



EMC[®] NetWorker[®]
License Manager
9th Edition

Installation and Administration Guide

P/N 300-010-424
REV A01

EMC Corporation
Corporate Headquarters:
Hopkinton, MA 01748-9103
1-508-435-1000
www.EMC.com

Copyright © 1990-2009 EMC Corporation. All rights reserved.

Published December, 2009

EMC believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS." EMC CORPORATION MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying, and distribution of any EMC software described in this publication requires an applicable software license.

For the most up-to-date listing of EMC product names, see EMC Corporation Trademarks on EMC.com.

All other trademarks used herein are the property of their respective owners.

Contents	3
Preface	
NetWorker product documentation	7
NetWorker related documentation.....	8
Chapter 1 Introduction	
Overview of EMC License Manager	12
Products supported by the License Manager	13
Types of licenses	13
License Manager system information.....	14
Architecture and operation	14
License Manager files and filepaths.....	15
Chapter 2 Installing and Uninstalling the Software	
Installing the License Manager software.....	18
Before installation	18
Installing the License Manager on UNIX.....	18
Installing the License Manager on Linux.....	24
Installing the License Manager on Microsoft Windows	24
Uninstalling the License Manager Software	25
Uninstalling the License Manager software from UNIX	25
Uninstalling the License Manager software from Microsoft Windows ...	27
Chapter 3 Using the License Manager Software	
Using the License Manager with the NetWorker Software	30
Backing up the License Manager	30
Managing Licenses using the lgtolic command line utility.....	30
Options.....	31
Setting Up the NetWorker software to work with the License Manager.	33
Using the License Manager to enter enablers.....	34
Entering or migrating licenses into the License Manager database.....	35
Using the License Manager to allocate licenses	37
Setting up allowances for a NetWorker server	38
Fallback license substitution	43
Planning for possible failure of the License Manager host.....	44
How the NetWorker server syncs with the License Manager server	44

What happens if the License Manager host ceases to function.....	44
Preparations to ensure that a License Manager server is available.....	45
Moving the License Manager to a different host.....	47
Starting and stopping the License Manager.....	48
Starting and stopping the License Manager on UNIX and Linux	48
Starting and stopping the License Manager on Windows.....	48
Disabling the License Manager	49

Appendix A Error Messages

Messages generated by the License Manager	52
Add the license with the -c option before attempting to authorize it	52
Attempting to remove more usage than possible (%d, %d).....	53
Cannot add authorization code to evaluation licenses	53
Cannot add eval license to database—license type already exists	53
Cannot alter expiration date on a license in a grace period.....	54
Cannot alter expiration date on a nonexistent license.....	54
Cannot get host IP address! ABORTING!	54
Cannot increment the usage for this particular license type	55
Cannot locate license binding for appliance <hostname>:<appliance> ...	55
Cannot overwrite existing authorization code	55
Cannot release usage for license not in use.....	56
Cannot release usage for nonexistent license.....	56
Cannot release usage for nonexistent license type.....	56
Cannot release %d usage counts.....	57
Enabler code %s has not been located	57
Invalid enabler code specified.....	57
Invalid parameters specified within License API [<parameters>].....	58
The License Manager database is damaged.....	58
Need a base enabler to authorize '%s' license.....	58
Other messages related to the License Manager	59
Archive support has not been properly enabled.....	59
Remote system error.....	59
You are not authorized to run this command.....	59
nsrlmc: RPC error, Program not registered (severity 4, number 15)	
nsrlmc: lgtolmd did not respond.....	60
lgtolmd: SYSTEM notice, Resource file /nsr/lic/tmp/res.lck	
already in use.....	60
lgtolic: Program/version mismatch	61
Server disabled; the evaluation enabler code for the <feature> expired...	61
RAP error <error-code>: Enabler type is for a different platform.....	62
lost connection to server: Authentication error	62
License enabler <enabler code> <product/feature> expires in <n> days	
The jukebox <jukebox> is not properly licensed.....	63
The feature <feature> is not properly enabled	63
RPC error: RPC program or version mismatch	64
RPC error: Unknown host	64
Description of the lgtolmd Daemon	65
Synopsis.....	65
Description.....	65
Options	65
Files	65
Using Debug Mode.....	66
Old and New License Names.....	66

Appendix B Known Problems and Limitations

- NetWorker License Manager not functional on cluster nodes..... 68
- Licenses not released by lgtolic (LGTpa49953)..... 68
 - Remove the license 68
 - Use short server name when creating global allowances with NetWorker License Manager 68

Glossary 69

Index 71

As part of an effort to improve and enhance the performance and capabilities of its product lines, EMC periodically releases revisions of its software. Therefore, some functions described in this document may not be supported by all versions of the software or hardware currently in use. For the most up-to-date information on product features, refer to your product release notes.

If a product does not function properly or does not function as described in this document, please contact your EMC representative.

Audience This guide is part of the NetWorker documentation set, and is intended for use by system administrators who are responsible for setting up and maintaining backups on a network. Operators who monitor daily backups will also find this guide useful.

NetWorker product documentation

This section describes the additional documentation and information products that are available with NetWorker.

EMC NetWorker Release 7.6 Installation Guide

Provides instructions for installing or updating the NetWorker software for clients, console and server on all supported platforms.

EMC NetWorker Release 7.6 Cluster Installation Guide

Contains information related to installation of the NetWorker software on cluster server and clients.

EMC NetWorker Release 7.6 Administration Guide

Describes how configure and maintain the NetWorker software.

EMC NetWorker Release 7.6 Release Notes

Contain information on new features and changes, fixed problems, known limitations, environment and system requirements for the latest NetWorker software release.

EMC NetWorker Licensing Process Guide, Second Edition

A brief guide that explains the process flow of NetWorker licensing to users (system administrators, mainly). Not yet officially part of the NetWorker doc set.

NetWorker 7.6 Error Message Guide

Provides information on common NetWorker error messages.

NetWorker 7.6 Performance Optimization and Planning Guide

Contains basic performance tuning information for NetWorker.

NetWorker 7.6 Command Reference Guide

Provides reference information for NetWorker commands and options.

NetWorker Management Console Online Help

Describes the day-to-day administration tasks performed in the NetWorker Management Console and the NetWorker Administration window. To view Help, click **Help** in the main menu.

NetWorker User Online Help

The NetWorker User program is the Windows client interface. Describes how to use the NetWorker User program which is the Windows client interface connect to a NetWorker server to back up, recover, archive, and retrieve files over a network.

NetWorker related documentation

For more information about NetWorker software, refer to this documentation:

EMC Information Protection Software Compatibility Guide

A list of supported client, server, and storage node operating systems for the following software products: AlphaStor, ArchiveXtender, DiskXtender for Unix/Linux, DiskXtender for Windows, Backup Advisor, AutoStart, AutoStart SE, RepliStor, NetWorker, and NetWorker Modules and Options.

E-lab Issue Tracker

Issue Tracker offers up-to-date status and information on NetWorker known limitations and fixed bugs that could impact your operations. E-Lab Issue Tracker Query allows you to find issues in the Issue Tracker database by matching issue number, product feature, host operating system, fixed version, or other fields.

NetWorker Procedure Generator

The NetWorker Procedure Generator (NPG) is a stand-alone Windows application used to generate precise user driven steps for high demand tasks carried out by customers, Support and the field. With the NPG, each procedure is tailored and generated based on user-selectable prompts. This generated procedure gathers the most critical parts of NetWorker product guides and combines experts' advice into a single document with a standardized format.

Note: To access the E-lab Issue Tracker or the NetWorker Procedure Generator, go to <http://www.Powerlink.emc.com>. You must have a service agreement to use this site.

Technical Notes and WhitePapers

Provides an in-depth technical perspective of a product or products as applied to critical business issues or requirements. Technical Notes and White paper types include technology and business considerations, applied technologies, detailed reviews, and best practices planning.

Conventions used in this document

EMC uses the following conventions for special notices.

Note: A note presents information that is important, but not hazard-related.

**CAUTION**

A caution contains information essential to avoid data loss or damage to the system or equipment.

**IMPORTANT**

An important notice contains information essential to operation of the software.

Typographical conventions

EMC uses the following type style conventions in this document:

Normal	Used in running (nonprocedural) text for: <ul style="list-style-type: none"> Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus) Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, filenames, functions, utilities URLs, pathnames, filenames, directory names, computer names, links, groups, service keys, file systems, notifications
Bold:	Used in running (nonprocedural) text for: <ul style="list-style-type: none"> Names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system call, man pages Used in procedures for: <ul style="list-style-type: none"> Names of interface elements (such as names of windows, dialog boxes, buttons, fields, and menus) What user specifically selects, clicks, presses, or types
<i>Italic:</i>	Used in all text (including procedures) for: <ul style="list-style-type: none"> Full titles of publications referenced in text Emphasis (for example a new term) Variables
Courier:	Used for: <ul style="list-style-type: none"> System output, such as an error message or script URLs, complete paths, filenames, prompts, and syntax when shown outside of running text.
Courier bold:	Used for: <ul style="list-style-type: none"> Specific user input (such as commands)
<i>Courier italic:</i>	Used in procedures for: <ul style="list-style-type: none"> Variables on command line User input variables
< >	Angle brackets enclose parameter or variable values supplied by the user
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means "or"
{ }	Braces indicate content that you must specify (that is, x or y or z)
...	Ellipses indicate nonessential information omitted from the example

Where to get help

EMC support, product, and licensing information can be obtained as follows.

Product information- For documentation, release notes, software updates, or for information about EMC products, licensing, and service, go to the EMC Powerlink website (registration required) at:

<http://Powerlink.EMC.com>

Technical support- For technical support, go to EMC Customer Service on Powerlink. To open a service request through Powerlink, you must have a valid support agreement. Please contact your EMC sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Please send your opinion of this document to:

ssgdocumentation@EMC.com

If you have issues, comments, or questions about specific information or procedures, please include the title and, if available, the part number, the revision (for example, A01), the page numbers, and any other details that will help us locate the subject you are addressing.

This chapter contains an overview of the EMC License Manager and its components, architecture, and operations.

It contains the following sections:

- ◆ Overview of EMC License Manager 12
- ◆ License Manager system information 14

Overview of EMC License Manager

The NetWorker[®] License Manager provides a central server location to manage all EMC product licenses. Once the License Manager is installed and functional, you no longer have to physically go to each NetWorker server to perform license upgrades and authorizations.

The NetWorker License Manager includes the following features:

- ◆ The License Manager is provided as an installation option with NetWorker releases, and is required for certain advanced reporting features.
- ◆ The License Manager issued with the NetWorker release 7.x is supported on all platforms that support the NetWorker server. It can also be run on most platforms that support the same NetWorker release 7.x client. For more information, see the *EMC NetWorker License Manager 8th Edition Release Notes* and the *EMC Information Protection Software Compatibility Guide*, available on the website at <http://powerlink.EMC.com>.
- ◆ The License Manager provides flexibility to NetWorker server setups by allowing an administrator to move servers within a domain and to decommission and recommission a server with minimal disruption to the licensing process.
- ◆ Only one installation of the License Manager is required on a network. The License Manager should not be installed unless it is deployed. Although it is an installation option with the NetWorker software, do not select it for any computer other than a primary or backup license server. “[Fallback license substitution](#)” on [page 43](#) has more information on backup license servers.
- ◆ Once a License Manager server has been set up, you can use the EMC NetWorker Management Console software (referred to as Console) to set up the NetWorker servers to contact the License Manager server for their licenses. [Chapter 3, “Using the License Manager Software,”](#) has more information on setting up NetWorker servers to use the License Manager.
- ◆ Validation occurs in the application (such as the NetWorker software), which determines whether a license of a specific type is required to use the product or a specific feature of the product, and then requests such license from the License Manager.

Note: The NetWorker software that is installed retains its licensing function, therefore licensing does not have to be implemented immediately by the License Manager. To make optimum use of the License Manager features, however, install bulk enablers on the License Manager, especially if more than one NetWorker server is installed. Once bulk enablers are installed, remove the licenses from the local servers and use the License Manager to manage licenses. If bulk enablers are unavailable, then migrate the local licenses to the License Manager server. For more information, see “[Types of licenses](#)” on [page 13](#) and “[Entering or migrating licenses into the License Manager database](#)” on [page 35](#).”

Products supported by the License Manager

The License Manager works with any EMC product that is designed to contact it for licenses, including NetWorker software and its ancillary functions such as client, autochanger, and storage node support.

NetWorker Modules and other database applications are supported by the License Manager. If bulk enablers are available, install them on the License Manager server. If bulk enablers are not available, install as many single licenses as required on the License Manager server, or license the NetWorker module software locally on each NetWorker server.

Note: As a best practice, if a NetWorker module license is installed locally on a NetWorker server, all the licenses used by that NetWorker server should be installed locally rather than on the License Manager server.

Types of licenses

This section describes different types of licenses that can be managed by the License Manager. While the License Manager can manage single licenses, it is most effective when used with bulk enabler licenses.

- ◆ Base enabler license: License for the NetWorker server software, which enables the edition purchased:
 - Business Edition
 - Workgroup Edition
 - Network Edition
 - Power Edition

This license can reside on the License Manager server or on the NetWorker server.

- ◆ Single-unit license: A license for a single application. This license can reside on the License Manager server or on the NetWorker server. For example, a single-unit license allows you to license one NetWorker server, or one autochanger, and so on.
- ◆ Bulk enabler license: A license installed on the License Manager server that can enable multiple instances of a product, commonly on multiple NetWorker servers. For example, one bulk enabler license can enable 25 storage nodes for one or more NetWorker servers.

Bulk enablers cannot be installed with the NetWorker software alone, but must be installed on the License Manager server. If a bulk enabler is installed on a NetWorker server without the License Manager, then the NetWorker server treats the enabler as one license instead of multiple licenses. For example, if a bulk (quantity=5) enabler for storage nodes is applied directly to a NetWorker server, then it licenses only one storage node.

EMC customers can use bulk enabler licenses with the License Manager to enable multiple instances of a EMC product. For example, a bulk enabler code for 100 NetWorker clients allows you to enable 100 NetWorker clients in a single command line operation. A single authorization code for the bulk enabler is all that is needed to authorize the enabler permanently. [“Entering or migrating licenses into the License Manager database” on page 35](#) has details about bulk enablers.

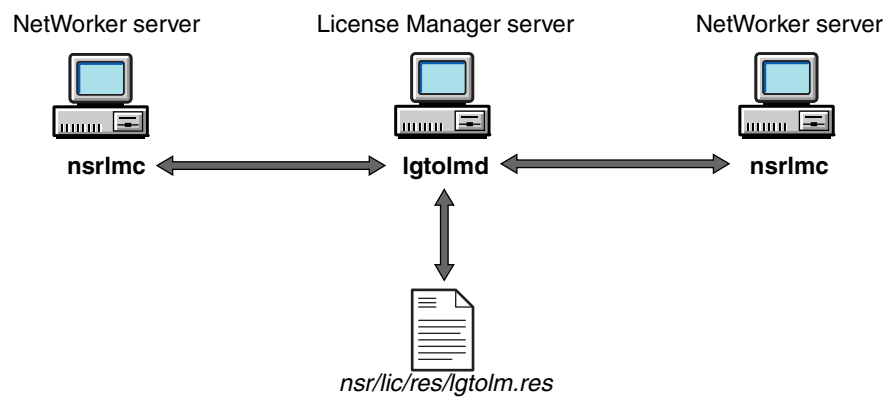
License Manager system information

The following section provides an overview of the License Manager system information. It contains the following sections:

- ◆ “Architecture and operation” on page 14
- ◆ “License Manager files and filepaths” on page 15

Architecture and operation

Figure 1-1 on page 14 shows the typical interaction between the various daemons and binaries involved in the license management process.



GEN-001040

Figure 1-1 License Manager architecture

The license agent (**nsrlmc**) is run as needed by the **nsrd** process on each NetWorker server and communicates with the daemon **lgtolmd** on the License Manager server. Because the NetWorker software and the License Manager software use different processes, often on two different machines, License Manager license requests must be asynchronous. This means that when the NetWorker software makes a license request, it does not wait for an answer. It continues processing and later checks to determine whether the request succeeded.

The **nsrlmc** agent is invoked by the **nsrd** process to:

- ◆ Perform periodic checks between the external licenses obtained from the License Manager and the License Manager’s internal accounting of license allocations. This ensures that the information is synchronized.
- ◆ Obtain a specific license type from the License Manager when needed.

Each NetWorker server contains an entry naming the License Manager server it should contact for licenses. If this entry is blank, no License Manager is used, and all licenses must be loaded directly on the NetWorker server. This entry can be edited through Console or the **nsradmin** programs.

For details on naming a License Manager for a NetWorker server, and migrating NetWorker licenses to the License Manager, see:

- ◆ [“Setting Up the NetWorker software to work with the License Manager” on page 33](#)
- ◆ [“Entering or migrating licenses into the License Manager database” on page 35.](#)

Licenses are requested and given up by the licensed application; if an inconsistency is detected, this can also be done by the periodic check that is done automatically every two hours, or by selecting **Update Licenses** in the NetWorker server’s **Properties** window. [“Using the License Manager to allocate licenses” on page 37](#) has details on adding a license to an application program, such as the NetWorker software.

License Manager files and filepaths

The Installation process places files in specific directories, depending on the server and the operating system:

- ◆ [“UNIX and Linux” on page 15](#)
- ◆ [“Windows” on page 16](#)

UNIX and Linux

The License Manager executables for UNIX are **lgtolic** and **lgtolmd**. Their locations vary depending on the operating system. [Table 1 on page 15](#) describes the locations of the executable files. The following nonexecutable files are installed on UNIX servers:

- ◆ `/nsr/lic/res/lgtolm.res`: The License Manager database, which contains attributes describing the License Manager daemon’s license resources.
- ◆ `/nsr/lic/res/lictype.res`: An internal file, not to be manually modified, moved, or renamed.
- ◆ `/nsr/lic/logs/lgtolmd.log`: The License Manager log file, which contains diagnostic and informational messages about the license daemon. For example, if a license expired, this information will be printed to this log and to the console.

Table 1 Locations of the License Manager daemon executables

Operating system	Files to rename
Solaris	<code>/usr/sbin/lgtolmd</code> <code>/usr/sbin/lgtolic</code>
HP-UX	<code>/opt/networker/bin/lgtolmd</code> <code>/opt/networker/bin/lgtolic</code>
AIX	<code>/usr/bin/lgtolmd</code> <code>/usr/bin/lgtolic</code>
HP Tru64 UNIX	<code>/usr/opt/networker/bin/lgtolmd</code> <code>/usr/opt/networker/bin/lgtolic</code>
SGI Irix	<code>/usr/etc/lgtolmd</code> <code>/usr/etc/lgtolic</code>
Linux	<code>/usr/sbin/lgtolmd</code> <code>/usr/sbin/lgtolic</code>

Windows

The default location for the License Manager is as follows:

c:\Program Files\Legato\nsr

The License Manager executables for Windows are lgtolic.exe and lgtolmd.exe, which are in:

- ◆ default_location\bin\lgtolic.exe
- ◆ default_location\bin\lgtolmd.exe

These nonexecutable files are installed on Windows servers:

- ◆ default_location\res\lgtolm.res: The License Manager database, which contains attributes describing the License Manager daemon's license resources.
- ◆ default_location\res\lictype.res: An internal file, not to be manually modified, moved, or renamed.
- ◆ default_location\logs\lgtolmd.log: The License Manager log file, which contains diagnostic and informational messages about the license daemon. For example, if a license has expired, this information will be printed to this log and to the console.

This chapter describes how to install and configure the License Manager software on a network server, as well as how to uninstall the License Manager software.

It contains the following sections:

- ◆ [Installing the License Manager software](#) 18
- ◆ [Uninstalling the License Manager Software](#) 25

Installing the License Manager software

The following sections explain how to install the License Manager software on servers of various platforms:

- ◆ [“Before installation” on page 18](#)
- ◆ [“Installing the License Manager on UNIX” on page 18](#)
- ◆ [“Installing the License Manager on Linux” on page 24](#)
- ◆ [“Installing the License Manager on Microsoft Windows” on page 24](#)

Before installation

The License Manager is an installation option when installing the NetWorker software. When installing the License Manager, plan to assign one or more NetWorker servers to back up the License Manager server.

Installing the License Manager on UNIX

Installation of the License Manager software on UNIX varies between platforms. The following sections give a general description of the installation for each of the UNIX platforms:

- ◆ [“Install the License Manager on Solaris” on page 19](#)
- ◆ [“Install the License Manager on AIX” on page 19](#)
- ◆ [“Install the License Manager on HP-UX” on page 20](#)
- ◆ [“Install the License Manager on SGI IRIX” on page 21](#)
- ◆ [“Install the License Manager on Tru64 UNIX” on page 22](#)

Also see:

- ◆ [“License Manager files and filepaths” on page 15](#) has information about the locations of the installed files.
- ◆ [“Starting and stopping the License Manager” on page 48](#) has information about starting and stopping the License Manager.

Install the License Manager on Solaris

To install the License Manager from a local CD-ROM drive or from a downloaded web file, do the following:

1. Ensure that you have root privileges on the system where you are installing the License Manager software.
2. Change to the location of the NetWorker software distribution files:
 - For installation from local or remote CD-ROM, do the following:
 - a. Mount the CD-ROM drive.
 - b. Change directories to the location of the NetWorker software for Solaris.
 - For installation from a downloaded web file, change to the directory to which you extracted the installation files from the download package.
3. Enter the following command:


```
pkgadd -d .
```
4. Select the NetWorker packages to install.
 - Select **LGTOclnt** to install the NetWorker client software.
 - Select **LGTOlicm** to install the License Manager.

Note: If the NetWorker client software is not installed on the computer, install the client package *before* installing the License Manager package. If the client software is installed, then *only* select **LGTOlicm**.

Install the License Manager on AIX

To install the License Manager from a local CD-ROM drive or the web:

1. Ensure that you have root privileges on the system where you want to install the License Manager software.
2. Change directories to the location of the NetWorker software distribution files as follows:
 - For installation from local or remote CD-ROM:
 - a. Mount the CD-ROM drive.
 - b. Change directories to the location of the NetWorker software for AIX.
 - For installation from a web file, change to the location of the NetWorker software download packages for AIX.
3. Use the AIX Software Management Interface Tool (**smit**) to install the License Manager software on the server by entering the command:


```
smit
```

The **Software Management Interface Tool** appears.
4. Click the **Software Installation and Maintenance** box.
5. Click the **Install and Update Software** box.
6. Click the **Install and Update Software by Package Name** box.
7. In the text box, enter the pathname of the directory where the software packages are located.

8. Click **OK**.
A list of all software packages installed in this location appears.
9. Select **LGTONw** to display the NetWorker packages.
10. Select the NetWorker packages to install.
 - Select **LGTONw.cint** to install the NetWorker client software.
 - Select **LGTONw.licm** to install the License Manager.

Note: If the NetWorker client software is not installed on the computer, install the client package *before* installing the License Manager package. If the client software is installed, then *only* select **LGTONw.licm**.

A list of installation settings appears.

11. Confirm or overwrite the installation settings.
12. Click **OK**.

Install the License Manager on HP-UX

Install the License Manager software on HP-UX 10.x or 11.x by using the **swinstall** utility. Run the **swinstall** utility either in terminal format or from a graphical user interface (GUI) in X Windows. The terminal format **swinstall** screens contain the same types of information as the GUI. The selections are the same in either the GUI or the terminal format.

The following procedure is for the GUI version of **swinstall**:

1. Ensure that you have root privileges on the system where you want to install the License Manager software.
2. Change directories to the location of the NetWorker software distribution files as follows:
 - For installation from a local or remote CD-ROM:
 - a. Mount the CD-ROM drive.
 - b. Change directories to the location of the NetWorker software for HP-UX.
 - For installation from a downloaded web file, change to the directory where you extracted the installation files from the download package.
3. To start the installation, enter the following command at the system prompt:
swinstall
4. In the **Specify Source** window, do the following:
 - a. Verify the hostname displayed in the **Source Host Name** attribute is the correct hostname for the computer where you want to install the License Manager software.
 - b. Verify the pathname in the **Source Depot Path** attribute is correct.
 - c. Click **OK**.
5. In the **Software Selection** window, if the NetWorker software is the only choice that appears, do *one* the following to display the other products:
 - On HP-UX 10.10, click the **Change Software View** button and select **Products** in the **Software View** dialog box.
 - On HP-UX 11.x, double-click the line for the NetWorker software.

The other packages available for installation appear in the **Software Selection** window.

6. Select the software to install from the list in the **Software Selection** window; then select **Mark For Install from the Actions** menu.

Note: For a License Manager server without NetWorker software installed, select both the NetWorker client package and the License Manager software at a minimum.

7. Select **Install (analysis)** from the **Actions** menu to run an install analysis; then click **Logfile** to check the log file for errors. If errors appear, correct the problems before continuing.
8. Click **OK** in the **Install Analysis** window.

The **Install Window** appears showing the status of the installation. When the installation is finished, the Status field displays the message "**Completed.**"

9. In the **Install Window**, click **Logfile** to check the log file for error or warning messages generated during installation. If errors appear, correct them as needed.
10. Click **Done** in the **Install Window**, then select **Exit** from the **File** menu in the **Software Selection** window to exit from the **swinstall** utility.

Install the License Manager on SGI IRIX

Install the License Manager software on SGI IRIX using either the Software Manager or the command line.

Installing by using the Software Manager

To install the License Manager software on SGI IRIX from a local CD-ROM drive using the Software Manager:

1. Ensure that you have root privileges on the system where you want to install the License Manager software.
2. Mount the CD-ROM drive and change directories to the location of the NetWorker software distribution files.
3. Enter the following command at the system prompt:

```
ln -s /CDROM/irix/networkr.tar /tmp/sgi.tardist
```

4. Display the Software Manager window:

```
tardist /tmp/sgi.tardist
```

5. Select **Customize Installation**.
6. Double-click **NetWorker Backup System**.

The window displays the following software components:

- NetWorker Client Software for IRIX
- NetWorker Man Pages for IRIX
- NetWorker Server Software for IRIX
- NetWorker Storage Node Software for IRIX
- NetWorker License Manager for IRIX

The NetWorker client and man pages are default options. If the client software is not installed, you must select the NetWorker client and License Manager to install the License Manager software.

7. Click **Start**.
8. Click **OK** when the dialog box indicates that the installation process is complete.
9. Exit the **Software Manager** window.

The **Web Install** dialog box displays the following message:

Do you want to save this distribution for future installations, or remove it? Select either option and continue.
This selection completes the License Manager installation.

Installing by Using the command line

To install the License Manager on SGI IRIX from a local CD-ROM drive or downloaded web file using the command line:

1. Ensure that you have root privileges on the system where you want to install the License Manager software.
2. If installing from a CD-ROM, mount the CD-ROM drive.
3. Create a temporary directory (for example, /tmp/nsr_extract):

```
mkdir /tmp/nsr_extract
```

4. Change to that directory:

```
cd /tmp/nsr_extract
```

5. Change directories to the location of the NetWorker software distribution files.
6. Enter the appropriate command at the system prompt to extract the software files, for example:

```
tar xvf /CDROM/irix/networkr.tar
```

7. Run the following command to run the installation program:

```
inst -f /tmp/nsr_extract
```

An installation prompt will appear (Inst>), indicating that the installation program is running.

8. Enter the following commands to install the NetWorker client and the License Manager software:

```
Inst> install networker7.sw.LGTolicm  
Inst> go
```

9. When the process is complete, exit the installation program:

```
Inst> quit
```

Install the License Manager on Tru64 UNIX

The NetWorker client software must be installed before you can install the License Manager, which is installed separately.

Task 1: Install the NetWorker Client Software

To install the NetWorker client software on Tru64 UNIX, follow these steps:

1. Ensure that you have root privileges on the system where you want to install the NetWorker software.
2. Mount the drive with the CD-ROM or NetWorker software as follows:

```
mount -r -t cdfs /dev/rz4c /mnt
```

where /mnt is the mount point and /dev/rz4c is the block device.

3. Locate the NetWorker software distribution directory and change to that directory. For example:

```
cd /mnt/hp
```

4. Enter the following command to begin the installation:

```
setld -1 .
```

5. Select the subset for the NetWorker client (LGTOCLNT), and then follow the instructions on the screen to complete the installation of the client.

Task 2: Install the License Manager Software

To install the License Manager software on Tru64 UNIX, follow these steps:

1. Ensure that you have root privileges on the system where you installed the NetWorker client software.
2. Change to the license directory.
3. Enter the following command to begin the installation of the License Manager software, and then respond to the prompts as shown:

```
setld -1 .
```

```
*** Enter subset selections ***
```

```
The following subsets are mandatory and will be installed
automatically unless you choose to exit without installing
any subsets:
```

```
* NetWorker License Manager
```

```
You may choose one of the following options:
```

- 1) ALL of the above
- 2) CANCEL selections and redisplay menus
- 3) EXIT without installing any subsets

```
Enter your choices or press RETURN to redisplay menus.
```

```
Choices (for example, 1 2 4-6): 1
```

```
You are installing the following mandatory subsets:
```

```
NetWorker License Manager
```

```
You are installing the following optional subsets:
```

```
Is this correct? (y/n): y
```

```
1 subset(s) will be installed.
```

```
Loading 1 of 1 subset(s)....
```

```
NetWorker License Manager requires NetWorker Client to be installed.
```

```
Please make sure that NetWorker Client is installed before running
```

```
NetWorker License Manager.
```

```
NetWorker License Manager
```

```
Copying from . (disk)
```

```
1 of 1 subset(s) installed successfully.
```

```
Configuring "NetWorker License Manager" (LGTOLIC100)
```

```
Installation is complete.
```

4. Change to the root directory and unmount the CD-ROM drive:

```
cd /
umount /mnt
```

Installing the License Manager on Linux

The NetWorker client software must be installed before installing the License Manager.



CAUTION

Before installing the License Manager on Linux, ensure the kernel meets all the system requirements as described in the *EMC NetWorker Installation Guide* for the corresponding release.

To install the License Manager software in the default directory, */usr*:

1. Ensure that you have root privileges on the system where you want to install the License Manager software.
2. Insert the NetWorker distribution CD-ROM into the drive.
3. Mount the CD-ROM drive.
4. Change directories on the CD-ROM to the location of the NetWorker software for Linux.
5. Use the **rpm** command to install the NetWorker client and License Manager software, installing the client package first. For example:

```
rpm -ivh lgtoclnr-7.0-1.i686.rpm
rpm -ivh lgtolicm-7.0-1.i686.rpm
```

Note: If the client software is installed, specify only the *LGTolicm* package.

6. Restart the NetWorker client daemon:


```
nsrexecd
```
7. Start the License Manager daemon. For instructions, see [“Starting and stopping the License Manager” on page 48](#).

If the */usr* directory has insufficient space, the corresponding release of the *NetWorker Installation Guide* has instructions on installing the software in a nondefault location.

Installing the License Manager on Microsoft Windows

For NetWorker release 7.0 and later, the License Manager software is repackaged so that it is installed as an option with the NetWorker software. It must be installed with the NetWorker installation software rather than the License Manager installation software. The default installation path is `c:\Program Files\Legato\nsr`.

For instructions on installing the License Manager software with the NetWorker software, see the *NetWorker Installation Guide* for the corresponding release.

Uninstalling the License Manager Software

This section provides instructions to uninstall the License Manager software. from UNIX, Linux, and Windows servers:

- ◆ [“Uninstalling the License Manager software from UNIX” on page 25](#)
- ◆ [“Uninstalling the License Manager software from Linux” on page 27](#)
- ◆ [“Uninstalling the License Manager software from Microsoft Windows” on page 27](#)

Uninstalling the License Manager software from UNIX

This section explains the uninstallation procedures for various UNIX platforms.

Uninstall the License Manager from Solaris

To uninstall the License Manager software, use the **pkgrm** command, as shown in the following script. For more details, see the man page for **pkgrm**.

```
pkgrm

The following packages are available:
1 LGTOdrv NetWorker for Solaris (Backup/Recover) Device
  Drivers(sparc) dev.Build.889
4 LGTOlic NetWorker for Solaris (Backup/Recover) Licensing Manager
  (sparc) dev.Build.889
Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]: 4
The following package is currently installed:
  LGTOlic NetWorker for Solaris (Backup/Recover) Licensing Manager
  (sparc) dev.Build.889
Do you want to remove this package? y
## Removing installed package instance <LGTOlic>
This package contains scripts which will be executed with super-user
permission during the process of removing this package. Do you want
to continue with the removal of this package [y,n,?,q] y
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
NetWorker successfully removed from `neptune'.
## Removing pathnames in class <none>
/usr/sbin/lgtolmd
/usr/sbin/lgtolic
/usr/nsr/lic/res/lictype.res
/nsr/lic/res/lictype.res
## Updating system information.
Removal of <LGTOlic> was successful.
```

Uninstall the License Manager from AIX

To uninstall the License Manager software:

1. Run the Software Management Interface Tool:
`smit`
2. Click the **Software Installation and Maintenance** box.
3. Click the **Software Maintenance and Utilities** box.
4. Click the **Remove Installed Software** box.
5. Select the software to remove.
6. Confirm removing the software by clicking **OK**.

Uninstall the License Manager from HP-UX

To uninstall the License Manager software, use the **swremove** utility:

1. Log in as root on the computer where the License Manager software is installed.
2. Shut down the License Manager daemon. [“How to stop the License Manager” on page 48](#) has instructions.
3. Run the **swremove** utility.
4. Click the software to remove (in this case, License Manager).
5. Select **Actions > Mark** to mark the software for removal.
6. Select **Actions > Remove** to start an analysis of the Remove operation.
7. When the **Status** attribute displays **Ready**, click **OK** in the **Install Analysis** window.

The **Remove** window displays the status of the removal operation. The **Status** field displays **Completed** when the software is uninstalled.

8. Click **Done** in the **Remove** window to exit from the **swremove** utility; then select **Exit** from the **File** menu in the **Software Selection** window.

Uninstall the License Manager from SGI IRIX

Use the following steps to uninstall the License Manager software:

1. Start the installation program by entering the following command at the system prompt, with *none* as the distribution:

```
inst -f none
```

2. Use the **remove** command to remove the License Manager software package:

```
Inst> remove licm-package-name
```

3. (Optional) Use the **remove** command to remove the NetWorker client software package:

```
Inst> remove clnt-package-name
```

4. Use the **go** command to remove the software selected in steps 2 and 3:

```
Inst> go
```

5. Exit the installation program:

```
Inst> quit
```

Uninstall the software from Tru64 UNIX

To uninstall the License Manager software, use the **setld** command. The man page for **setld** provides more details.

Uninstalling the License Manager software from Linux

To uninstall the License Manager software from Linux:

1. Log in as root on the system from which you are uninstalling the software.
2. Change to the directory that contains the Linux utilities, for example *sbin*.
3. Use the **rpm** command to locate the EMC software installed, as in the following example.

```
<root@your-computer> sbin # rpm -qa | grep lgto
```

The EMC software packages that are installed on the computer are displayed, for example:

```
lgtoclnt-7.0-1
```

```
lgtolicm-7.0-1
```

4. Remove the EMC License Manager package and, optionally, the EMC client software package, as in the following example:

```
<root@your-computer> sbin # rpm -e lgtolicm-7.0-1 lgtoclnt-7.0-1
```

Note: If multiple NetWorker packages are installed, there might be other dependencies on the *lgtoclnt* package, which could cause the removal to fail. In this case, do not remove the *lgtoclnt* package.

When the software package removal is complete, a confirmation message appears, as in the following example:

```
NetWorker successfully removed from
`your_computer.your_company.com' .
    Removing /etc/rc.d/init.d/networker
    Removing /etc/rc.d/rc3.d/S95networker
    Removing /etc/rc.d/rc5.d/S95networker
    Removing /etc/rc.d/rc0.d/K05networker
NetWorker successfully removed from
`your_computer.your_company.com' .
[root@your_computer sbin]#
```

Uninstalling the License Manager software from Microsoft Windows

To remove the License Manager software, use the Windows operating system **Add/Remove Programs** utility. The *EMC NetWorker Installation Guide* has further instructions on removing or repairing the License Manager software.

The License Manager provides a central location to allocate licenses for multiple EMC products or NetWorker servers. One License Manager server can license all the NetWorker servers in the corporate enterprise.

This chapter includes the following sections:

- ◆ [Using the License Manager with the NetWorker Software.....](#) 30
- ◆ [Planning for possible failure of the License Manager host.....](#) 44
- ◆ [Moving the License Manager to a different host.....](#) 47
- ◆ [Starting and stopping the License Manager.....](#) 48
- ◆ [Disabling the License Manager.....](#) 49

Using the License Manager with the NetWorker Software

This section describes how to use the License Manager with the NetWorker software. NetWorker Management Console (Console) includes a GUI to enter licenses in the License Manager database and perform simple license management tasks. However, Console does not include all the License Manager features.

The **lgtolic** command line utility is used to manage the licenses in the License Manager database directly. [“Managing Licenses using the lgtolic command line utility” on page 30](#) describes it in detail.

Backing up the License Manager

The License Manager server must be a NetWorker client. The License Manager installation process includes installing the NetWorker client software and designating a NetWorker server to back up the License Manager server. Ensure that at least one NetWorker server is configured to back up the License Manager server.

If a NetWorker server is not named during the License Manager client installation, then any NetWorker server can back up the client that hosts the License Manager.



CAUTION

Perform regular backups of the License Manager directory with all its contents. Back up the /nsr/lic directory if the License Manager server is on UNIX. If the License Manager server is on Windows, and if the License Manager software is installed in the default location, then the software and database are automatically backed up with the NetWorker software.

Note: It is permissible to run the NetWorker server and the License Manager on the same computer. If this occurs, and a disaster recovery is required on the NetWorker server, then the License Manager database directory, *lic*, is not restored (*unless* the License Manager was installed on Windows in the default location). Because License Manager files and directories are not considered part of the NetWorker software on UNIX, after the disaster recovery on the NetWorker server, the License Manager must be explicitly recovered as a client of the NetWorker server. Recover the entire contents of the *lic* directory.

Managing Licenses using the lgtolic command line utility

The **lgtolic** command line utility is used to enter enabler and authorization codes for your NetWorker servers and to display license usage. The **lgtolic.8** man page contains detailed instructions about this utility.

The following options are available with the **lgtolic** utility:

```
lgtolic [-s "server"] -c enabler-code
lgtolic -i [-m hostfile-dir]
lgtolic [-s "server"] -l
lgtolic [-s "server"] -u enabler-code [-a auth-code]
lgtolic [-s "server"] -v enabler-code
```

Options

Table 2 on page 31 details the options for the **lgtolic** command.

Table 2 **lgtolic options (1 of 2)**

Option	Description
-s <i>server</i>	<p>Specifies the hostname, Remote Procedure Call (RPC) program number, and version for the license daemon whose database is being targeted. License daemon information is displayed in the following format: "hostname:rpc-number:version"</p> <p>Quotation marks are necessary around the arguments for the -s option. The current defaults are: hostname: localhost RPC program number: 390115 RPC version number: 2</p> <p>Use environment variables to set the values for the -s parameter ("Environment variables" on page 32 contains more information). If you do not specify the -s server option, the lgtolic utility uses specified environment variable values; otherwise, it uses the default values that map to the daemon used by the shipped product. If you set environment variables for the arguments to the -s parameter, do not specify the -s option when typing at the command line.</p> <p>The following example uses the default hostname and RPC program number, but uses the RPC version number 1 to list all licenses. Without environment variables set: lgtolic -s "::1" -l</p> <p>With environment variables set: lgtolic -l</p> <p>To specify a license daemon located on an alternative host, use: lgtolic -s "hostname::1" -l</p>
-c <i>enabler-code</i>	Creates the license indicated by the specified enabler code.
-i	Prints out the host ID of the computer on which this command is running.
-m <i>hostfile-dir</i>	<p>Specifies the directory where the <i>hostids</i> file resides. If this option is used, the program will use the list of host IDs in the <i>hostids</i> file in this directory to generate a composite host ID. This option is useful to force the host ID on a Windows computer to be IP address-based instead of security ID-based. For the NetWorker software, the typical directory for the <i>hostids</i> file is <i>/nsr/res</i>. For a License Manager running on a computer without the NetWorker server installed, the typical path is: <i>/nsr/lic/res</i> (on UNIX) <i>c:\Program Files\nsr\lic</i> (on Windows)</p> <p>The format for the list of host IDs in a <i>hostids</i> file is: <i>hostid1:hostid2:hostid3</i> where <i>hostid</i> is a hexadecimal string. This option must be used to specify a <i>hostids</i> file.</p>
-l	Lists all the EMC product licenses currently stored within the license resource database.

Table 2 **lgtolic options (2 of 2)**

Option	Description
-u <i>enabler-code</i>	Updates an installed license, as specified by <i>enabler code</i> , with the authorization code specified using the -a option.
-a <i>authcode</i>	Authorizes a license with the specified authorization code. Indicate the license to be authorized by specifying the -u option in conjunction with the -a option. This option can only be used in conjunction with the -u option.
-v <i>enabler-code</i>	Deciphers the specified enabler code. The generated output includes information such as the license name, type, serial number, and count.

Host IDs on Windows for NetWorker software

Host IDs on Windows for NetWorker software are based on the security identifier (SID) generated by Windows. If you prefer to base the host ID on the IP address of the NetWorker server, set up a host ID file and direct your enablers to the host ID file by using **lgtolic** with the **-m** option.

Note: On Windows, the SID-based host ID changes when the operating system is installed or reinstalled; therefore, select the host ID scheme accordingly.

EMC EMC Technical Bulletin 377: How Host IDs Change on a Microsoft Windows Computer contains instructions on setting the host ID to use the IP address.

Environment variables

Daemon information normally provided by the **-s** option of the **lgtolic** utility can also be obtained from the following environment variables:

- ◆ **LMD_HOSTNAME:** The hostname where the license daemon is running. Default is *localhost*.
- ◆ **LMD_PROGNUM:** The program number for the license daemon (**lgtolmd**), which must be 390115.
- ◆ **LMD_VERSION:** The version number for the license daemon. The default is 2. Use 1 for NetWorker software and the Console license daemon.

These environment variables can be set at the command line or in the *.cshrc* or *.profile* file.

Example 1 Applying a bulk enabler for multiple NetWorker servers

This example demonstrates how to use **lgtolic** to apply a bulk enabler for multiple NetWorker servers. It uses the following operating values:

```
enabler-code      B2QRG6RC-KP1AXQ51-L3DN1EST, the bulk enabler for
                  multiple NetWorker servers.
auth-code         a1426440
hostname          mercury (the computer on which the License Manager
                  is running)
RPC-Program-Number 390115
version-number    1
```

In this example, the environment variables for the **-s** parameter arguments are not set. If the environment variables were set, then the **-s** parameter and operands could be left out of the commands. *Default values* for the **-s** parameter operands are used when these are unspecified. The RPC program number is therefore not entered. If *mercury*

were the local host, then the hostname value could also be left out, and the `-s` parameters expressed as:

```
-s " ::1"
```

To apply the bulk enabler in this example:

1. Purchase a bulk enabler code from EMC Licensing and Registration or the EMC website.
2. Enter the enabler code in the License Manager database:

```
lgtolic -s "mercury::1" -c B2QRG6RC-KP1AXQ51-L3DN1EST
```

3. (Optional) Verify the validity of the enabler code:

```
lgtolic -s "mercury::1" -v B2QRG6RC-KP1AXQ51-L3DN1EST
```

If the enabler code is invalid, it is flagged as such.

Example 2 Authorizing the new bulk enabler

This example shows how to authorize the bulk enabler from the previous example, with the same operating values:

1. Once you receive the authorization code from EMC Licensing, update the enabler code on the computer where the License Manager is installed with this authorization code. (This step is done locally.) Use the following arguments for server *mercury*:

```
lgtolic -s "mercury::1" -u B2QRG6RC-KP1AXQ51-L3DN1EST -a a1426440
```

2. (Optional) Check the state of the license that was authorized:

```
lgtolic -s "mercury::1" -l
```

If the codes were entered correctly, the license should be authorized, and “never” appears as the expiration date. If the license is *not* authorized, the expiration date is the date on which the license ceases to operate.

Troubleshooting

The **lgtolic** command line utility generates messages for informational and troubleshooting purposes. “[Messages generated by the License Manager](#)” on page 52 contains a list of messages and explanations.

Setting Up the NetWorker software to work with the License Manager

To use the License Manager with NetWorker software, enter the name of the license server in Console. The *NetWorker Administration Guide* contains more information about entering the license server name in Console. Enter the license server name in the License Server attribute of the Server resource for each NetWorker server.

How to Specify a License Manager server for the NetWorker server

Note: Since the local licenses on the NetWorker server are not ignored even when a license server is specified, it is easier to keep track of licenses for a given NetWorker server if imported and local licenses are not mingled. Consequently, a best practice would be either to import all licenses to the License Manager and delete the local licenses, or to use the local licenses on that server. “[How to migrate licenses from the NetWorker server to the License Manager](#)” on page 36 describes how to import a local license.

To specify a License Manager server for the NetWorker server:

1. In the **Administration** window of Console, click **Configuration**.
2. In the left-hand tree, highlight the server name and select **File > Properties**.
3. In the **License Server** attribute, enter the name of the license server.
4. Click **OK**.

How to specify a License Manager server from the nsradmin interface

The **nsradmin** interface can be run from the command line on either UNIX or Windows to specify the license server.

On UNIX

1. Start the **nsradmin** interface on the NetWorker server as follows:

```
nsradmin -s NetWorker_server
```

2. Type **v**; then press **[Enter]** to enter visual mode.
3. Verify that the attribute displayed is NSR. If it is not:
 - a. Use the arrow keys to select **Select**; then press **[Enter]**.
 - b. Use the arrow keys to select **NSR**; then press **[Enter]**.
4. In the command line, use the arrow keys to select **Edit**; then press **[Enter]**.
5. Use the down arrow key to move to the **License Server** attribute; then enter the name of the NetWorker License Manager server, for example, *mercury.EMC.com*.
6. Press **[Esc]** to exit the editing mode.
7. At the “Save changes?” prompt, select **[Yes]**.
8. Type **q** to quit the program.

On Windows

1. Start the **nsradmin** interface on your NetWorker server as follows:

```
nsradmin -s NetWorker_server
```

2. Enter the following information at the prompts:

```
. type: NSR  
Current query set  
update license server: mycompanyllm.com  
Update? y  
updated resource id 0.4.46.53.61.120.157.25.137.69.101.144 (27)  
quit
```

Using the License Manager to enter enablers

Once a License Manager server is set up, enter and authorize the base enablers. To enter a base enabler:

1. Select a License Manager server for the NetWorker server, as described in [“Setting Up the NetWorker software to work with the License Manager” on page 33](#).
2. If the NetWorker server has a local license, remove it:
 - a. In the **Administration** window of Console, select **Configuration**.
 - b. Select **Registrations**.

- c. Right-click the icon of the NetWorker product with the enabler code to be deleted and select **Delete**.

No special action is necessary to enter other types of licenses. When a NetWorker application needs a license (such as to back up extra clients, perform a cross-platform backup, or archive), it is automatically allocated.

Note: The License Manager does not distinguish between base enablers for the different NetWorker editions. It is, however, possible to assign base enablers for different editions of NetWorker software with the License Manager by using allowances. If no base enabler allowances are available for a given server, the License Manager generally assigns the most powerful enabler that is available. [“Setting up allowances for a NetWorker server” on page 38](#) has more information about allowances.

For each licensed feature, if you purchase a bulk enabler for as many licenses as you need, then you need only create and authorize one bulk enabler on the License Manager server.

For information on bulk enablers, see:

- ◆ [“Entering or migrating licenses into the License Manager database” on page 35](#)
- ◆ [“Using the License Manager to allocate licenses” on page 37](#)

Entering or migrating licenses into the License Manager database

Once the NetWorker server is set up to retrieve licenses from the License Manager, use the License Manager to manage all of that NetWorker server’s licenses. A single NetWorker server should *not* have both local licenses and licenses imported from the License Manager. All licenses for that NetWorker server should be entered into the License Manager. The License Manager then allocates licenses to the NetWorker server. Otherwise, do not configure that NetWorker server to use the License Manager.

When the NetWorker server looks for an enabler, it takes the first enabler it encounters. Therefore, if licenses for the same function are present on both the NetWorker server and License Manager server, and you then configure the NetWorker server to use the License Manager without removing the local licenses, the NetWorker server might continue to use a local enabler.

This occurs only if *both* of the following conditions are met:

- ◆ The local enabler is entered before the NetWorker server is configured to use the License Manager.
- ◆ In the list of enablers entered on a server, the local enabler occurs before the first externally obtained enabler (from the License Manager).

However, you cannot dictate the order in which enablers occur in the list, because they are randomly supplied by the database, and once a NetWorker server finds an external enabler, it will ignore all local enablers.

The procedures for migrating large numbers of licenses or a single license are similar. To ensure that the NetWorker software uses the external enablers, follow the instructions in:

- ◆ [“Entering and authorizing licenses from the command line” on page 36](#)
- ◆ [“How to migrate licenses from the NetWorker server to the License Manager” on page 36.](#)

Note: If you set the environment variables described in [“Environment variables”](#) on page 32, you can omit the `-s` option and its arguments in the following instructions.

Entering and authorizing licenses using Console

Licenses that will be controlled by the License Manager can be entered in Console.

The *NetWorker Installation Guide* contains licensing information (including how to import enablers and authorization codes automatically from EMC Powerlink®) in its “Licensing and Enabling the Software” chapter.

Additional information about the full licensing process is described in the *NetWorker Licensing Process Guide*.

Entering and authorizing licenses from the command line

To enter and authorize licenses on the License Manager server manually, follow these steps:

1. Purchase the appropriate bulk enabler codes from EMC.
 - Enabler codes allow you to run the EMC software product.
 - A bulk enabler code allows multiple instances of a EMC product to be run using a single code.
 - Bulk enablers are available in values of 5, 25, 100, or more.
2. Enter each bulk enabler in the License Manager database by using the **lgtolic** command line utility:

```
lgtolic -s "::<1" -c enabler_code
```

For details on the **lgtolic** command options, see [“Managing Licenses using the lgtolic command line utility”](#) on page 30.

3. Once you have received authorization codes from EMC, manually authorize each of the enablers with the License Manager by using the **lgtolic** utility:

```
lgtolic -s "::<1" -u enabler_code -a authcode
```

4. Set up the NetWorker servers to use the License Manager. For details, see [“Setting Up the NetWorker software to work with the License Manager”](#) on page 33.

How to migrate licenses from the NetWorker server to the License Manager

To move licenses that were originally entered on a NetWorker server to the License Manager:

1. Purchase the appropriate authorization codes for the License Manager server from EMC.
2. In the **Administration** window of Console, select **Configuration**.
3. Select **Registrations**.
4. Write down the enabler code for the license or licenses being moved to the License Manager.
5. Remove the corresponding enabler code or codes from the NetWorker server.
6. Install the enablers and new authorization codes on the License Manager.
7. Set up the NetWorker server to use the License Manager. [“Setting Up the NetWorker software to work with the License Manager”](#) on page 33 has details about this.

Using the License Manager to allocate licenses

It is the responsibility of the EMC application to request or give up licenses; the License Manager does not do either without a request from the application. After entering the licenses on the License Manager, use the EMC application, such as the NetWorker software, to acquire the licenses from the License Manager.

Example 3 Acquiring an autochanger license from the License Manager

Suppose the License Manager server is a server named *daisy* and the NetWorker server is named *saturn*.

To add a license for *saturn*, such as for an library:

1. Use Console to configure the library.

The *NetWorker Administration Guide* contains information about configuring libraries in Console.

2. Perform any operation on the newly configured library. For example, a mount or label operation.

The first operation performed causes the **nsrlmc** program on *saturn* to contact the **lgtolmd** daemon on *daisy* for a license.

If a library license is available, it is automatically retrieved for *saturn*. Running the command **lgtolic -l** ("[Managing Licenses using the lgtolic command line utility](#)" on page 30 contains information about the **lgtolic** command) shows that in the License Manager database, a library license is assigned to *saturn*.

To remove an allocated license from a NetWorker server to be used by another server, remove the external enabler, as described in the following example.

Example 4 Removing an allocated autochanger license

To remove the autochanger license allocated by the License Manager to *saturn*:

1. Delete the cache library license on the NetWorker server, *saturn*:
 - a. In the **Administration** window of Console, select **Configuration**.
 - b. Select **Registrations**.
 - c. Right-click the icon of the NetWorker product with the enabler code to be deleted and select **Delete**.

Note: Deleting the cache license automatically disables the library's devices.

2. Remove the autochanger resource from *saturn*:
 - a. In the **Administration** window of Console, select **Devices**.
 - b. Right-click the library and select **Delete**.
3. Update the licenses in the Console program:
 - a. From the **Administration** window of Console, click **Configuration**.
 - b. In the left-hand tree, highlight the server name and select **File > Properties**.
 - c. Set the **Update Licenses** attribute to **Yes**.

4. Click **OK**.
 - Allow the software to update the license configuration. This normally happens almost immediately, but can take up to two hours.
 - When the licenses are updated, the autochanger license is available for use by another NetWorker server.

Setting up allowances for a NetWorker server

The NetWorker License Manager supports the creation of *allowances*, which provide a way for a NetWorker administrator to allocate or reserve a specific number (of a specific type) of licenses for specific NetWorker servers. An allowance specifies a license type and subtype, a NetWorker server, and the number of allowable licenses. An allowance does not guarantee that a server will take the license, but it does prevent others from taking the license.

When a license is requested, the License Manager server rejects any request that violates the allowance policy defined by the License Manager administrator.

Allowance policies are enforced as follows:

- ◆ A server can obtain no more than its allowed number of licenses for a specified combination of license type and subtype.
- ◆ If all remaining licenses of the specified type and subtype are reserved as allowances to other servers, then the requesting server is rejected.
- ◆ Even if a NetWorker server has an allowance for a specific license, it can still request a related, but different, license. For example, if the server has an allowance for a 200-slot autochanger, but a smaller (and sufficient) jukebox license is available, then the server generally takes the smaller license.

Allowances are stored in the License Manager Resource Administration Platform (RAP) resource file. Allowances can be set up for any NetWorker product that is configured to use that License Manager.

For example, an allowance can be set up to ensure that a specific type of license, such as a Power Edition base enabler, is reserved for a particular NetWorker server.

To set allowances for a NetWorker server in the NetWorker License Manager database, use the `nsradmin` program. Use the `lgtolic` command-line utility to determine the license type and features (also known as subtypes). The *Features* attribute of the license determines additional properties of the license, such as client count or maximum number of slots.

Set up allowances for a NetWorker server

To create allowances on the License Manager server:

1. Ensure that the NetWorker client and License Manager services or daemons are started.
2. Ensure that the license codes have been entered. [“Using the License Manager to enter enablers” on page 34](#) contains information about entering enablers.
3. Display license information (to use in the next step). To display license information, enter the following at the command prompt:

```
lgtolic -s "LLM_servername::1" -1
where LLM_servername is the name of the License Manager server.
```

License information similar to the following appears:

```
name: NetWorker for UNIX, Power Edition (10 clients per server)/1
server (manufacturing code unknown)
enabler code: d14a53-962d16-52639b (2143#000001531)
license type: X10 (88/00 10 00 00 00/1)
expires: Fri. Nov 14 00:00:00 2006
```

The following values from the License Type attribute are required in [step 5](#) :

- The first numeric value in parenthesis, *88* in this example, is the *License Type* attribute.
- The second value, *00 10 00 00 00*, is the *Features* attribute.

4. Open the **nsradmin** interface.

```
nsradmin -s LLM_servername -p 390115
```

5. Set up allowances for each NetWorker server by entering the values noted in the previous step. For example, enter the following:

```
create type:GLM allowance; name:"saturn Power Edition Allowance";
license type:88; count:1; features:"00 10 00 00 00";
appliances:"saturn:nsrd"
```

[Example 5 on page 39](#) and [Example 6 on page 41](#) contain more examples.

6. Synchronize the NetWorker server with the License Manager server by selecting the Update Licenses attribute on the NetWorker server and clicking **OK**. The **nsrlmc** program immediately performs a period check to correct any imbalances and perform any outstanding tasks.

Note: The Update License attribute does not remain selected.

Two alternate, but less recommended, means of doing this are as follows:

- Restart the NetWorker server.
- Allow two hours to pass.

Example 5 **Setting up allowances for base enablers**

This example includes two NetWorker servers: *jupiter* and *saturn*.

- ◆ *jupiter* requires a Network Edition base enabler.
- ◆ *saturn* requires a Power Edition base enabler.

To set up allowances for base enablers:

1. On the License Manager server, enter the base enablers as follows:

```
lgtolic -s "LLM_servername::1" -c enabler_code1
```

```
lgtolic -s "LLM_servername::1" -c enabler_code2 -a authcode
```

where *LLM_servername* is the name of the License Manager server.

2. On the License Manager server, display license information for the base enablers by entering the following:

```
lgtolic -s "LLM_servername::1" -l
```

License information appears:

```
name: NetWorker for Windows, Network Edition (10 clients per
server)/1 server (2902, 2903, 2901-4UG, 2902-4UG, 2902-6UG)
enabler code: 262e78-e32a6b-afe81e (0000#000000773)
license type: I10 (73/00 0a 00 00 00/1)
expires: Wed Dec 29 00:00:00 2006
name: NetWorker for Windows, Power Edition (10 clients per server)/1
server (manufacturing code unknown)
enabler code: 8396a5-2287c8-0a3c8b (0000#000000774)
license type: R10 (82/00 0a 00 00 00/1)
expires: Fri Dec 10 00:00:00 2006
```

From this output, note the following values, which are displayed in the License Type attribute. These values are required in [step 3](#) :

- For NetWorker for Windows, Network Edition, note the following values:
 - License type: 73
 - Feature: 00 0a 00 00 00
 - For NetWorker for Windows, Power Edition, note the following values:
 - License type: 82
 - Feature: 00 0a 00 00 00
3. On the License Manager server, create two allowances:

- The first allowance allocates a Network Edition license to the NetWorker server, *jupiter*.
- The second allowance allocates a Power Edition license to NetWorker server *saturn*.
 - a. Open the **nsradmin** interface.

```
nsradmin -s LLM_servername -p 390115
```

Note: To use the **-v** visual mode (a UNIX-specific feature) requires an existing resource type. After the resource is created, visual mode can be used to update it or create more resources of the same type.

- b. Create a Network edition license for the NetWorker server named *jupiter*:

```
create type:GLM allowance; name:"jupiter Network Edition";
  license type:73; count:1; features:"00 0a 00 00 00";
  appliances:"jupiter:nsrd"
```

- c. Enter **y** when prompted.

```
Create? y
```

A Network edition license is created for the NetWorker server, *jupiter*.

- d. Create a Power Edition license for the NetWorker server named *saturn*.

```
create type:GLM allowance; name:"saturn Power Edition";
  license type:82; count:1; features:"00 0a 00 00 00";
  appliances:"saturn:nsrd"
```

- e. Enter **y** when prompted.

```
Create? y
```

A Power Edition license is created for the NetWorker server, *saturn*.

- For each NetWorker server, open Console and enter the License Manager server name in the License Server attribute. Alternatively, use the **nsradmin** interface to specify a License Manager server for a NetWorker server.

This step ensures that each NetWorker server is set up to obtain licenses from the License Manager server.

- Synchronize the NetWorker server with the License Manager server by selecting the Update Licenses attribute on the NetWorker server and clicking **OK**. The **nsrlmc** program immediately performs a check to correct any imbalances and perform any outstanding tasks.

Note: The **Update Licenses** attribute does not remain selected.

Two alternate, but less recommended, means of doing this are as follows:

- Restart the NetWorker server.
 - Allow two hours to pass.
- On the License Manager server, verify that the allowances were set up properly by entering the following command:

```
lgtolic -s "LLM_servername::1" -1
```

Example 6 Setting up allowances for storage node licenses

This example uses allowances to reserve 10 NetWorker storage node licenses for 5 specific NetWorker servers. Because the NetWorker servers named *jupiter* and *saturn* have the largest number of NetWorker clients, three storage nodes will be reserved for *jupiter* and four for *saturn*. The remaining storage nodes are available to the remaining NetWorker servers on a first-come, first-served basis.

[Table 3 on page 41](#) describes how storage node licenses apply in this example.

Table 3 Storage node license allocations

NetWorker server name	Number of reserved storage node licenses
<i>jupiter</i>	Three This server cannot use more than three licenses.
<i>saturn</i>	Four This server cannot use more than four licenses.
<i>mars</i> <i>mercury</i> <i>neptune</i>	Three As a group, these servers cannot use more than three storage node licenses, whether licenses are allocated to <i>jupiter</i> and <i>saturn</i> , or not. Licenses are allocated in the order in which they are requested.

To set up these allowances for storage node licenses, do the following:

- On the License Manager server, enter a license for 10 storage nodes by using a bulk enabler as follows:

```
lgtolic -s "LLM_servername::1" -c RS7I94EO-2DOF8MPT-37GEL6QD

name: Storage Nodes/10
enabler code: RS7I94EO-2DOF8MPT-37GEL6QD
license type: 68/00 15 00 00 00 count:10
```

where *LLM_servername* is the name of the License Manager server.

2. On the License Manager server, display license information for all enablers as follows:

```
lgtolic -s "LLM_servername:1" -l
```

Locate the license information for the storage node bulk enabler and note the values in the license type attribute. These values are used in [step 3](#). [Example 5 on page 39](#) contains more information about the values in the license type attribute.

3. On the License Manager server, create two allowances:

Reserve three storage node licenses for NetWorker server *jupiter*, and four storage node licenses for NetWorker server *saturn*.

- a. Open the **nsradmin** interface.

```
nsradmin -s LLM_servername -p 390115
```

- b. Reserve three storage node licenses for NetWorker server *jupiter*:

```
create type:GLM allowance; name:"jupiter: three storage nodes";
license type:68; count:3; features:"00 15 00 00 00";
appliances:"jupiter:nsrd"
```

- c. Enter **y** when prompted.

```
Create? y
```

Three storage node licenses are reserved for NetWorker server *jupiter*.

- d. Reserve four storage node licenses for NetWorker server *saturn*:

```
create type:GLM allowance; name:"saturn: four storage nodes";
license type:68; count:4; features:"00 15 00 00 00";
appliances:"saturn:nsrd"
```

- e. Enter **y** when prompted.

```
Create? y
```

Four storage node licenses are reserved for NetWorker server *saturn*.

4. Configure the storage node devices for the NetWorker servers. The License Manager allocates the required storage node licenses to the NetWorker servers. The *EMC NetWorker Administration Guide* contains more information.
5. On the License Manager server, verify that the allowances were properly set up and that the licenses were properly allocated by inspecting the output of the following command:

```
lgtolic -s "LLM_servername:1" -l
```

Allowance resource attributes

Table 4 on page 43 describes each attribute of the Allowance resource.

Table 4 Allowance resource attributes

Attribute	Description
Type	The type of resource that is being created. Allowance resources are always of type <i>GLM allowance</i> .
Name	A user-defined description for each Allowance resource.
License Type	The type of license for which an allowance is being set up. Some values include, but are not limited to: 73 — NetWorker for Microsoft Windows Network Edition license 82 — NetWorker for Microsoft Windows Power Edition license 68 — Storage node license
Count	The number of licenses being reserved by this allowance. For example, if a particular NetWorker server is to be allocated 2 licenses, set this attribute to 2.
Features	A hexadecimal value that is used internally to define the license further. A features value has the following format: "00 15 00 00 00" Note: When setting up an allowance, the value of the Features attribute must be surrounded by double quotes.
Appliances	The host and the NetWorker service (daemon) on the host that performs the license check. This attribute has the following format: <i>server_name:nsrd</i> For example, if an allowance for a NetWorker server named <i>jupiter</i> is being set up, the value in the Appliances attribute is <i>jupiter:nsrd</i> .

Fallback license substitution

Fallback licensing is the process of substituting other licenses if the requested license type is unavailable on the License Manager server. The **nsrlmc** process tries to find an available, adequate substitute license before it will fail.

Fallback licensing is performed automatically for the following license types:

- ◆ Base enablers: If *any* base enabler is requested, the **nsrlmc** process tries to obtain the best substitute license available. The search order is as follows:
 - Power Edition
 - Network Edition
 - Business Edition
 - Workgroup Edition
 - Dell Network Edition
 - Single Server Edition

The first available license is given to the server.

- ◆ Client type: A more powerful client license can be substituted if the requested type is unavailable. The substitutions are:
 - If a client license is not found, a cluster client license is requested.

- If a request for the client license of a specific operating-system cluster fails, then a request is made for a universal cluster client license.
- ◆ Library, Silo, and VTL: The smallest sufficient enabler is used.
- ◆ DiskBackup: The lowest tier of license is requested first, with progressively higher licenses requested, if necessary.

Planning for possible failure of the License Manager host

It is important to understand the dynamics between the NetWorker servers and the License Manager server because the License Manager server might be the sole source of licenses for your EMC products.

This section addresses questions such as:

- ◆ What if the License Manager host machine ceases to function?
- ◆ What should you do to prepare for this possibility?
- ◆ Can backups be run if the License Manager becomes temporarily inoperative?

The section includes the following topics, which explain the role of the License Manager server and how to deal with possible failure:

- ◆ [“How the NetWorker server syncs with the License Manager server” on page 44](#)
- ◆ [“What happens if the License Manager host ceases to function” on page 44](#)
- ◆ [“Preparations to ensure that a License Manager server is available” on page 45](#)

High availability of a License Manager server is not usually a requirement. Once a NetWorker server is set up to obtain licenses externally from the License Manager, the licenses are synchronized every two hours, and the NetWorker server obtains licenses from the License Manager on an as-needed basis or during these periodic checks. These licenses are refreshed regularly, and remain valid for a minimum of two weeks (and up to 45 days), even if the License Manager remain inaccessible.

How the NetWorker server syncs with the License Manager server

The NetWorker server contacts the License Manager every two hours to check whether the License Manager server is functioning. It synchronizes the usage counts on the License Manager with the actual number of licenses allocated to the NetWorker server. The NetWorker server also contacts the License Manager whenever it needs a license. If the License Manager is unreachable, a message is logged in the daemon log. The NetWorker software does not delete its external licenses when it cannot contact the License Manager.

What happens if the License Manager host ceases to function

If the License Manager host machine ceases to function, the NetWorker servers that were using the License Manager will continue to try to establish contact with it periodically, and to reacquire licenses when the License Manager server comes back up.

The NetWorker server contacts the License Manager in three situations:

- ◆ On startup
- ◆ Whenever it needs a license

- ◆ Every two hours to synchronize usage counts on the License Manager with the actual number of licenses allocated to the NetWorker server

The NetWorker server always retries whenever it fails to contact the License Manager server. The licenses are reallocated, if necessary, once contact is reestablished with the License Manager.

The NetWorker server caches its licenses that are managed by License Manager for a period of 14 to 45 days. If the License Manager is unavailable, the NetWorker server continues to try to access it. The period of 14 to 45 days should be adequate to restart or replace an inoperable License Manager server.

The NetWorker server continues to perform backups during those 14 to 45 days regardless of the state of the License Manager server, provided that:

- ◆ The corresponding licenses in the License Manager are authorized and will not expire.
- ◆ No new clients were added (in excess of the number of client licenses the NetWorker server has cached).
- ◆ The NetWorker server is not requested to use any features for which it does not have cached licenses.
- ◆ If a mission-critical feature (for example, client connections) that is managed by License Manager becomes unlicensed for any reason, this function can be restored for *one day* by deleting the external base enabler, which puts the software in evaluation mode, enabling everything.

Note: Do not delete the base enabler if the licenses cannot be restored in one day. Once this one-day evaluation period expires, the software becomes disabled and no longer performs backups.

Preparations to ensure that a License Manager server is available

If it is infeasible for the License Manager in your environment to be even temporarily unavailable, plan for the possibility of License Manager server failure by using another computer to recover the License Manager function. How you do this depends on your needs and environment.

One possibility is to prepare a backup License Manager server and, if it is called into service, obtain a new set of authorization codes by submitting a [“host transfer affidavit”](#) to transfer the licenses. [“Transfer licenses to an alternate License Manager server”](#) on page 45 contains details.

A second possibility is to prepare a backup License Manager server that runs simultaneously for failover. [“Prepare a backup License Manager server for failover”](#) on page 46 contains details.

Transfer licenses to an alternate License Manager server

To prepare a backup License Manager server and transfer licenses to it:

1. Install the License Manager software on another computer.
2. Contact EMC Software to obtain a host transfer affidavit form and return the completed form to receive a new set of authorization codes for the licenses on the alternate License Manager server.
3. On the original License Manager server, perform a backup of the directory where the licenses are stored, for example `/nsr/lic/res` on UNIX.

4. If the original License Manager server becomes unavailable, restore the directory where the licenses are stored (such as /nsr/lic/res) to the alternate License Manager server.
5. Redirect each NetWorker server to use the new License Manager by using Console to name the alternate License Manager server where the primary License Manager server is named.

Because the authorization codes bind NetWorker licenses to the host ID, the software disables itself 45 days after it is moved to another host without entering new authorization codes. If you cannot obtain the duplicate authorization codes in advance and do not want to risk any downtime of the NetWorker server, either purchase another set of licenses, or let the NetWorker server operate on cached or evaluation licenses without moving the License Manager server.

[“Entering or migrating licenses into the License Manager database” on page 35](#) contains additional information on naming or changing the License Manager that serves a NetWorker server.

Prepare a backup License Manager server for failover

By preparing a backup License Manager server that runs simultaneously, the NetWorker servers that rely on the License Manager can automatically use the secondary License Manager if the primary License Manager server becomes unavailable. The same licenses that were entered on the primary License Manager server may be used on the secondary License Manager server, *but they must be authorized by another set of authorization codes.*

To set up a server for failover:

1. Contact EMC Licensing to obtain a set of authorization codes for the licenses on the alternate server.
2. Install the License Manager software on another computer.
3. Enter the licenses on the secondary License Manager server.
4. Authorize the licenses with the new codes.
5. Configure each NetWorker server to use the new License Manager automatically if the primary License Manager server is not available:
 - a. In the **Administration** window of Console, click **Configuration**.
 - b. In the left-hand tree, highlight the server name and select **File > Properties**.
 - c. In the **License Server** attribute, add the name of the secondary License Manager server beneath the primary server name.
 - d. Click **OK**.

When a NetWorker server tries to contact the License Manager, it uses the first server named in the License Server attribute. If that server does not respond, it contacts the next one in the list. If no License Manager server is available, the NetWorker server continues to function for 14 to 45 days on cached licenses, as described in [“What happens if the License Manager host ceases to function” on page 44](#). If a License Manager server is recovered later, the NetWorker server will contact it during the next scheduled check period.

[“Entering or migrating licenses into the License Manager database” on page 35](#) and [“Moving the License Manager to a different host” on page 47](#) contain additional information on naming or changing the License Manager that serves a NetWorker server.

Example 7 Failover to an alternate License Manager server

Your primary License Manager server, named *daisy*, goes down. Another computer, named *rose*, is designated as its backup by entering *rose* as an alternate License Manager server. Then, if *daisy* becomes unavailable, the NetWorker server automatically contacts *rose* for licenses.

When a NetWorker server synchronizes itself with the new License Manager server, *rose*, the **nsrlmc** program asks for the same set of licenses. Therefore, enter a duplicate set of *daisy*'s licenses on *rose* and authorize them, or ensure you can do so within 15 days.

Once a failover to *rose* occurs, update each NetWorker server by designating *rose* as the new License Manager server. The NetWorker servers then access *rose* for all of their license management needs.

Moving the License Manager to a different host

There are other reasons to move the License Manager from one computer to another, such as taking advantage of a hardware upgrade.

To move the licenses to a new License Manager server:

1. Contact EMC Licensing to obtain a host transfer affidavit. This is required because the authorization codes node-lock the NetWorker licenses to a specific server.
2. Complete and return the form to receive a new set of authorization codes for the licenses on the new License Manager server.
3. Install the License Manager software on the new computer.
4. Enter the licenses on the new License Manager server.
5. Authorize the licenses with the new codes.
6. Configure each NetWorker server to use the new License Manager:
 - a. In the **Administration** window of Console, click **Configuration**.
 - b. In the left-hand tree, highlight the server name and select **File > Properties**.
 - c. In the **License Server** attribute, replace the name of the original License Manager server with that of the new server.
 - d. Click **OK**.

Keep the original License Manager server running during the transition to the new server to avoid disruptions. If the original License Manager server is not available, the NetWorker servers run on cached licenses for 14 to 45 days.

Note: NetWorker servers running on cached licenses are subject to the restrictions described in [“What happens if the License Manager host ceases to function” on page 44](#). Operation beyond that scope can result in the disruption of NetWorker function.

Starting and stopping the License Manager

There are times when it is useful to start and stop License Manager from the command line and other operating system interfaces on UNIX, Linux, or Windows.

Starting and stopping the License Manager on UNIX and Linux

This section provides instructions on how to start and stop the License Manager on UNIX and Linux.

Start the License Manager

To start the License Manager on UNIX and Linux, start the **lgtolmd** daemon on the License Manager server:

1. Log on as root.
2. Run the following command:

```
/filepath/lgtolmd -p prod-dir -n 1
```

Table 5 lgtolmd command line options

Variable	Description
<i>filepath</i>	Specifies the path to the lgtolmd binary on your system. See the man page for details. See Table 1 on page 15 for the filepath of the lgtolmd daemon on your system.
-p prod-dir	Specifies the installation directory of the product that will be interfacing with the license daemon. The currently supported entry is: -p nsr/lic for the NetWorker default installation directory /nsr.

Example 8 Starting License Manager on Solaris

The following command starts the License Manager on a Solaris UNIX computer in the default NetWorker installation directory, using version number 1 for the NetWorker software.

```
/usr/sbin/lgtolmd -p /nsr/lic -n 1
```

How to stop the License Manager

To stop the **lgtolmd** daemon, do the following:

- ◆ Enter the **kill** command on the running **lgtolmd** process.

Starting and stopping the License Manager on Windows

This section gives instructions on how to start and stop the License Manager on Windows. The **lgtolmd.exe** program runs as a service on Windows.

Start the License Manager

To start the License Manager using the Windows Services program:

1. Open the **Services** window according to the instructions for your operating system.
2. Select the **License Manager service**.
3. Start the service: right-click **NetWorker License Manager** and click **Start**.

To start the License Manager using the command line, enter:

```
net start lgtolmd
```

Stop the License Manager

To stop the License Manager using the Windows Services Program:

1. Open the **Services** window according to the instructions for your operating system.
2. Select the **License Manager** service.
3. Stop the service: right-click **NetWorker License Manager** and click **Stop**.

To stop the License Manager using the command line, enter:

```
net stop lgtolmd
```

Disabling the License Manager

Because the NetWorker License Manager is an installation option with NetWorker software and other EMC products, you might find more License Manager servers installed and operating than necessary, since only one License Manager server is required on a network. To remedy this, uninstall the License Manager package as described in [“Uninstalling the License Manager software from UNIX” on page 25](#).

On Windows, you can also simply disable the License Manager on an extra License Manager server by disabling the License Manager service in the Control Panel on Windows:

1. Follow the steps in [“Starting and stopping the License Manager on Windows” on page 48](#) to open the Services window for the appropriate platform.
2. Double-click the **NetWorker License Manager** service.
3. Set **Startup** to **Disabled**.

This appendix contains information about error messages and common difficulties that can arise and how to deal with them.

This appendix includes the following sections:

- ◆ Messages generated by the License Manager 52
- ◆ Other messages related to the License Manager 59
- ◆ Description of the lgtolmd Daemon 65
- ◆ Using Debug Mode 66
- ◆ Old and New License Names 66

Messages generated by the License Manager

The messages described in this section are generated by the following:

- ◆ The **lgtolic** command line utility, which runs on the License Manager server
- ◆ The **lgtolmd** daemon, which runs on the License Manager server
- ◆ The **nsrlmc** application that is invoked by the **nsrd** process, as needed, on the NetWorker server

Messages generated by the **lgtolmd** daemon are written to the **lgtolmd** log file (*lgtolmd.log*) on the License Manager server. The location of the log file depends on the operating system:

- ◆ UNIX and Linux: /nsr/lic/logs/ lgtolmd.log
- ◆ Windows: <NetWorker_program_files>\nsr\lic\logs\lgtolmd.log
- ◆ Messages generated by the **nsrlmc** application are written to the *daemon.log* file on the NetWorker server.

The message types are defined as follows:

- ◆ Informational — Provides useful information and does not require any action.
- ◆ Warning — Provides details about a temporary problem that either the software will attempt to resolve, or the software will prompt the user to resolve.
- ◆ Notification — Provides details about a user error that the user is required to resolve.
- ◆ Noncritical Error — Provides details about errors that will not interrupt software services, but should be resolved before they become fatal errors.
- ◆ Fatal Error — A message that provides details about errors that will cause the software services to become disabled or dysfunctional.

Add the license with the **-c** option before attempting to authorize it

Message source

lgtolic

Message type

Notification

Problem

The license you are attempting to authorize is not yet in the License Manager database.

Resolution

Use the **lgtolic** command line utility with the **-c** option to add the license. [“Managing Licenses using the lgtolic command line utility” on page 30](#) contains information about the **lgtolic** command.

Attempting to remove more usage than possible (%d, %d)**Message source**

nsrd, lgtolmd, lgtolic

Message Type

Notification

Problem

This is a EMC internal programming error.

Resolution

Contact EMC Technical Support.

Cannot add authorization code to evaluation licenses**Message source**

lgtolic

Message type

Notification

Problem

You might be attempting to authorize an evaluation license, which cannot be done.

Resolution

Purchase and install a valid product license; then try to authorize the license again. [“Managing Licenses using the lgtolic command line utility” on page 30](#) contains descriptions of options **-c**, **-u**, and **-a** in the options table.

Cannot add eval license to database—license type already exists**Message source**

lgtolic

Message type

Notification

Problem

The evaluation enabler you are trying to add to the License Manager database is already in the database for the server named.

Resolution

Run an evaluation copy of the NetWorker product at this time. If the evaluation license has expired, contact EMC Licensing and Registration to obtain an enabler code.

Cannot alter expiration date on a license in a grace period

Message source

lgtolic

Message type

Notification

Problem

The grace period is invoked for this enabler.

Resolution

You must obtain an authorization code and enter it with the **lgtolic -u enabler-code -a authcode** command. [“Managing Licenses using the lgtolic command line utility” on page 30](#) contains details about the **lgtolic** command.

Cannot alter expiration date on a nonexistent license

Message source

lgtolic

Message type

Notification

Problem

You attempt to authorize a license that does not exist in the License Manager database.

Resolution

Ensure that a valid enabler code is specified for the **-u** option on the **lgtolic** command line.

Cannot get host IP address! ABORTING!

Message source

lgtolic

Message type

Fatal Error

Problem

The **lgtolic** process cannot find the specified server’s IP address or security ID.

Resolution

Report the problem to the system administrator responsible for the specified server.

Cannot increment the usage for this particular license type**Message source**

Igtolic

Message type

Notification

Problem

The license type named cannot have its usage count increased. The maximum number of counts for this license type probably are already in use.

Resolution

Add another bulk enabler for the license type.

Cannot locate license binding for appliance <hostname>:<appliance>**Message source**

Igtolic

Message type

Notification

Problem

The License Manager cannot find an allocation for the specified appliance. This is a EMC internal programming error.

Resolution

Contact EMC Technical Support.

Cannot overwrite existing authorization code**Message source**

Igtolic

Message type

Notification

Problem

The specified enabler is already authorized.

Resolution

Use the **igtolic** command line utility with the **-l** option to confirm that the enabler and authorization code are stored within the license resource database. Use the **igtolic** command line utility with the **-v** option to verify the enabler code. If necessary, obtain a new enabler code from EMC Licensing and Registration.

Cannot release usage for license not in use

Message source

lgtolic

Message type

Informational

Problem

The license named is not in use, and therefore usage cannot be released.

Resolution

Verify that the license on the license server is not in use.

Cannot release usage for nonexistent license

Message source

lgtolic

Message type

Informational

Problem

You attempted to delete a license allocation, but none exists with the parameters you specified.

Resolution

Not applicable.

Cannot release usage for nonexistent license type

Message source

lgtolic

Message type

Informational

Problem

You attempt to delete a nonexistent license type on a EMC product server.

Resolution

Not applicable.

Cannot release %d usage counts**Message source**

Igtolic

Message type

Notification

Problem

You attempt to delete more usage counts for an application than were actually allocated to the application.

Resolution

Not applicable.

Enabler code %s has not been located**Message source**

Igtolic

Message type

Notification

Problem

You attempt to perform an operation on an enabler code that is not in the License Manager database.

Resolution

Ensure that you entered the correct enabler code. If you have the correct enabler code:

1. Enter the code into the License Manager database by using the **Igtolic** command line utility with the **-c** option.
2. Use the **Igtolic** utility with the **-u** and **-a** options to authorize the enabler.

Invalid enabler code specified**Message source**

Igtolic

Message type

Notification

Problem

You enter an incorrect enabler code.

Resolution

Ensure that you correctly typed the enabler code.

Invalid parameters specified within License API (<parameters>)**Message source**

Any application that uses the License Manager, such as **nsrlmc**, **lgtolic**, or the **MLM_catalog** for the SmartMedia software.

Message type

Notification

Problem

This is an internal EMC programming error.

Resolution

Contact EMC Technical Support.

The License Manager database is damaged**Message source**

lgtolic, **lgtolmd**

Message type

Fatal error

Problem

Either the License Manager database is damaged or an invalid update to a license resource was attempted.

Resolution

1. Retry the operation using valid parameters.
2. If that does not work, shut down and restart **lgtolmd**.
3. If that does not work, use the NetWorker software to restore the most recent copy of the License Manager database.

Need a base enabler to authorize '%s' license**Message source**

lgtolic

Message type

Notification

Problem

You attempt to authorize a license without a base enabler.

Resolution

Obtain a base enabler from EMC Licensing and Registration; then use **lgtolic -c** to enter it into the License Manager database.

Other messages related to the License Manager

The messages described in this section might appear when using the License Manager; however, they are not specific to the License Manager.

Archive support has not been properly enabled

Situation

You enter an archive enabler code by using the **lgtolic** command line utility with the following arguments:

```
lgtolic -s "::<1" -c valid_archive_enabler_code
```

Resolution

Instruct the NetWorker software to obtain an external archive enabler:

1. In the **NetWorker Administrator** program, click **Enabled** in the **Public Archives** attribute of the **Server Setup** window.
2. In the **Client Setup** window, click **Enabled** for Archive services.

Remote system error

Situation

This message appears when the license daemon is not running, such as in the following situations:

- ◆ You try to create an enabler when the license daemon is not running. For example:

```
lgtolic -s "::<1" -c 8A1QC1A3-GY60JJLB-HTSLM485
```
- ◆ You try to verify an enabler when the license daemon is not running. For example:

```
lgtolic -s "::<1" -v 8A1QC1A3-GY60JJLB-HTSLM485
```
- ◆ You try to list all of the product licenses currently stored within the license resource database when the license daemon is not running. For example:

```
lgtolic -s "::<1" -l
```

You are not authorized to run this command

Message source

lgtolmd

Message type

Notification

Problem

You try to start the **lgtolmd** daemon at the command line on a UNIX computer, but you do not have sufficient permissions.

Resolution

Use the provided startup scripts to start the **lgtolmd** daemon. [“Starting and stopping the License Manager” on page 48](#) contains more information.

nsrlmc: RPC error, Program not registered (severity 4, number 15)
nsrlmc: lgtolmd did not respond.

Message source

nsrlmc

Message type

Notification

Problem

The **lgtolmd** daemon must be started before running **nsrlmc**. If the **lgtolmd** daemon is running, you might have exceeded a resource limit.

Resolution

The RPC error occurs when an application tries to connect to a NetWorker or License Manager daemon that is not running. Check the log file to determine whether it is a NetWorker daemon or the License Manager daemon that is down.

- ◆ If the daemon is a NetWorker daemon, check in the `/nsr/cores/[daemon_name]` directory for a newly created core file.
- ◆ If the daemon is the License Manager daemon, as in this example, check in the `/nsr/lic/cores/lgtolmd` directory on the computer where the license daemon is installed for a newly created core file. If there is a new core file, contact Technical Support to have the core file analyzed.

Before restarting the daemons in question, see the appropriate product's Administration Guide for information about restarting the daemons. It is strongly recommended that you use the product startup scripts to restart the main product (such as the NetWorker software).

- ◆ On Windows, to restart the License Manager service:
 - a. Open the **Services** window according to the instructions for your operating system.
 - b. Select or right-click the **License Manager Service**, and click **Start**.
- ◆ On UNIX, to restart the License Manager, log in as root and enter the following command:

```
filepath/lgtolmd -p /nsr/lic -n 1
```

Note: Ensure there is a space between each of the command line options and its parameter value. [Table 1 on page 15](#) contains information about the filepath to your version of the **lgtolmd** daemon.

Use care when manually starting daemons. The **startup** command must be correctly formatted for the **nsr_shutdown** and other shutdown scripts to run properly.

lgtolmd: SYSTEM notice, Resource file /nsr/lic/tmp/res.lck already in use

The full text of this error message is:

```
lgtolmd: SYSTEM notice, Resource file /nsr/lic/tmp/res.lck already in use;
check for another copy of lgtolmd already running. Error initializing
resource file.
```

Message source**Igtolmd****Message type**

Notification

Problem

Multiple instances of the same license daemon are not allowed. An instance of the license daemon is running, and therefore another cannot be started.

Resolution

This error pertains to NetWorker daemons with a locking mechanism for the resource file to prevent multiple daemons from starting, which includes **nsrd**. The applicable log file should indicate which daemon has started—**Igtolmd** in this case.

Check for a duplicate of the daemon running:

- ◆ On UNIX, use the **ps** command.
- ◆ On Windows, use the **Task Manager**.

If there are no duplicate daemons running, remove the lock file (for example, /nsr/lic/tmp/res.lck) and restart the EMC product.

Igtolic: Program/version mismatch**Message source****Igtolic****Message type**

Notification

Problem

An application attempts to contact a daemon with the wrong RPC version number.

Resolution

Run **rpcinfo** to check for the correct version number. Ensure that the RPC number is correctly specified for your application, as defined in [“Environment variables” on page 32](#).

Server disabled; the evaluation enabler code for the <feature> expired...

The full text of this error message is:

```
Server disabled; The evaluation enabler code for the <feature>
expired.
Install the permanent enabler code.
```

Message source**nsrd****Message type**

Notification

Problem

The evaluation period for the feature expired. If you received this message after entering the permanent enabler and authorization codes, the cause might be one of the following:

- ◆ The enabler code entered is invalid.
- ◆ The *RAP* database **nsrdb** is corrupted.

Resolution

Perform one or more of the following actions to correct the problem:

- ◆ Use the **nsrcap** command to verify the enabler code.
- ◆ Install license enablers to enable the feature.
- ◆ If you enter a bulk enabler code, use the **lgtolic -c** command, not **nsrcap**, to add the license.
- ◆ Recover the *nsr.res* file from backup or cloned volumes.

RAP error <error-code>: Enabler type is for a different platform**Message source**

nsrcap

Message type

Notification

Problem

This message appears when you enter one of the following:

- ◆ An enabler code for the wrong platform and using the NetWorker Administrator program or the command line programs **nsradmin** or **nsrcap**.
- ◆ A bulk enabler code.

Resolution

Perform the corresponding action:

- ◆ Verify that the enabler code entered is for the appropriate platform. Contact EMC Licensing and Registration to obtain the correct type of enabler code.
- ◆ If entering a bulk enabler code, use the **lgtolic -c** command to add the license.

lost connection to server: Authentication error**Message source**

nsradmin

Message type

Notification

Problem

A License resource cannot be created on the backup server.

Resolution

Ensure that the NetWorker License Manager daemon (**lgtolmd**) is running.

License enabler <enabler code> <product/feature> expires in <n> days**Message source**

nsrd

Message type

Notification

Problem

The specified enabler will expire in the specified number of days.

Resolution

Authorize the specified enabler code by using the **lgtolic -u -a** command. If you do not have an authorization code for this enabler, contact EMC Licensing and Registration.

The jukebox <jukebox> is not properly licensed...

The full text of this error message is:

The jukebox <jukebox> is not properly licensed. Make sure the jukebox is properly enabled and authorized.

Message type

Notification

Problem

The Jukebox feature is not enabled. The bulk enabler counts might all be used.

Resolution

Enable the Jukebox feature:

- ◆ Enter the enabler code for the jukebox.
- ◆ If the bulk enabler counts are all used, contact EMC Licensing and Registration for an enabler. Enable and authorize it by using **lgtolic**.

The feature <feature> is not properly enabled**Message type**

Notification

Problem

A licensing problem exists in the NetWorker server software and must be resolved on the backup server before you can use the specified feature. These are the possible causes for this error:

- ◆ The specified feature is not enabled.
- ◆ The wrong operating system version of the enabler code for the feature was entered.
- ◆ The enabler code for the feature is faulty.
- ◆ The bulk enabler counts might all be in use.

Resolution

Perform one or more of the following actions:

- ◆ Use the **nsrccap** command to verify the enabler code.
- ◆ Enable the feature.
- ◆ If you do not have an enabler code for the appropriate operating system, contact EMC Licensing and Registration. Use evaluation enabler codes until permanent enabler codes are provided.
- ◆ If you run out of bulk enabler counts, contact EMC Licensing and Registration for an enabler. Enable and authorize it by using **lgtolic**.

RPC error: RPC program or version mismatch**Message type**

Notification

Problem

This error might be caused by one of the following

- ◆ There is a mismatch between the version of the RPC service requested by the client and the service available on the server. This problem might be the result of an incorrect "Name to Address" resolution.
- ◆ There is a mismatch between the version of the RPC service used by the NetWorker License Manager (**lgtolmd**) and the service available on the server. The default RPC version for **lgtolmd** is 2.

Resolution

Perform one or more of the following actions:

- ◆ Use **rpcinfo** to verify that both the server and the clients are running the same version of RPC. The **rpcinfo** utility is provided on the EMC product CD-ROM for operating systems that do not include the utility.
- ◆ Update the NetWorker software on the client or server.
- ◆ Verify that the "Name to Address" resolution is correct by running **nslookup** by using the computer's fully qualified domain name. On Windows, also verify the name and address from the Network control panel.
- ◆ Specify the same version of RPC for **lgtolmd** that is used by the other backup services on the backup server. Do this by performing either of the following actions:
 - Entering the following command at the command line:


```
lgtolic -s hostname:rpc_number:rpc_version
```
 - Setting the LMD_VERSION environment variable.

RPC error: Unknown host**Message type**

Notification

Problem

This error might be caused by one of the following:

- ◆ The default hostname is invalid.
- ◆ The hostname specified with the `-s` option is invalid.

Resolution

Perform one or more of the following actions:

- ◆ Verify that the hostname you enter is correct.
- ◆ Check for a system configuration issue within the network, or if the network is down.

Description of the lgtolmd Daemon

The NetWorker License Manager daemon is **lgtolmd**.

Synopsis

```
lgtolmd -p product -n version
```

Description

The **lgtolmd** daemon is an RPC-based licensing service. This service allows applications to store and manipulate license data. The RPC program number provided by **lgtolmd** is 390115. To support multiple instances of the protocol, the version number is unique to each application. The required parameters are determined by each product's installation script.

Options

- ◆ **-p product**. Specify the product to interface with the license daemon. For example, on UNIX platforms:
 - `nsr/lic` (for the NetWorker default install directory `/nsr`)
- ◆ **-n version**. Specify the version number. Some products use a unique version number. Console and NetWorker software both use version 1.

Files

/(product)/res/lgtolm.res

Attributes describing the license daemon's license resources. *Do not manually remove this file or modify it.*

/(product)/res/lictype.res

For internal use only. *Do not manually remove this file or modify it.*

/(product)/logs/lgtolmd.log

Log file for diagnostic and informational messages on the license daemon. For example, if a license has expired, this information is printed to this log and to the console.

The actual locations of the lgtolmd.log file depends on the operating system in use on the server:

- UNIX - /nsr/lic/logs/lgtolmd.log
- Windows - c:\Program Files\nsr\lic\logs\lgtolmd.log

Using Debug Mode

In case there are difficulties with **lgtolmd** or **nsrd**, use debug mode, under the supervision of EMC Technical Support, to elicit information when starting the command.

Note: Do not attempt to run debug mode unless you are instructed to do so and are supervised by EMC Technical Support. Use of this mode can impact your system, and it must be executed correctly from start to finish.

Old and New License Names

License names can be viewed when using any of the following:

- ◆ The command line, by using **lgtolic -l**
- ◆ The **nsradmin** program
- ◆ The NetWorker Administration or NetWorker Management Console (Console) software

Most product license names are updated for NetWorker release 6.0 and later, to make them more representative. However, depending on the product that is maintaining the license data, license names can be reported in either the new or the old format.

[Table 6 on page 66](#) shows the utility used to access the product name in order to determine the format.

Table 6 How license names are reported

Product maintaining license data	Accessed by or through nsradmin program or:
NetWorker License Manager	lgtolic -l
NetWorker 7.3 and higher	Console
NetWorker 7.0 to 7.2	nwadmin
NetWorker 6.x	nwadmin
NetWorker 5.5	nwadmin

This section lists known limitations for the License Manager software.

This appendix includes the following sections:

- ◆ [NetWorker License Manager not functional on cluster nodes](#) 68
- ◆ [Licenses not released by lgtolic \(LGTpa49953\)](#) 68

NetWorker License Manager not functional on cluster nodes

Do not install or run the **lgtolmd** program on a cluster node, because it might not restart in a failover situation.

Licenses not released by lgtolic (LGTpa49953)

Occasionally the NetWorker License Manager software does not release an allocated license. If the NetWorker License Manager does not free the license, then remove the license from the server, and delete the usage resource manually.

Remove the license

To remove the license on the externally managed NetWorker server, do the following:

1. Delete the license resource on the NetWorker server.
2. Run the **lgtolic** utility with the **-s** option to display information such as the license type and features:

```
lgtolic -s " : : 1 " -l
name: NetWorker Client Connections/500
enabler code: fb767d-aa0740-872431 (2142#000001762)
license type: C500 (67/00 00 00 00 00/500)
auth code: 47b7dd45
expires: never
```

Note: The license type is a numerical value obtained from the **lgtolic** output; it occurs as the first numerical value within the parentheses (67, in this example).

3. Delete the usage resource on the License Manager server:
 - c. Run the **nsradmin** program on the License Manager server:
 - d. At the prompt, delete the usage resource as follows, providing the details of type and features provided by the **lgtolic** output:

```
nsradmin>>delete type:GLM usage; license type:numerical_value;
name:"NetWorker_server:nsrd"; count:1
```

Use short server name when creating global allowances with NetWorker License Manager

When creating global allowances for a NetWorker server using NetWorker License Manager, use only the short server name, not the fully qualified domain name. For example:

- ◆ Correct: server_name
- ◆ Incorrect: server_name.emc.com

This glossary contains terms related to the License Manager product. Many of these terms are used in this manual.

A

administrator The person normally responsible for installing, configuring, and maintaining the NetWorker software.

allowance A type of RAP resource that enables an administrator to restrict a license to a specific application or server.

authorization code A code that unlocks the software for permanent use. Each code is unique.

autochanger A mechanism that uses a robotic arm to move media among various components located in a device including slots, media drives, media access ports, and transports. Autochangers automate media loading and mounting functions during backups and restores.

B

base enabler code License for an edition of NetWorker server software.

bulk enabler An enabler code installed on the NetWorker License Manager server to dispense to NetWorker servers on request.

C

client A computer that accesses the NetWorker server to back up or recover files. Clients may be workstations, PCs, or file servers.

command line The shell prompt, where you enter commands.

D

device The backup device (tape drive, optical drive, or autochanger) connected to the NetWorker server; used for backing up and recovering client files.

E

enabler code EMC license that allows the NetWorker software product to function beyond the evaluation period.

H

host transfer affidavit Form submitted to EMC to obtain new authorization codes, permitting the transfer of a license from one computer to another.

I

interoperability The ability of software and hardware on multiple computers from multiple vendors to communicate meaningfully.

L

local host The node on which the client or server program runs.

N

NetWorker A EMC network-based software product to back up and recover file systems.

NetWorker client A computer that can access the backup and recover services from a NetWorker server.

NetWorker server The computer on a network running the NetWorker software, containing the online indexes and providing backup and recover services to the clients on the same network.

NetWorker storage node A storage device physically attached to another computer whose backup operations are administered from the controlling NetWorker server.

notice A response to a NetWorker event.

nsrhost The logical *hostname* of the computer that is the NetWorker server.

S

shell prompt A cue for input in a shell window where a command is entered.

stand-alone device A backup device that contains a single drive for backing up data. Stand-alone devices cannot store or automatically load backup volumes.

system administrator The person normally responsible for installing, configuring, and maintaining NetWorker.

U

user A person who can use NetWorker from a workstation to back up and recover files.

A

AIX

- installing 19
- using smit 19, 26

allocating licenses 35, 37

- deleting an allocated license 37
- determining the order 35

allowances 38

alternate License Manager server 46

architecture 14

authentication error 62

authorization

- error 53, 55, 58

authorization code 32

- bound to host ID 46
- duplicating 46
- entering 33
- obtaining 45, 46

authorizing 36

- using one bulk enabler for all licenses 35

availability 44, 45

B

backing up the License Manager server 18, 30, 45

- directories to back up 30, 45

backup server for the License Manager 45

base enabler

- assigning 35
- defined 13
- installing 34
- obtaining from the License Manager 34

bulk enabler 12, 13, 35

C

cached license 45, 46

clone volume 62

D

database 15, 16

- error 58
- managing 30

debug mode 66

default paths 15, 24

default values 31, 32

deleting an allocated license 37

disabling the License Manager 49

disaster recovery 30

displaying license usage 30

documentation

- latest release supplement 18

duplicate authorization codes 46

E

enabler code

- base enabler 13
- installing 34

bulk 35

defined 36

entering 33

error 57, 62

enabling

- error 59, 63
- feature 59, 63

entering codes

- authorization 33
- enabler 33

environment variables 31, 32, 36

error messages 51 to 65

evaluation

- error 53
- evaluation mode 45
- license 53
- one-day 45

evaluation enabler

- error 61

expiration date

- error 54

expired enabler 61

expired license 15, 16

F

failover 46

feature enabling 59, 63

file locations 15

- files
 - location 16
 - nonexecutable 16
- G**
- grace period 54
- H**
- host failure 44
- host ID 31, 32
 - authorization codes 46
 - changing with OS reinstallation 32
 - file
 - format 31
 - location 31
 - forcing an IP-based address 31, 32
 - SID-based 32
- host transfer affidavit 45
- hostids file 31
- hostname
 - specifying 31
- HP-UX
 - using swinstall 20
 - using swremove 26
- I**
- importing licenses 35
- installing the License Manager 23
 - as an option 12, 18
 - on AIX 19
 - on HP-UX 20
 - terminal format 20
 - X Window 20
 - on Linux 24
 - on SGI IRIX 21
 - using the command line 22
 - using the Software Manager GUI 21
 - on Solaris 19
 - on Tru64 UNIX 22
- invalid parameters
 - error 58
- IP address 31
 - error 54
- L**
- lgtolic 30
 - editing License Manager database 15, 16
 - location 15, 16
 - messages 52
 - options 30, 31
 - specifying alternative host 31
 - to display license type and feature 68
 - using to
 - authorize a license 32, 36
 - create a license 31
 - install licenses 36
 - list licenses 31
 - print host ID 31
 - specify hostids file directory 31
 - verify enabler code 33
- lgtolmd
 - description 65
 - License Manager daemon
 - on UNIX 15, 48
 - on Windows 16, 48
 - location
 - on UNIX 15
 - on Windows 16
 - messages 52
 - on the License Manager server 14
 - options 65
 - synopsis 65
- license
 - allocation 35, 37
 - determining the order 35
 - binding
 - error 55
 - cached 45
 - expired 15, 16
 - features 38, 68
 - managing 30
 - mixing imported and local 35
 - names 66
 - nonexistent license error 56
 - nonexistent license type error 56
 - type 13, 38, 68
 - usage 30
 - validation 12
- license daemon
 - defaults 31
 - information format 31
- License Manager
 - architecture 14
 - backing up 30
 - database 15, 16
 - error 58
 - defaults 31, 32
 - disabling 49
 - failover to a backup 46
 - features 12
 - function 12
 - high availability 44
 - host failure 44
 - installations on network 12
 - license allocation 35, 37
 - log file 15, 16
 - moving to a new host 47
 - overview 12
 - preparing a backup server 45
 - recovering 30, 45
 - starting and stopping
 - on UNIX 48
 - on Windows 48
 - supported platforms 12
 - synchronization with NetWorker 44
 - system information 15
 - unavailable 44, 45
 - version 31, 32

License Manager database
 managing 30
 License Manager server
 naming an alternate 46
 on NetWorker server 30
 specifying 33

Linux
 system requirements 24
 uninstalling 27
 using rpm 24, 27
 local licenses 35
 locating license binding
 error 55
 log file 15, 16

M

managing licenses 30
 messages 51 to 65
 types 52
 mixing licenses 35
 moving
 licenses to another host 46
 the License Manager to a new host 47

N

naming a License Manager server 34
 NetWorker
 editions 35
 how it obtains licenses 35
 NetWorker client software
 as a requirement 19, 20, 21, 22, 24
 NetWorker server
 caching licenses 45
 how it contacts the License Manager 44
 naming 30
 on License Manager server 30
 operating on cached license 46
 new license names 66
 nonexistent license
 error 56
 nonexistent license type
 error 56
 nsradmin
 naming a License Manager server 34
 nsrd 14
 nsrlmc 14
 messages 52
 on NetWorker server 14

O

obtaining authorization codes 45, 46
 old license names 66

P

permissions error 59
 pkgrm, using to uninstall from Solaris 25

R

RAP (Legato Resource Administration Platform)
 error 62
 RAP (Resource Administration Platform)
 resource files 38
 recovering the License Manager 30
 remote system error 59
 removing a license
 allocated 37
 removing an allocated license 37
 requirements, NetWorker client software 30
 resource file
 error 60
 restoring the License Manager database 30
 RPC (Remote Procedure Call)
 error 60, 64
 program number 31
 unknown host 64
 version 31
 mismatch 64
 rpm
 using to install on Linux 24
 using to uninstall 27

S

setting server environment variables 31
 SID-based host IDs 32
 single-unit license 13
 smit (AIX Software Management Interface Tool)
 using to install 19
 using to uninstall 26
 Solaris, using pkgrm 25
 specifying a License Manager server 34
 start and stop
 License Manager on UNIX 48
 License Manager on Windows 48
 supported platforms 12
 supported products 13
 swinstall, using to install 20
 swremove, using to uninstall 26
 synchronization
 licenses 44
 usage counts 44
 system information 15

T

Tru64 UNIX, installing the License Manager 23
 types of licenses 13

U

uninstalling the License Manager
 AIX 26
 HP-UX 26
 Linux 27
 SGI IRIX 26
 Solaris 25
 Tru64 UNIX 27
 unknown host error 64

- usage
 - error 53, 55, 56
- usage count 44, 45
 - error 57

V

- validating licenses 12
- verifying enabler codes 33
- version 31, 32
 - error 61
 - mismatch 64
- visual mode 40
- volume
 - cloned 62