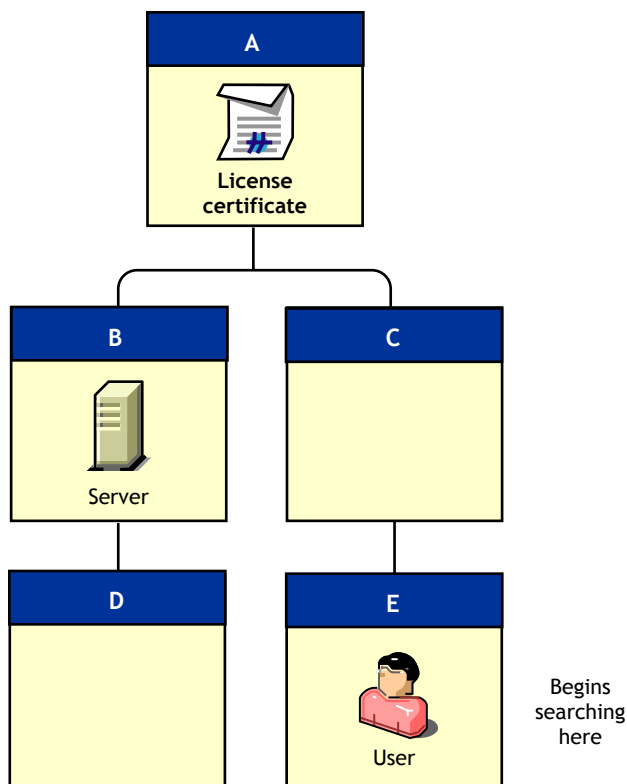
A sample envelope file is 4234171D.NLF.

## License Certificate Object

An object in eDirectory; represents a license certificate.

License certificates correspond to the printed license statement that is typically included in the packaging for software products. The icon for a License Certificate object looks like a single sheet of paper representing a license certificate. When you view the object in Novell iManager, the object typically displays the serial number or certificate name, as shown below:

Description: License Object Serial number



Certificates can be secure or unsecure:

- ◆ A *license certificate* is a digital license that is secured by secrets. For additional security, NetWare license certificates are digitally signed. They cannot be modified. License certificates usually come from a software vendor.
- ◆ A *metered certificate* does not have secrets; it is an unsecure license certificate. ZENworks functions as the NLS client and requests license units on behalf of applications. Metered certificates are usually created by network administrators.

NLS creates a License Certificate object when you install license certificates for NLS-enabled applications or when you create metered certificates.

When you install or create a license certificate, you choose the context (location in an eDirectory tree) for this object.

License certificates contain policies and are managed by a policy manager.

## License Service Provider (LSP)

Licensing software that you install and run on NetWare® servers. This software is contained in the NLSLSP.NLM program running on a NetWare 4.11 or later server.

An license service provider provides the actual licensing service. It handles requests from NLS clients and maintains the license certificates, which are stored within eDirectory.

When you install NetWare and licensing certificates, NLS

- ◆ Installs the license service provider software on the server
- ◆ Creates an License Service Provider object (`NLS_LSP_servername`) in the eDirectory tree

You can also use NetWare Deployment Manager to accomplish these two tasks.

**IMPORTANT:** You must have an license service provider running on a server with a writable replica of each partition. This requirement applies to partitions that contain—or will contain—License Certificate objects. If a partition does not—or will not—contain a license certificate, that partition does not require a server running an license service provider.

The replica can be a master or read/write replica. You can run license service providers on other servers without replicas as long as they can communicate with the license service provider that has a writable replica. The server with the writable replica can make changes to the eDirectory database on the other server's behalf.


## License Container Object

An object in eDirectory; contains one or more License Certificate objects.

A License Container object is a special container object in eDirectory. (Other container objects include [Root] or Tree, Country, Organization, and Organizational Unit.)



License Container objects are named using publisher, product, and version. For example, Corel\* WordPerfect\* version 9 could appear as follows in a tree:

[Description: License Container Object](#)

 Corel+WordPerfect+900

When you install a license certificate or create a metered certificate, NLS creates a License Container object *and* a License Certificate object. (If a license container already exists, NLS places the additional license certificate in that existing container.)

[Description: License container with a user license certificate](#)

 Novell+NetWare User+500  
 SN:77632921

Using Novell iManager, you can view License Container objects as they appear in the eDirectory tree.

# Licensing Model

The way a vendor allows its customers to use its licensed products.

NLS can support many models of licensing. For example:

- ◆ Non concurrent connections in BorderManager
- ◆ Server Connection Licensing (SCL) in NetWare 4 and NetWare 5
- ◆ User Access Licensing (UAL) for Novell Cluster Services™ and NetWare 6

For information about the licensing model for the product that you use, refer to the product-specific documentation.

# License Unit

A component of a license certificate.

When you purchase a product, you purchase one or more license units for it. For example, a 100 Additive User License for Novell BorderManager™ Firewall Services 3 contains 100 license units, allowing 100 users to access BorderManager services.

NLS supports digital license units that are available from installed License Certificate objects. NLS also supports metered license certificates that are managed through ZENworks™ functionality.

License certificates are installed from files. Typical filename extensions are

- ◆ .NLF (for NetWare, BorderManager, and other Novell products)
- ◆ .CLS (for NetWare for Small Business)
- ◆ .KEY (activation keys)

**IMPORTANT:** A license unit or a license certificate is not the license itself. Licenses are specified in your license agreement. Although NLS helps you stay in compliance with the license agreement, you are bound by the terms and conditions of your software agreement.

# NLS\_LSP\_servername

An object in eDirectory. This object's existence in the tree is one indication that NLS is configured to run on a server and that a server is a license service provider.

Both the NetWare server installation software and NetWare Deployment Manager install the license service provider software on the server and create a corresponding License Service Provider object (*NLS\_LSP\_servername*) in the eDirectory tree.

License service provider objects are created in the same context as the server running the license service provider software (NLSLSP.NLM). The License Service Provider object stores configuration information about an license service provider running on the server: a transaction database name, information about how to search for a license certificate (whether to search to the partition root or to the root of the tree), notifications concerning unlicensed access and service problems, and other associated data.

NLS adds an attribute on the NCP Server object. This attribute points to the license service provider so that NLS has a link between the NCP™ Server object and the license service provider.

# NLS Client

Software that requests licensing services from license service providers.

An NLS client runs on client workstations and on NetWare servers. (The client can run on either a workstation or a server or on both the workstation and the server.) This software supports 32-bit Windows\* and NetWare Loadable Module™ (NLM™) platforms. When you install NLS on a server, all of the files that enable an application to use NLS are copied to the SYS:\PUBLIC and SYS:\SYSTEM directories on the server.

Other than the client software, no additional files need to be installed on client workstations. Applications written to use NLS load client libraries that communicate with NLS components running on a NetWare server.

If a 32-bit Windows NLS client has an existing connection to a NetWare server running an license service provider, the client communicates directly with the license service provider. If the client does not already have a connection to a server running an license service provider, the client searches from the server's context upward in the eDirectory tree for an license service provider.

An NLM client does not search. It simply examines the current connection.

See [“How Novell Licensing Services Works” on page 11](#) for more information.

## Novell Licensing Services (NLS)

Software components and technology that provide a balance between your company's need to manage and access license units and a software manufacturer's need for enforcement of licensing requirements.

NLS consists of the following components:

- ◆ License Service Providers (LSPs)
- ◆ NLS clients
- ◆ eDirectory objects (License Service Provider objects, License Certificate objects, and License Container objects)

## Notification

A message that informs you about the licensing service or a problem concerning your compliance with the terms and conditions licensing agreement.

**System Alert** notifications inform a designated person that one of the following has occurred:

- ◆ An eDirectory communication error related to the licensing service
- ◆ An eDirectory schema error related to the licensing service
- ◆ A transaction logging error

**Out of Compliance** notifications inform a designated person that your company is out of compliance with the terms and conditions of your licensing agreement.

By default, the designated person is whoever installs the license certificate. You can modify (change, delete, add) objects that receive notifications. Multiple network users or groups can receive notifications.

Notifications are sent through the NetWare Broadcast utility and (optionally) SNMP.

## Policy

An electronic representation of a term or condition in your license agreement. Policies are contained in license certificates. For example, a certificate for a company could include the following tags for policies:

- ◆ Each license unit is consumable.
- ◆ Each license unit allows nodal reuse. (A user can use it multiple times from different workstations.)
- ◆ The certificate does not require an license service provider assignment.
- ◆ Duplicate certificates can be installed (an important tag for Master License Agreement accounts).
- ◆ The certificate is an evaluation license certificate.
- ◆ The certificate has a soft stop. (The policy allows users to use the service even though a license unit is not available. However, a network administrator receives notification that the company is out of compliance.)
- ◆ The certificate uses secrets.
- ◆ The certificate is digitally signed.

A policy is tied to a license certificate and a policy manager, not to the licensing service. A policy can be flexible, simply by changing (or replacing) a license certificate.

## Policy Manager

Code that makes decisions based on requests from a licensing service.

A policy manager

- ◆ Is part of the application
- ◆ Makes the application NLS-enabled
- ◆ Requests licenses from NLS
- ◆ Receives responses from NLS regarding availability of license units
- ◆ Decides whether to grant access to certain program functionality
- ◆ Informs the license service provider when a license unit is no longer being used
- ◆ Contains mechanisms (policy) for handling errors concerning failed requests for license units

Each NLS-enabled product has its own policy manager. The policy manager for NetWare differs from the policy manager for BorderManager. Both of these policy managers differ from the policy manager for a third-party software manufacturer's application.

Because each application or service supports a different policy, you might have many policy managers running on a network.



# Search for a License Unit

A function that the License Service Provider (LSP) performs when an NLS client requests a license unit

When an NLS client requests a license unit in the User Access Licensing model, the license service provider first searches the *User object's* context for an available license unit. If the license service provider doesn't find a license unit, it searches up the eDirectory™ tree for one.

**Licensed User object**— A User object that has successfully logged in to the network and obtained a license

# Stop

A policy in a License Certificate object.

- ◆ A *hard stop* policy informs users that they are out of compliance with the terms and conditions of the license agreement. A hard stop prevents users from accessing a license unit. The hard stop could result from all available license units already being in use.

**NOTE:** NLS is a service. The terms and conditions of your license agreement determine how the product is to be used.

- ◆ A *soft stop* policy informs users that they are out of compliance but allows them to continue using license units under certain conditions.
- ◆ A *no stop* policy ignores situations in which no license units are available. NLS keeps track of the overage by logging the noncompliance, but does not inform or warn the user.

**Scenario:** You install licenses for 25 users. All 25 license units are in use when the 26th user attempts to log in. Because no license units are available, the user will not be granted network access.

**Solution:** To allow the 26th user to log in to the network, you must install additional licenses or release a license that is currently in use. Releasing a license that is in use revokes network access for the User object that had the license, the next time the user attempts to log in.

# Unlicensed Access

An allowance beyond the number of license units purchased.

Software manufacturers can allow unlicensed access (a grace condition) on their license certificates. This functionality allows users to continue using the product while you purchase and install more license certificates.

**NOTE:** Unlicensed access does not grant licenses. The terms and conditions of your license agreement specify how the product is to be used.

To see how a product handles unlicensed access, refer to the product-specific documentation.

**Scenario:** You install licenses for 100 users. The company hires 10 more employees, and you create network accounts for them. Even though 110 user accounts exist, only the first 100 users that log in, can gain access to the network until 10 more licenses are added to accommodate the 10 unlicensed users.

