

Autodesk®

autodesk®

Network Licensing Guide

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Introduction to Autodesk Network Licensing

The Autodesk® Network License Manager allows users to run an Autodesk product on a network. The Network License Manager also contains network administration tools that provide query and tracking capabilities.

In this chapter

- Introduction
- What's New
- System Requirements
- FLEXlm Configuration Tools
- SAMreport-Lite License Reporting Tool

Introduction

You use the Network License Manager as part of a network installation and deployment of an Autodesk product. The Network License Manager works with the Network Installation wizard to install your Autodesk product and manage licenses from a network. The Network License Manager is used to configure and manage the license servers, while the Network Installation wizard allows you to set up a deployment of an Autodesk product on a network.

For more information about deploying an Autodesk product from a network location, see the *Network Administrator's Guide*, located in the Autodesk product CD Browser or in your product's Help system.

What's New?

In this release of your Autodesk product, the Network License Manager provides an improved user interface along with two of the most widely requested license management features: license borrowing and an enhanced license timeout feature.

Improved Installation Interface

The Network License Manager is now installed independently of the Network Installation wizard; that is, you can install the Network License Manager either before or after you use the Network Installation wizard. In addition, the installation interface has been improved for ease of use. Simply use the product CD Browser to access the Network License Manager.

License Borrowing

If your Autodesk product supports the license borrowing feature, you can allow users to borrow an Autodesk product license from a network license server so that they can use the product without being connected to the license server. A license can be borrowed for a limited period of time.

For more information about license borrowing, see “Set Up License Borrowing” on page 24.

License Timeout

License timeout allows you to set a timeout period on your license server. When set, license timeout returns a license to the license server when a connection with the workstation is lost, or if a license is checked out but the Autodesk product is idle on a workstation for longer than the timeout period you define.

For more information about license timeout, see “Set Up License Timeout” on page 24.

System Requirements

Make sure that your Network License Manager server meets the minimum recommended requirements. See the following table for hardware and software requirements.

Hardware and software requirements for the Network License Manager		
Hardware/software	Requirement	Notes
Operating system	Windows XP Professional Windows 2000 Server Edition Windows 2000 Windows NT 4.0 Server Edition Windows NT 4.0 with SP 5.0	The Network License Manager supports Ethernet network configurations only.
Computer/processor	Pentium 450 or higher Pentium 233 (minimum) Equivalent processor	
Network interface card	Compatible with existing Ethernet network infrastructure	The Network License Manager supports multiple network interface cards.
Communication protocol	TCP/IP	The Network License Manager uses TCP packet types.

FLEXlm Configuration Tools

The Network License Manager uses FLEXlm[®] license management technology from GLOBEtrouter[®] Software, Inc. FLEXlm provides administrative tools that help to simplify management of network licenses. You can use FLEXlm tools to monitor network license status, reset licenses lost to a system failure, troubleshoot license servers, and update existing license files on the fly.

Utilities for License Server Management

FLEXlm provides two utilities, *lmtools.exe* and *lmutil.exe*, for managing the license server. These tools are located in the *Program Files\Autodesk Network License Manager* folder.

The *lmtools.exe* utility provides a Microsoft[®] Windows graphical user interface for managing the license server. The *lmutil.exe* utility provides a set of command-line options for managing the license server.

You can use *lmtools.exe* or *lmutil.exe* to perform the following server management tasks:

- Start, stop, and restart the server.
- Configure and update the license file.
- Diagnose system or license problems.
- View server status, including active license status.

The Options File

Another useful component of FLEXlm is the Options file. You create this file to set configuration options specific to the operating environment.

Use the Options file to set parameters for the following server-related features:

- **Report log file.** Creates a compressed, encrypted file that generates accurate usage reports on license activity for use by SAMreport-Lite.
- **License borrowing.** Configures borrowing options.
- **License timeout.** Configures license timeout options.

For more information about configuration options, see “Configure the License Server” on page 20.

For specific information about using FLEXlm configuration tools, see the FLEXlm documentation in the *Program Files\Autodesk Network License Manager\Docs\FlexUser* folder.

SAMreport-Lite License Reporting Tool

While not part of the network installation, a version of *SAMreport* called *SAMreport-Lite* is available to help you track network license usage. With *SAMreport-Lite* technology from GLOBEtrouter Software, you can monitor client usage for all software that uses *FLEXlm* to manage network licenses.

SAMreport-Lite generates usage reports in a variety of output formats including HTML, text, and Report Interchange Format. For more information about the *SAMreport-Lite* features and for instructions on installing *SAMreport-Lite*, see the *SAMreport-Lite User's Guide*.

Note You can install *SAMreport-Lite* and access the *SAMreport-Lite User's Guide* from the Autodesk product CD Browser.

For additional information about *SAMreport-Lite*, and for updates and fixes for this feature, visit the Autodesk website at:

www.autodesk.com/samreportlite

Plan Your Network Licensing

This section contains information that you need to know before installing the Autodesk® Network License Manager. The section includes information about network configuration models, license server models, license management, and deployment types.

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In this chapter

- Plan Your License Server Configuration
- Learn About Your License

Plan Your License Server Configuration

You must decide which license server model to use for managing your Autodesk® product licenses on a server. Autodesk supports the following network license server models:

- Single license server model
- Distributed license server model
- Redundant license server model

Single License Server Model

In the single license server model, the Network License Manager is installed on a single server, so license management and activity is restricted to this server. A single license file represents the total number of licenses available on the server.

Advantages of the Single License Server Model

- Because all license management takes place on a single server, you have just one point of administration and one point of failure.
- Of the three license server models, this configuration requires the least amount of maintenance.

Disadvantage of the Single License Server Model

- If the single license server fails, the Autodesk product cannot run until the server is back online.

Distributed License Server Model

In the distributed license server model, licenses are distributed across more than one server. A unique license file is required for each server. To create a distributed license server, you must run the Network License Manager on each server that is part of the distributed server pool.

Advantages of the Distributed License Server Model

- Servers can be distributed across a wide area network (WAN); they do not need to exist on the same subnet.
- If one server in the distributed server pool fails, the licenses on the remaining servers are still available.

- The distributed license server model is supported on Windows XP® Professional and on both the workstation and server editions of Windows® 2000 and Microsoft Windows NT® 4.0.
- If you need to replace a server in the distributed server pool, you do not need to rebuild the entire pool.
- Server replacement is easier than in a redundant server pool, where you must reauthorize the entire pool.

Disadvantage of the Distributed License Server Model

- If a server in the distributed server pool fails, the licenses on that server are unavailable.

Redundant License Server Model

In the redundant license server model, you use three servers to authenticate a single license file. One server acts as the master, while the other two provide backup if the master server fails. With this configuration, licenses continue to be monitored and issued as long as at least two servers are still functional. The license file on all three servers is the same. You must install the Network License Manager on each server.

In the redundant license server model, all servers must reside on the same subnet and have consistent network communications. (Slow, erratic, or dial-up connections are not supported.)

Advantage of the Redundant License Server Model

- If one of the three servers fails, all licenses that are managed in the server pool are still available

Disadvantages of the Redundant License Server Model

- If more than one server fails, no licenses are available.
- All three servers must reside on the same subnet and have reliable network communications. The redundant server pool doesn't provide network fault tolerance.
- The redundant license server model is supported only on Windows® 2000 Server Edition or Windows NT® 4.0 Server.
- If one of the three servers is replaced, the complete redundant server pool must be rebuilt.
- If your Autodesk product supports license borrowing, and licenses are borrowed from a redundant license server pool, you must restart the license server after you stop the Network License Manager.

Learn About Your License

In this section, you learn about license operation and availability, the license file, license types and behaviors, and the heartbeat signal.

License Operation and Availability

When a user starts an Autodesk product, the product determines the server from which it should try to obtain a license. The product then requests a license through the TCP/IP network protocol to the license server.

If the number of available licenses has not been exceeded on the license server, the Network License Manager assigns a license to the workstation. A product session then starts on the workstation, and the number of available licenses on the license server is reduced by one.

Likewise, when a user exits a product, the Network License Manager frees a license for another user. If a user runs multiple sessions of an Autodesk product on an individual workstation, only one license is used. When the last session is closed, the license is freed.

The following three processes manage the distribution and availability of licenses:

- **License manager daemon (*lmgrd.exe*)**. Handles the original contact with the application, and then passes the connection to the vendor daemon. The *lmgrd.exe* daemon is used to communicate with the vendor daemon only; *lmgrd.exe* does not authenticate or dispense licenses, but rather passes user requests to the vendor daemon. By using this approach, a single *lmgrd.exe* daemon can be used by multiple software vendors to provide license authentication. The *lmgrd.exe* daemon starts and restarts the vendor daemons as needed.
- **Autodesk vendor daemon (*adskflex.exe*)**. Keeps track of the licenses that are checked out and the workstations that are using them. Each software vendor has a unique vendor daemon to manage vendor-specific licensing. As its name implies, the *adskflex.exe* vendor daemon is specific to Autodesk products.

Note If the *adskflex.exe* vendor daemon terminates for any reason, all users lose their licenses until *lmgrd.exe* restarts the vendor daemon or the problem causing the termination is resolved.

- **License file**. A text file that has vendor-specific license information.

License File

The license file contains licensing information that your network installation requires in order to function. You obtain license file data from Autodesk when you register your Autodesk product.

The license file contains information about network server nodes and vendor daemons. The license file also contains an encrypted digital signature created when Autodesk generates the file.

The license file is located on a network share that you specify in the Network Installation wizard. Because the license file is required for using an Autodesk product on a network, the file must be located on a network share that is accessible to every user who runs the product from a network installation.

The following table defines each license file parameter.

Definitions of license file parameters			
Line	Parameter	Definition	Example
SERVER	Host Name	Host name of the server where the Network License Manager resides	labserver
	Host ID	Ethernet address of the server where the Network License Manager resides	03D054C0149B
USE_SERVER	[None]		
VENDOR	Vendor Daemon	Name of the server-side Autodesk vendor daemon	<i>adskflex.exe</i>
	Port Number	Network port number reserved and assigned for use only for Autodesk products running the Autodesk vendor daemon	port=2080
INCREMENT	Feature Code	Product supported by the license file.	41100ACD_2004_0F
	Vendor Daemon	Name of the server-side Autodesk vendor daemon	<i>adskflex.exe</i>
	Version	Internal version number reference.	1,000
	Expiration Date	Amount of time the licenses are available	permanent
	Number of Licenses	Number of licenses supported by the license file	25

Definitions of license file parameters (continued)

Line	Parameter	Definition	Example
	VENDOR_STRING	License usage type and license behavior of the product that is supported by the license file	COMMERCIAL
	SUPERSEDE	Replacement for any existing increment line of the same feature code from any license files on the same license server that have a date earlier than the defined Issue Date	SUPERSEDE
	BORROW	<p>Definition of the license borrowing period for the licenses defined under the same Increment line</p> <p>Maximum period that licenses can be borrowed is 168 hours, unless otherwise noted (for example, BORROW=120 means that licenses can be borrowed for a maximum of 120 hours, or 5 days)</p> <p>License borrowing is not turned on when this parameter is not present in the license file</p>	BORROW
	DUP_GROUP	Definition of multiple license requests when the same user and same host share the same license	DUP_GROUP=UH
	Issue Date	Date that the license file was generated by Autodesk	22-jan-2003
	Serial Number	Serial number of the Autodesk product	123-12345678
	SIGN=	Encrypted signature used to authenticate the attributes of the license file	SIGN=6E88EFA8D44C

Here is an example of the contents of a license file:

```
SERVER ServerName HostID
USE_SERVER
VENDOR adskflex port=portnumber
INCREMENT feature_code Adskflex Version ExpDate NumberofLicenses \
  VENDOR_STRING=UsageType:Behavior BORROW SUPERSEDE \
  DUP_GROUP=DupGrp \
  ISSUED=IssueDate SN=SerialNumber SIGN=
```

Here is an example of a completed license file for a single or distributed license server model:

```
SERVER Server2 2a34567f90d3
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 41100ACD_2004_0F adskflex 1.000 permanent 3 \
  VENDOR_STRING=commercial:permanent BORROW SUPERSEDE \
  DUP_GROUP=UH \
  ISSUED=22-jun-2003 SN=123-12345678 SIGN=6E88EFA8D44C
```

Here is an example of a completed license file for a redundant license server model:

```
SERVER Server1 1a34567c90d2 27005
SERVER Server2 2a34567f90d3 27005
SERVER Server3 3a34567b90d4 27005
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 41100ACD_2004_0F adskflex 1.000 permanent 3 \
  VENDOR_STRING=commercial:permanent SUPERSEDE BORROW \
  DUP_GROUP=UH \
  ISSUED=22-jun-2003 SN=123-12345678 SIGN=6E88EFA8D44C
```

Note The redundant server model requires the addition of a port number (the default is 27005) for each server.

License Types and Behaviors

Autodesk supports dynamic product usage and license behaviors. This means that you can purchase a specific type of behavior with a specific license and change that license at a later date without having to uninstall and reinstall the Autodesk product.

License types include the following:

- **Commercial.** A license for a product that was purchased commercially.
- **Not for Resale.** A license for a product that is not sold commercially.
- **Educational (EDU)/Institution.** A license designed specifically for educational institutions.
- **Student Portfolio.** A license for students who are using an Autodesk product as part of their curriculum.

License behaviors are as follows:

- **Permanent.** Enables permanent use of an Autodesk product.
- **Term Extendable.** Enables access to an Autodesk product for a limited period of time. The term can be extended at any time.
- **Term Non-Extendable.** Enables an Autodesk product for a limited period of time. The term cannot be extended.

Heartbeat Signal

When an Autodesk product is running, it communicates with the license server at regular intervals using a communication method known as the “heartbeat” signal. If the heartbeat signal is lost, the server tries to reconnect. If the server cannot reconnect, the user receives a license error.

If the product stops working because it has lost a connection to the server, you must shut down the product, and then restart it. If the problem causing the original loss of the heartbeat signal is resolved and there are available licenses on the server, the program can be accessed again.

The Network License Manager

This section includes information for installing and configuring the Autodesk® Network License Manager on a network.

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In this chapter

- Install the Network License Manager
- License Server Configuration
- Set Up and Use an Options File
- Uninstall the Network License Manager

Install the Network License Manager

You can install the Network License Manager before or after you use the Network Installation wizard.

To install the Network License Manager

- 1 On your Autodesk product CD Browser, click Network Deployment.
- 2 Click Install the Network License Manager.
- 3 On the Autodesk Network License Manager Setup page, click Next.
- 4 On the License Agreement page, read the license agreement and click I Accept the License Agreement, and then click Next.

Note If you do not agree to the terms of the license, click Cancel to cancel the installation.

- 5 On the Destination Folder page, either accept the default folder or click Browse to specify a different location. If you enter a path that does not exist, a new folder is created using the name and location you provide. Click Next.

Warning! Do not install the Network License Manager on a remote drive. When you install the Network License Manager files, you must provide a path to a local drive. Specify the drive letter; the Universal Naming Convention (UNC) is not supported.

- 6 On the Ready to Install the Application page, click Next to install the Network License Manager.
- 7 Click Finish.

License Server Configuration

This section provides information for configuring the license server and for modifying an existing license server configuration.

There are four main steps for configuring the license server:

- 1 Obtain the host name and ID on each license server.
- 2 Obtain a license file for each license server.
- 3 Set up a license file for each license server.
- 4 Configure each license server.

These steps are explained in detail in the sections that follow.

Obtain the Server Host Name and Host ID

You need to obtain the server host name and host ID so that you can provide them to Autodesk along with the product serial numbers. Autodesk uses this information to generate a license file.

To obtain the server host name and host ID, you can use the command line or run the *lmttools.exe* utility. If you use *lmttools.exe*, do not run it on a remote workstation.

Choose one of the following procedures to obtain the server host name and host ID:

To obtain the host name and ID using the command line

- 1 Do one of the following:
 - **For Windows XP.** On the Start menu (Windows), click All Programs ► Accessories ► Command Prompt.
 - **For Windows 2000 or Windows NT 4.0.** On the Start menu (Windows), click Programs ► Accessories ► Command Prompt.
- 2 On the command line, enter the following command, and then press ENTER:
ipconfig /all
- 3 Locate the Host Name field. Write down the host name, and then paste it into a text editor.

- 4 Locate the Physical Address field. Write down the physical address, and then paste it into a text editor. Remove the dashes. This is your twelve-character host ID.

Note If your server has more than one network adapter, select the one that corresponds to a physical network adapter. To determine which adapters are physical, view the Description field above each physical address. If there is more than one physical network adapter, it does not matter which one you use. You just need to make sure that it is properly installed and is functional. Devices such as VPN adapters, PPP adapters, and modems are not valid.

- 5 Save the file. You use the information you just saved to obtain a license file from Autodesk. See “Obtain a License File” on page 19 for more information.

To obtain the host name and ID using `lmttools.exe`

- 1 Do one of the following:
 - **For Windows XP.** On the Start menu (Windows), click All Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.
 - **For Windows 2000 or Windows NT 4.0.** On the Start menu (Windows), click Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.
- 2 In the `lmttools` program, click the Systems Settings tab.
- 3 Locate the Computer/Hostname box. Write down the host name, and then paste it into a text editor.
- 4 Locate the Ethernet Address box. Write down the ethernet address. This is the host ID. The host ID consists of twelve characters. If your ethernet address is more than twelve characters, write down the first twelve characters only.

Note If your server has more than one ethernet adapter, select the one that corresponds to the physical network adapter.

- 5 Save the file. You use the information you just saved to obtain a license file from Autodesk. See “Obtain a License File” on page 19 for more information.

Obtain a License File

A license file identifies important license information, including license type and behavior, and the number of seats available for use. You must obtain a license file from Autodesk for each license server.

To obtain a license file

- 1 Write down the following information:
 - License server host name and host ID
 - Product serial number or number(s) (located on your product package)
 - An email address where Autodesk can send you the license file
- 2 Contact the Autodesk Registration and Authorization office and provide the information included in the text file. Contact Autodesk in one of two ways:
 - If you have Internet access, visit the Autodesk Registration website at www.autodesk.com/register.
 - You can also reach the Registration and Authorization office as follows for your region:

Region	Phone	Fax	Email address
United States, Canada, and Latin America	800-551-1490 415-507-4690	800-225-6490 415-507-4937	authcodes@autodesk.com
Asia Pacific		65-6735-4857	ap.register@autodesk.com Japan only: japan.register@autodesk.com
EMEA		41-32-723-9169	authcodes.neu@autodesk.com

- 3 The Autodesk Registration and Authorization office will email the license file to you in text format.

Set Up a License File

Once you receive a license file from Autodesk, you are ready to set up the file so that you can configure the license server.

To set up a license file

- 1 Copy the contents of the license file (supplied by Autodesk in an email) to an ASCII text editor, such as Notepad.

Warning! Do not copy your contents into a word processor. A word processor can corrupt your license file.

- 2 Save the file to the `\Program Files\Autodesk Network License Manager\License` folder.

You can name the license file in any way, but you must save the file with a `.lic` or a `.dat` extension.

Note If you use Notepad as your text editor, you must select All Files in the Save As Type box so that a `.txt` extension is not added automatically.

This license file is used to configure the license server. See “Configure the License Server” for more information.

Configure the License Server

You configure a license server so that you can manage your Autodesk product licenses. Configure the license server with the `lmtools.exe` utility.

To configure the license server

- 1 Do one of the following:
 - **For Windows XP.** On the Start menu (Windows), click All Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.
 - **For Windows 2000 or Windows NT 4.0.** On the Start menu (Windows), click Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.

- 2 In the Lmtools program, on the Service/License File tab, select the Configure Using Services option.
- 3 Click the Config Services tab.
- 4 On the Config Services tab, in the Service Name list, do one of the following:
 - If a service name is selected, verify that it is the one you want to use to manage licenses.
 - If no service name exists, enter the service name you want to use to manage licenses.

Note If you have more than one software vendor using FLEXlm for license management, the Service Name list contains more than one option.

- 5 Enter the path to the Network License Manager daemon (*lmgrd.exe*) or click Browse to locate the file. By default, this daemon is installed in the `\Program Files\Autodesk Network License Manager` folder.
- 6 Enter the path to the license file or click Browse to locate the file. See “Set Up a License File.”
- 7 Enter a path to the debug log or click Browse to locate the file.
- 8 Select the Use Services option.
- 9 To automatically start *lmgrd.exe* when the system starts, select Start Server at Power Up.
- 10 To run *lmgrd.exe* as a Windows 2000 or Windows NT service, select Use Services.
- 11 Click Save Service to save the new configuration under the service name you selected in step 4.
- 12 Click the Start/Stop/Reread tab.
- 13 On the Start/Stop/Reread tab, click Start Server to start the license server. The license server starts running and is ready to respond to client requests. If there are multiple service names, click the Service/License File tab. On the Service/License File tab, click Configuration Using Services. Then select the service name from the list. For each service name, perform steps 11 and 12 to start the service.

Restart a License Server

You must restart the license server when you create a new Options file or make changes to it, or create a new license file.

To restart the license server

- 1 Do one of the following:
 - **For Windows XP.** On the Start menu (Windows), click All Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.
 - **For Windows 2000 or Windows NT 4.0.** On the Start menu (Windows), click Programs ► Autodesk ► Autodesk Network License Manager ► LMTOOLS.
- 2 In the Lmtools program, on the Service/License File tab, select the Configure Using Services option.
- 3 Select the service name for the license server you want to start manually.
- 4 Click the Start/Stop/Reread tab.
- 5 On the Start/Stop/Reread tab, click Stop Server, and then click Start Server to restart the license server.

Set Up and Use an Options File

An Options file allows you to set configuration options for managing licenses on each license server that you set up. An Options file sets parameters that the license file reads and the Lmgrd program executes.

If you want have the same license behavior on some or all of your license servers, you must save the same Options file to each of those license servers. If you want to specify different license behavior on different license servers, you must create an Options file for each license behavior. You must save each Options file to the server where you want specific license behavior.

Note For Options file changes to take effect on a license server, you must save the Options file, and then stop and restart the license server.

With an Options file, you can do the following:

- Create a report log for use with SAMreport-Lite.
- Set up license borrowing.
- Set up license timeout.

Here is an example of the contents of an Options file:

```
REPORTLOG=c:\test\report.rl  
BORROW_LOWWATER Autodesk_f1 3  
TIMEOUT Autodesk_f1 3600
```

You can also set up advanced license parameters, such as reserving a license, restricting license usage, or defining groups of users. To learn more about setting advanced Options file parameters, see the *FLEXlm* documentation in the *Program Files\Autodesk Network License Manager\docs\FlexUser* folder.

To create an Options file

- 1 Open a text editor, enter the parameters you want, and then save the document as a file named *adskflex.opt* to the same location where you saved the license file.

Note Make sure you save the file with the extension *.opt*. The default extension *.txt* is not recognized by the Network License Manager.

- 2 Stop and restart the license server.

Create a Report Log

In the Options file, you can create a report log file that is used with *SAMreport-Lite*.

To create a report log

- 1 In a text editor, open the *adskflex.opt* file.
- 2 In the Options file, enter the following syntax on its own line:

```
REPORTLOG [+]report_log_path
```

Note Path names that contain spaces must be enclosed in quotation marks.

In the `REPORTLOG` syntax, “[+]” means that entries to the log file you create are appended rather than replaced each time the Network License Manager is restarted. (It is recommended that you use this option so that you retain a history of log entries.)

For example, the syntax “`REPORTLOG +c:\My Documents\report.rl`” means that a report log named *report.rl* is located in the folder *c:\My Documents*.

Set Up License Borrowing

If your Autodesk product supports the license borrowing feature, you can use the Options file to set up license borrowing options. For example, you can define the maximum number of licenses that can be borrowed from your network at any one time. In addition, you can define which users can borrow an Autodesk product license.

Note If your Autodesk product supports license borrowing, and licenses are borrowed from a redundant license server pool, you must restart the license server after you stop the Network License Manager.

At the end of a borrow period, the borrowed license is automatically disabled on the user's computer and becomes available again on the license server. Users can also return a license before a borrow period has ended.

Note You can also decide whether to turn on license borrowing when you run the Network Installation wizard. For more information about turning on license borrowing in the Network Installation wizard, see the *Network Administrator's Guide*, available on your product CD Browser or in your product's Help system.

To set license borrowing parameters

1 In the Options file, enter the following syntax on its own line:

```
BORROW_LOWWATER feature_code n
```

In the BORROW syntax, "feature_code" is the name of the product in the license file, and "n" is the number of licenses that cannot be borrowed.

For example, the syntax `BORROW_LOWWATER Autodesk_f1 3` means that for the product Autodesk_f1, three licenses cannot be borrowed from the license server.

For more information about using the license borrowing feature, see the FLEXlm documentation in the *Program Files\Autodesk Network License Manager\Docs\FlexUser* folder.

Set Up License Timeout

License timeout is set in the Options file to determine how long a product session can be idle before the license is reclaimed by the license server. When you set this flag in the Options file, a user's license is reclaimed by the license server if the product is idle on a workstation for more than the timeout period you define.

If a user's license is lost because of the idle timeout, the product attempts to claim a new license once the user uses the product again. If no license is available, the user can save work before the product shuts down.

To set license timeout parameters

- 1 In the Options file, enter the following syntax on its own line:

```
TIMEOUT feature_code n
```

In the TIMEOUT syntax, "feature_code" is the name of the product (referred to in the INCREMENT line in the license file), and "n" is the number of seconds before an inactive license is reclaimed by the license server.

For example, the syntax `TIMEOUT Autodesk_f1 3600` means that for the product Autodesk_f1, the license timeout period is set for 3600 seconds, or one hour.

For more information about using the license timeout feature, see the FLEXlm documentation in the *Program Files\Autodesk Network License Manager\Docs\FlexUser* folder.

Uninstall the Network License Manager

You can uninstall the Network License Manager from the license server. When you uninstall the Network License Manager, licenses are no longer available to your users.

To uninstall the Network License Manager

- 1 Do one of the following:
 - **For Windows XP.** On the Start menu (Windows), click Control Panel.
 - **For Windows 2000 or Windows NT 4.0.** On the Start menu (Windows), click Settings ► Control Panel.
- 2 In the Control Panel, double-click Add/Remove Programs.
- 3 In the Add/Remove Programs window, click Autodesk Network License Manager, and then click Remove.
- 4 If prompted, restart your computer.

Glossary

ADSKFLEX_LICENSE_FILE In a distributed license server configuration, the environment variable used to point a workstation to the distributed license servers.

adskflex.exe The Autodesk vendor daemon used with the FLEXlm license technology. This daemon keeps track of the Autodesk licenses that are checked out and the workstations that are using the licenses.

borrowed license A license that allows you to use an Autodesk product for a limited period of time without having to buy a separate license or have network access to the license server. Previous versions of your Autodesk product may have used the License Configuration Switcher.

daemon A program that runs continuously in the background of a computer. The daemon handles requests from the computer and then forwards the requests to other programs or processes. The Network License Manager uses two daemons: the vendor daemon (*adskflex.exe*) and the license manager daemon (*lmgrd.exe*).

debug log file A file used with FLEXlm to log connection activity (such as license failure or starting and stopping) between the Network License Manager and the workstation.

deployment The files and folders created on a server and used by workstations to install Autodesk programs.

distributed server A license server configuration option in which several servers are used to manage license distribution. Each distributed license server has a unique license file and a fixed number of licenses. If one distributed license server fails, the other servers are still able to distribute their licenses.

ethernet address See *host ID*.

FLEXlm The GLOBEtrotter license management technology implemented in the Autodesk family of products.

GLOBEtrotter The company that makes the FLEXlm license management product used in the Autodesk 2002 family of products.

heartbeat signal The communication signal between the Network License Manager and the workstation to verify that the workstation is accessible and has an active Autodesk product session running.

host ID The unique hardware address of a network adapter. Also known as *ethernet address* or *physical address*.

host name The TCP/IP name associated with a computer. FLEXlm technology uses the host name as a parameter; the host name must be distinguished from the NetBIOS (server) name.

idle A state of inactivity in your product that prompts a network license server to reclaim a license. Your product may be considered idle for a number of reasons, such as when there have been no keystrokes or mouse clicks within the product or if no commands, LISP expressions, menu macros, or scripts are in progress for the period of time that is defined in the Options file. See also *license timeout*.

JRE (Java Runtime Environment) A program that is required to run Java programs. This program must be installed with SAMreport-Lite.

license configuration switcher See *borrowed license*.

license file A file used with FLEXlm that controls the number of available seats. This file must be in ASCII plain text format.

license server A server that contains the Network License Manager.

license timeout A feature that allows you to set up a timeout period on your license server to automatically return an idle license to the server so that it is available for use again.

licpath.lic In both single and redundant server configurations, the file used to point the workstation to the FLEXlm license server. *Licpath.lic* is located in the root installation folder.

lmgrd.exe The license manager daemon. This daemon handles the original contact with the program, and then passes the connection to the vendor demon, *adskflex.exe*.

lmttools.exe A graphical user interface utility used to administer the FLEXlm license technology. (*Lmutil.exe* is the command-line version of this utility.)

lmutil.exe A command-line utility used to administer the FLEXlm license technology. (*Lmtools.exe* is the graphical user interface version of this utility.)

master daemon See *lmgrd.exe*.

network license installation A type of installation that requires you to install and run the Network License Manager from a network server. You must install and configure the Network License Manager before clients can run the Autodesk product.

Network License Manager The technology used by Autodesk for network license management.

Options file The file used by FLEXlm to control license manager parameters, such as reserving licenses and creating report logs used with SAMreport-Lite.

physical address See *host ID*.

redundant server A license server configuration option in which three servers are used to administer licenses. The redundant servers share a license file and a pool of licenses. The redundant server pool remains functional as long as two of the three servers are running.

report log file A file used with *FLEXlm* and *SAMreport-Lite*. This log file provides information about network license usage. The Options file creates the report log.

runtree The location of Autodesk product program files, such as *acad.exe*.

SAMreport-Lite A version of GLOBEtrotter's *SAMreport* tool. *SAMreport-Lite* is included on the Autodesk product CD-ROM.

vendor daemon See *adskflex.exe*.

workstation A desktop computer used by an individual user on a network.

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