



## White Paper

## Installing the Autodesk Network License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

**Important Note:** All references to "AutoCAD" or "AutoCAD 2004" also apply to AutoCAD® 2004 platform-based products, for example, Autodesk® Architectural Desktop 2004, AutoCAD® Mechanical 2004, and Autodesk Map™ 2004.

This white paper is the second in a three-part series. It outlines how to install, authorize, and run the Autodesk® Network License Manager (NLM) and summarizes the different types of configurations for the NLM.

For a detailed overview of planning and running AutoCAD® software in a network environment, please see the first white paper in the series, "Planning a Successful Network Installation of AutoCAD 2004 or AutoCAD 2004-Based Products." The third white paper, "Creating Deployments for AutoCAD 2004 or AutoCAD 2004-Based Products," provides a step-by-step process for creating deployments for use when installing AutoCAD 2004 on local workstations.

**Additional Note:** A network client version of AutoCAD must be installed and the NLM must be authorized and running in order to run a network client version of AutoCAD software.

### Overview

The NLM is used to manage the distribution of AutoCAD 2004 licenses. Macrovision Corporation has developed the technology, called FLEX/m® that is used for the Autodesk NLM in AutoCAD 2004. AutoCAD 2004 continues to improve and enhance the license management technology that was introduced in AutoCAD 2002 and now incorporates FLEX/m® version 8.3. With the inclusion of version 8.3, AutoCAD licenses can now be borrowed for a specified amount of time from the Autodesk NLM. Borrowing allows a network license to be checked out, allowing AutoCAD software to start and run while the computer is disconnected from the network. If you are running FLEX/m versions earlier than version 8.3, we recommend that you update to version 8.3 supplied with AutoCAD 2004.

**Note:** The license files used with earlier FLEX/m versions do not need to be updated.

FLEX/m cannot distribute licenses to versions of AutoCAD 2000i and earlier. FLEX/m supports TCP/IP; it does not support IPX. Earlier releases, such as AutoCAD® Release 14, AutoCAD 2000, and AutoCAD 2000i, require the Élan license management technology.

There are four main components to FLEX/m license management technology:

- License manager daemon (*lmgrd.exe*)
- Vendor daemon (*adskflex.exe*)
- License file (obtained from Autodesk)
- Application program (*acad.exe*)

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The license manager and vendor daemon are installed from the AutoCAD 2004 CD browser Network Deployment tab. The license file is obtained from Autodesk during the authorization process. The AutoCAD application is installed from a deployment created from the new Network Installation wizard (NIW).

For the NLM to distribute licenses, it must be installed, configured, authorized, and started on a Microsoft® Windows NT® 4.0 workstation or server, Windows® 2000 Professional workstation or server, or Windows XP Professional. The NLM cannot be installed on a Novell® or UNIX® server.

The following bullets explain how the NLM manages the distribution of AutoCAD 2004 licenses:

- When a network client version of AutoCAD 2004 is started, it broadcasts a message across the network to the server or servers specified in the *licpath.lic* file or the environment variable `ADSKFLEX_LICENSE_FILE`.
- The license manager daemon is a service configured under Windows that recognizes vendor daemons running on that server. The FLEX/m server responds to AutoCAD software with the location of the NLM or vendor daemon.
- AutoCAD then establishes communication with the NLM and requests a license.
- The NLM checks if a license is available in its license pool, and grants or denies the request to start AutoCAD software. If a license is available, the NLM grants the request and AutoCAD starts.
- While AutoCAD software is running, it periodically communicates with the NLM. If communication is lost between AutoCAD and the NLM, the NLM frees the license after a specified amount of time; AutoCAD software displays an error message that states it will shut down in a specified number of minutes and allows the user to save work.
- If a license is not available when AutoCAD requests one, the NLM returns a message to try again later; AutoCAD software will not start until a license becomes available.
- If a license manager is not found when the AutoCAD program requests one, AutoCAD returns an error. AutoCAD software cannot run until an NLM is set up and running on the network.

You can configure the NLM to reserve or exclude licenses, for either an individual user or workstation, or a group of users or workstations, through the use of an options file. A new AutoCAD 2004 feature is the ability to set a timeout value through the options file. After the timeout value is exceeded an inactive license will be returned to the license pool. In the Network Setup wizard, you specify where AutoCAD software requests a license when you create deployments. (A *deployment* is an installation image to install AutoCAD software on the workstation.) This information is stored in the *licpath.lic* file for single server and redundant server configurations. For a distributed server configuration, AutoCAD uses the environment variable `ADSK_LICENSE_FILE` to locate the servers running the NLM.

FLEX/m supports multiple network adapters installed on the same server. FLEX/m also allows a server to connect to an Internet Service Provider (ISP) without affecting the distribution of licenses.

### Types of Configuration for the NLM

FLEX/m supports the following three configurations for the NLM:

- Single server

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- Distributed Server Pool
- Redundant Server Pool

### Configuration Option 1: Single Server

In this configuration, FLEXlm is installed on a single server, and all license activity is restricted to this server. In a single server configuration, you have the advantages of a single point of administration and only a single point of failure. This configuration's disadvantage is that, if the server fails, AutoCAD clients will not run until the server is back on line.

### Configuration Option 2: Distributed Server Pool

In this configuration, FLEXlm is installed on multiple servers to create a "pool" of licenses. Each server is configured for a specified number of licenses. AutoCAD software automatically tries every server until a license is granted or the end of the pool is reached. The order in which the servers are searched is specified by the environment variable ADSKFLEX\_LICENSE\_FILE. The environment variable must be set to take advantage of the distributed server pool. In a distributed server pool configuration, you have the advantages of load sharing and fault tolerance: if a server fails, other servers are available to distribute licenses. This configuration's disadvantage is that when a server running the NLM fails, fewer licenses are available for use. The NIW has been enhanced in AutoCAD 2004 to set the environment when a distributed server pool is used.

### Configuration Option 3: Redundant Server Pool

In this configuration, FLEXlm supports a three-server redundant server pool running on Windows NT 4.0 Server or Windows 2000 Server. All three servers must be on the same local subnet. A quorum (two servers) must be running to administer licenses. In a redundant server pool configuration, the major advantage is complete fault tolerance: all licenses are still available if a single server should fail. This configuration's disadvantage is that the servers must be close together (on the same subnet).

### Prerequisites for Installing, Configuring, and Authorizing NLM

The workstation and server must be able to communicate using the TCP/IP protocol. White papers in this series do not discuss the specifics required to set up the TCP/IP protocol on either a workstation or a server. However, the first white paper in the series, "Planning a Successful Network Installation of AutoCAD 2004 or AutoCAD 2004-Based Products," does outline a process to ensure that communication is occurring. Please consult your operating system documentation and network adapter manuals for information about how to configure TCP/IP.

## Installing the Autodesk Network License Manager

There are two methods that can be used to install the Autodesk NLM. The simplest is to use the CD browser (the product window that is displayed when you insert your AutoCAD software CD into the computer) and select the Network Deployment tab. Select "Install" under step 2: Install the Network License Manager. In earlier releases of AutoCAD, you installed the NLM from the Network Setup Wizard. The NLM is a separate stand-alone installation in AutoCAD 2004. You can also manually launch the NLM installer from CDROM:\Bin\ACADFEUI\Support\NLM\setup.exe, to install the NLM.

### Rules and Requirements

To run the NLM successfully, you must follow these rules:

- The computer running the NLM must be properly configured and communicating with all workstations on your network, and it must meet the requirements specified by Autodesk. According to Macrovision, FLEX/m will run on Windows 95, Windows 98, and Windows Me, as well as UNIX operating systems. Autodesk does not support FLEX/m in these environments.
- The computer running the NLM must be configured correctly using the TCP/IP protocol. The IP address may be assigned via a Dynamic Host Configuration Protocol (DHCP) server although it is recommended that a static IP address be assigned. It is recommended that the NLM not be installed on a Windows 95, Windows 98, or Windows Me workstation.

The following section describes the simplest of the three methods for running the NLM: a "single server."

### Installing the NLM for a Single Server

1. Insert the AutoCAD 2004 software CD into the CD-ROM drive. The CD browser window is displayed.
2. Select the Network Deployment tab in the CD browser.
3. From the Network Deployment tab, under Step 2: Install the Network License Manager, select Install. The Autodesk Network License Manager setup routine is started.
  - Select Next at the Welcome screen.
  - Accept the Autodesk Software License Agreement and click Next. If you do not accept the license agreement, click Cancel and the NLM will not be installed.
  - You may accept the default destination folder or select the Browse button to specify a different location.

**Note:** If you have an existing version of FLEX/m running on your server, you may want to update it to version 8.3 that comes with AutoCAD 2004. Version 8.3 will allow you to take advantage of license borrowing.

It is recommended that the installation paths be kept simple and distinct; for example, *c:\NLMflex8*, which is much shorter than *C:\Program Files\Autodesk Network License Manager* and ensures that the license manager will be installed in a unique folder separate from earlier versions of AutoCAD software. If earlier versions of the NLM have been installed, they may have been installed in *c:\NLM*, in *c:\Program Files\NLM*, or in *c:\Program Files\Autodesk License Manager*.

You cannot install the NLM files on a remote drive. The path specified must be a local drive. Network drives and Universal Name Convention (UNC) paths are not supported.

- Click Next at Ready to install the application window. Several progress windows are displayed.
- Click Finish at the successfully installed window.

The NLM and its supporting files have been installed to the location you specified and are now ready to be authorized. Also, the Macrovision program LMTOOLS has been added to the Windows Start menu under Programs > Autodesk > Network License Manager.

**Note:** This is the computer that will administer licenses to AutoCAD 2004 or any AutoCAD 2004-based product. You will need to know this computer name when creating deployments

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to install AutoCAD. The Network Installation wizard, discussed in the third paper in this series, needs to know where the NLM has been installed in order to correctly tell the AutoCAD application where to request a license.

**Important Note:** The license manager is NOT ready to issue licenses at this point.

If earlier versions of the NLM are also installed on the server, you may have multiple entries under the Start menu. It is critical that you use the FLEXlm tools with AutoCAD 2002 and later releases, and that you use the Élan NLM tools only with versions of AutoCAD software released earlier than AutoCAD 2002. If you want to take full advantage of the features in AutoCAD 2004, you must be using FLEXlm version 8.3 that comes with AutoCAD 2004. Earlier versions of FLEXlm will not support the borrowing feature.

### Authorizing a Single Server

Before the NLM can administer licenses, it must be authorized. Authorization is completed when you configure the license manager. To configure the NLM, you need a license file. The license file identifies important licensing information, including license type and behavior, and the number of seats available for use. You must contact Autodesk to get a license file, in any of the following ways:

- Web: [www.autodesk.com/register](http://www.autodesk.com/register)

#### **United States, Canada, and Latin America**

- Phone: 415-507-4690 or 800-551-1490
- Email: [authcodes@autodesk.com](mailto:authcodes@autodesk.com)
- Fax: 800-225-6490 or 415-507-4937

#### **Asia Pacific**

- Email: [ap.register@autodesk.com](mailto:ap.register@autodesk.com)  
[Japan.register@autodesk.com](mailto:Japan.register@autodesk.com) (Japan only)
- Fax: 65-6735-4857  
03-6221-1791 (Japan only)

#### **EMEA**

- Email: [authcodes.neu@autodesk.com](mailto:authcodes.neu@autodesk.com)
- Fax: 41-32-723-9169

Autodesk will request the following information:

- AutoCAD (or AutoCAD-based product) serial number
- Server name or host name (can be found by running the *lmtool.exe* program)
- Host ID (Ethernet address: can be found by running the *lmtool.exe* program)
- Personal and company information
- Email address

In return, Autodesk supplies you with the license file by email.

#### **To obtain the server name and host ID:**

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.

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2. Click the System Settings tab. The information shown in Computer/Hostname is the computer's host name. The information shown in Ethernet Address is the computer's host ID.

**Note:** You must run the Lmtools program from the computer that has the license manager installed and that will be issuing licenses.

3. Autodesk sends an email with the license file as an attachment or the information required to create the license file used by the license manager in the body of the email. Following is an example of an email sent by Autodesk for 10 licenses for a server whose host name is NLMSVR1 and whose host ID is 0002008B5DB2.

=====  
===== Start of Email =====

From: authcode@autodesk.com  
Sent: Monday, March 10, 2003 4:53 PM  
To: nate.bartley@pos.com  
Subject: AutoCAD 2004 Single Server License file

Dear Autodesk Customer,

The attached document contains your network license file. You will need to save the file into the \Autodesk License Manager\license folder on the license server. You can rename the file however you like, but the file must be named with the .dat or .lic file extension. If you wish to view the license file, you may be asked to choose which program you want to use to open the file. If this is the case, choose Notepad.

Thank you for contacting Autodesk, Inc.

ABC, Authcode Representative

Autodesk, Inc

Ph: 1-800-551-1490

Fax: 1-800-225-6490

Email: authcodes@autodesk.com

=====  
===== End of Email =====

**Note:** The attachment is usually named <Serial Number>.lic where <Serial Number> equals the serial number of the product you are authorizing. Below is an example of an attached license file.

=====  
===== Start of 331-01234567.lic File =====

SERVER NLMSVR1 0002008B5DB2

USE\_SERVER

VENDOR adskflex port=2080

INCREMENT 42600ACD\_2004\_OF adskflex 1.000 permanent 10 \

VENDOR\_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP\_GROUP=UH \

ISSUED=10-mar-2003 SN=331-01234567 SIGN=285AA4768CAE

=====  
===== End of 331-01234567.lic File =====

4. After receiving the email, copy the attachment to <NLM Path>\License\<Serial number>.lic where <NLM Path> is the location where the license manager was installed

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and *<Serial number>.lic* is the attached license file. By default *<NLM Path>* this is *c:\Program Files\Autodesk Network License Manager*. If you have followed the recommendation in this paper, the *<NLM Path>* would be *c:\NLMflex8*.

**Note:** The file name *331-01234567.lic* is an example license file name. You can choose to rename the file as long as it ends in either a *.lic* or *.dat* extension. Also, if you use Notepad to edit a license file, Notepad automatically adds a *.txt* extension to the file saved if you do not change the Save As Type from *Text Documents* to *All Files (\*.\*)*. If the file is saved with a *.txt* extension, that extension must be removed by renaming the file in Windows Explorer.

You now have the information needed for the license manager to distribute licenses. You are ready to configure a single server.

If the license file was included as part of the body of the email received from Autodesk, use Notepad and copy only license information into the Notepad and save the file. Be sure to use an ASCII text editor to create the license file and be sure the file ends in either *.lic* or *.dat*.

**Note:** If you have multiple products being serviced by the same NLM, you need to combine license files into a single license file. See "Combined License Files" later in this paper.

### Configuring the NLM as a Single Server

FLEX/m offers two ways for you to configure the license manager to run: using a license file or using services. Autodesk supports only the services method.

#### To configure and start the NLM to use services:

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.
2. On the Service/License File tab, verify that Configuration Using Services is selected.

**Note:** The tabs that are displayed in the LMTOOLS window change depending whether Configuration using License File or Configuring using Service is chosen. The default has change in FLEX/m version 8.3 and now defaults to Configuring using Service. Also, version 8.3 includes a Borrowing tab. If you do not see the Borrowing tab you are not using version 8.3, and it is recommend that you update the NLM.

3. Click the Config Services tab and make the following changes:
  - The default service name is FLEX/m Service 1. This is the name that will appear under the Services Control Panel applet. You must change this name only if you have other programs using the FLEX/m version of the license manager or if you want to be more specific.
  - Click the Browse button next to Path to the *lmgrd.exe* file. Locate the folder where the *lmgrd.exe* file is stored. By default, the path is the one specified during installation of the NLM. In this example, this is *c:\NLMflex8*.
  - Click the Browse button next to Path to the License file. Locate the *License* folder and select the license file (*c:\NLMflex8\License\331-01234567.lic*).
  - Select the Use Services check box. To automatically start the license manager daemon when the computer starts, select the Start Server at Power Up check box. This option becomes available when you have selected Use Services.
  - Click Save Service. You are prompted to save the settings for the service you named in step 3. Click Yes.

**Note:** While we did not set up a debug log file in this example, we recommend that you do so.

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4. Click the Start/Stop/Reread tab, and then click Start Server. You see the message "Server Start Successful" at the bottom of the Lmtools dialog box. When the server is running, you see "Using License File: C:\NLMflex8\License\331-01234567.lic" at the bottom of the dialog box.

**Note:** The "Server Start Successful" message does not automatically change when the server has started. You must refresh the tab display to see the message "Using License File: C:\NLMflex8\License\331-01234567.lic" at the bottom of the dialog box. To refresh the tab, click another tab, and then click back.

5. Click the Server Status tab, and then click Perform Status Enquiry. Lmtools should report the date and time, license server status, vendor daemon status, and feature usage information. For AutoCAD 2004, the vendor daemon is *adskflex* and the feature is 42600ACD\_2004\_0F. The total number of licenses available should also be reported.

The NLM is now configured and running and is ready to administer AutoCAD licenses.

Once you have successfully configured using the single server, you are ready for the third white paper in this series, "Creating Deployments for AutoCAD 2004 or AutoCAD 2004-Based Products." During the creation of deployments, you will be prompted for the server host name and host ID where the NLM is running. You are prompted for this information in the Server Configuration dialog boxes. Enter the host name and host ID given to Autodesk in step 2 under the heading "Authorizing a Single Server." The information is used to create the *licpath.lic* file used by AutoCAD software to connect the license manager. If the wrong host name or host ID is entered, AutoCAD will not be able to find the license server and will fail to run even though your server is configured correctly.

### Installing the NLM for a Distributed License Server Pool

The steps required to install the NLM for a distributed license server pool are the same as to install for a single server; in this method, however, the NLM will be installed on multiple servers. See "Installing the NLM for a Single Server" and follow all of the steps there on each server in your distributed license server pool.

### Authorizing a Distributed License Server Pool

Before the NLM can administer licenses, it must be authorized. Authorizing a distributed server pool is similar to authorizing a single server. You still contact Autodesk as if configuring for a single server, but instead of providing a single server host name and host ID, you provide multiple host names, host IDs, and the number of licenses each server will distribute. If the numbers from all the servers are added together, they equal the total number of network licenses you own.

The server host name and host ID for each server can be found by running the Lmtools program on each server.

#### To obtain the server name and host ID:

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.
2. Click the System Settings tab. The information shown in Computer/Hostname is the computer's host name. The information shown in Ethernet address is the computer's host ID.

**Note:** You must run the Lmtools program from the computer that has the license manager installed and that will be issuing licenses.

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3. Autodesk sends an email with an attachment for each server being authorized in the distributed server pool. Following is an example of an email received by Autodesk. For this example, three servers are being configured as follows:

Host Name	Host ID	Number of licenses
Server 1	NLMSVR1	0002008B5DB2 4
Server 2	NLMSVR2	00020086FC64 3
Server 3	NLMSVR3	00020086FC50 3

(for a total of 10 licenses)

=====  
===== Start of Email =====

From: authcodes@autodesk.com  
Sent: Monday, March 10, 2003 4:53 PM  
To: heidi.hewett@pos.com  
Subject: AutoCAD 2004 Distributed Server License files

Dear Autodesk Customer,

The attached documents contain your network license files for your distributed server pool. You will need to save the appropriate license file into the \Autodesk License Manager\License folder on the appropriate license server. You can rename the license files however you like, but the file must be named with the .dat or .lic file extension. If you wish to view the license file, you may be asked to choose which program you want to use to open the file. If this is the case, choose Notepad.

Thank you for contacting Autodesk, Inc.

ABC, Authcode Representative

Autodesk, Inc

Ph: 1-800-551-1490

Fax: 1-800-225-6490

email: authcodes@autodesk.com

=====  
===== End of Email =====

**Note:** The attachments are usually named <Serial Number>.lic where <Serial Number> equals the serial number of the product you are authorizing. In the case of a distributed server pool, the license files may be named <Server name>.lic. Below are examples of the license file for each of our distributed servers.

=====  
===== Start of NLMSVR1.lic File =====

SERVER NLMSVR1 0002008B5DB2

USE\_SERVER

VENDOR adskflex port=2080

INCREMENT 42600ACD\_2004\_OF adskflex 1.000 permanent 4 \

VENDOR\_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP\_GROUP=UH \

ISSUED=10-mar-2003 SN=331-01234567 SIGN=285AA4768CAE

=====  
===== End of NLMSVR1.lic File =====

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

```
===== Start of NLMSVR2.Fic File =====
SERVER NLMSVR2 00020086FC64
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 3 \
  VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
  ISSUED=10-mar-2003 SN=331-01234567 SIGN=DF8475D86FC0
===== End of NLMSVR2.lic File =====
===== Start of NLMSVR3.lic File =====
SERVER NLMSVR3 00020086FC50
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 3 \
  VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
  ISSUED=10-mar-2003 SN=331-01234567 SIGN=746909141EBC
===== End of NLMSVR3.lic File =====
```

4. After receiving the email, copy the appropriate attachment for each server to the license folder on the appropriate server. In our example the license folder would be located at *c:\NLMflex8\License* on each server.

If the license files are included in the body of the email received from Autodesk, use Notepad and copy the appropriate license information into Notepad and save each license file. Be sure to use an ASCII text editor to create each license file and be sure the file ends in either *.lic* or *.dat*.

**Note:** Notepad automatically adds a *.txt* extension to the file saved if you do not change the Save As Type from *Text Documents* to *All Files (\*.\*)*. If the file is saved with a *.txt* extension, that extension must be removed by renaming the file in Windows Explorer.

You now have the information needed for each license manager to distribute licenses in the distributed license pool. You are ready to configure each server.

### Configuring a Server in a Distributed License Pool

Configuring a server in a distributed license pool is very similar to configuring FLEX/m for a single server. The difference in the case of the distributed license pool is that the correct license file must be used on the correct server. Keep in mind that FLEX/m provides two ways to configure and run the NLM, using either a license file or services. Autodesk supports the services method.

#### To configure and start the NLM to use services:

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.
2. On the Service/License File tab, verify that Configuration Using Services is selected.
3. Click the Configure Services tab and make the following changes:

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- The default service name is FLEXlm Service 1. This is the name that will appear under the Services Control Panel applet. You must change this name only if you have other programs using the FLEXlm version of the license manager or if you want to be more specific.
  - Click the Browse button next to Path to the *lmgrd.exe* File. Locate the folder where the *lmgrd.exe* file is stored. By default, the path is the one specified during installation of the NLM. In this example, this is *c:\NLMflex8*.
  - Click the Browse button next to Path to the License File. Locate the *License* folder and select the appropriate license file for the server being configured.
  - Select the Use Services check box. To automatically start the license manager daemon when the computer starts, select the Start Server at Power Up check box. This option becomes available when you have selected Use Services.
  - Click Save Service. You are prompted to save the settings for the service you named in step 3. Click Yes.
4. Click the Start/Stop/Reread tab, and then click the Start Server button. You see the message "Server Start Successful" at the bottom of the Lmtools dialog box. When the server is running, you see "Using License File: C:\NLMflex8\License\<<the appropriate file for given server>>.lic" at the bottom of the dialog box.

**Note:** The "Server Start Successful" message does not automatically change when the server has started. You must refresh the tab display to see the message "Using License File: C:\NLMflex8\License\<<server>>.lic" at the bottom of the dialog box. To refresh the tab, click another tab, and then click back.

5. Click the Server Status tab, and then click Perform Status Enquiry. Lmtools should report the date and time, license server status, vendor daemon status, and feature usage information. For AutoCAD 2004, the vendor daemon is *adskflex* and the feature is 42600ACD\_2004\_0F. The total number of licenses available on this server should be reported. (The total number of licenses available in the license pool is not reported.)
6. Repeat steps 1 through 5 on each server.

The license manager is now configured and running on each server. Each server's license manager is ready to administer AutoCAD licenses.

Once you have successfully configured using the distributed license server pool, you are ready for the third white paper in this series, "Creating Deployments for AutoCAD 2004 or AutoCAD 2004-Based Products." During the creation of deployments, you will be prompted for the servers host name and host IDs where the NLM is running.

**Note:** The Network Installation wizard has been enhanced in AutoCAD 2004 and now sets the environment variable *ADSKFLEX\_LICENSE\_FILE* for use in a distributed server pool. AutoCAD will search for the NLM based on the order specified in environment variable. You can control the order when creating the deployment in NIW.

### Installing the NLM for a Redundant Server Pool

The steps required to install the NLM for a redundant server pool are the same as to install for a single server; in this method, however, the NLM will be installed on three servers. These servers must all be running the same network operating system software, which must be either Windows 2000 Server or Windows NT 4.0 Server. See "Installing the NLM for a Single Server" and follow all of the steps for each server in your redundant server pool.

## Authorizing a Redundant Server Pool

Before the NLM can administer licenses, it must be authorized. Authorization for a redundant server pool is similar to authorizing a single server. You still contact Autodesk as if configuring for a single server but instead of providing a single server host name and host ID, you provide the host names and host IDs from the three servers that make up the redundant server pool. You must also provide the total number of licenses to be distributed by the redundant server pool.

The server host name and host ID for each server can be found by running the Lmtools program on each server.

### To obtain the server name and host ID:

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.
2. Click the System Settings tab. The information shown in Computer/Hostname is the computer's host name. The information shown in Ethernet address is the computer's host ID.

**Note:** You must run the Lmtools program from the computer that has the license manager installed and that will be issuing licenses.

3. Autodesk sends an email with the information required to create a license file for the redundant server pool. Here is an example of an email received by Autodesk. For this example, three servers are being configured as follows:

	Host Name	Host ID
Server 1	NLMSVR1	0002008B5DB2
Server 2	NLMSVR2	00020086FC64
Server 3	NLMSVR3	00020086FC50

The total number of licenses distributed by the redundant server pool in this example is 10.

===== Start of Email =====

From: authcodes@autodesk.com  
Sent: Monday, March 10, 2003 4:53 PM  
To: charley.sierra@pos.com  
Subject: AutoCAD 2004 Redundant Server License file

Dear Autodesk Customer,

The attached document contains your redundant server license file. You will need to save this file into the \Autodesk License Manager\license folder on each license server in the redundant server pool. You can rename the file however you like, but the file must be named with the .dat or .lic file extension. If you wish to view the license file, you may be asked to choose which program you want to use to open the file. If this is the case, choose Notepad.

Thank you for contacting Autodesk, Inc.

ABC, Authcode Representative

Autodesk, Inc

Ph: 1-800-551-1490

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

Fax: 1-800-225-6490

email: authcodes@autodesk.com

=====  
===== End of Email =====

**Note:** The attachment is usually name <Serial Number>.lic where <Serial Number> equals the serial number of the product you are authorizing. Below is an example of an attached license file that must be copied to each redundant server.

=====  
===== Start of 331-01234567.lic File =====

SERVER NLMSVR1 0002008B5DB2 27005

SERVER NLMSVR2 00020086FC64 27005

SERVER NLMSVR3 00020086FC50 27005

USE\_SERVER

VENDOR adskflex port=2080

INCREMENT 42600ACD\_2004\_OF adskflex 1.000 permanent 10 \

VENDOR\_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP\_GROUP=UH \

ISSUED=10-mar-2003 SN=331-01234567 SIGN=CF27B2A8AB84

=====  
===== End of 331-01234567.lic File =====

4. After receiving the email, copy the attachment to each server in the redundant server pool to the license folder. In our example the license folder would be located at `c:\NLMflex8\License` on each server.

If the license file was included as part of the body of the email received from Autodesk, use Notepad and copy only license information into the Notepad and save the file. Be sure to use an ASCII text editor to create the license file and be sure the file ends in either .lic or .dat. Copy the file to the license folder on each server.

**Note:** Notepad automatically adds a .txt extension to the file saved if you do not change the Save As Type from *Text Documents* to *All Files (\*.\*)*. If the file is saved with a .txt extension, that extension must be removed by renaming the file in Windows Explorer.

You now have the information needed for each license manager in the redundant server pool. You are ready to configure each server.

### Configuring a Server in a Redundant Server Pool

Configuring a server in a redundant server pool is very similar to configuring the FLEXlm license manager for a single server pool. The difference in the case of the redundant server pool is that the same license file must be installed on each server. Keep in mind that FLEXlm provides two ways to configure and run the license manager, using either a license file or services. Autodesk is currently supporting only the services method.

#### To configure and start the NLM to use services:

1. From the Start menu (Windows), click Programs > Autodesk > Network License Manager > LMTOOLS.
2. On the Service/License File tab, verify that Configuration Using Services is selected.
3. Click the Configure Services tab and make the following changes:
  - The default service name is FLEXlm Service 1. This is the name that will appear under the Services Control Panel applet. You must change this name only if you have

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

other programs using the FLEXlm version of the license manager or if you want to be more specific.

- Click the Browse button next to Path to the *lmgrd.exe* File. Locate the folder where the *lmgrd.exe* file is stored. By default the path is the one specified during installation of the NLM. In this example, this is *c:\NLMflex8*.
- Click the Browse button next to Path to the License File. Locate the *License* folder and select the license file *c:\NLMflex8\License\331-01234567.lic*.
- Select the Use Services check box. To automatically start the license manager daemon when the computer starts, select the Start Server at Power Up check box. This option becomes available when you have selected Use Services.
- Click Save Service. You are prompted to save the settings for the service you named in step 3. Click Yes.

**Note:** While we did not setup a debug log file in this example, we recommend that you do so.

4. Repeat steps 1 through 3 on each server.
5. On each server, click the Start/Stop/Reread tab, and then click the Start Server. You see the message "Server Start Successful" at the bottom of the Lmttools dialog box. When the server is running, you see "Using License File: C:\NLMflex8\License\RSRVPOOL.lic" at the bottom of the dialog box.

**Note:** The "Server Start Successful" message does not automatically change when the server has started. You must refresh the tab display to see the message "Using License File: C:\NLMflex8\License\331-01234567.lic" at the bottom of the dialog box. To refresh the tab display, click another tab, and then click back.

All three servers should be started within a few minutes of each other to avoid a delay in server synchronization.

6. On each server, click the Server Status tab, and then click Perform Status Enquiry. Lmttools should report the date and time, license server status, vendor daemon status, and feature usage information. One of the servers should be shown as "MASTER" while the other two servers are shown as "UP." For AutoCAD 2004, the vendor daemon is *adskflex* and the feature is *42600ACD\_2004\_OF*. The total number of licenses available should be reported.

The NLM is now configured and running on each server. Each server's license manager is ready to administer AutoCAD licenses.

Once you have successfully configured using the redundant license server pool, you are ready for the third white paper in this series, "Creating Deployments for AutoCAD 2004 or AutoCAD 2004-Based Products." During the creation of deployments, you will be prompted for the server host name and host ID for each server in the redundant server pool where the NLM is running. The AutoCAD 2004 Network Installation wizard has been enhanced and will allow you to specify each server in the redundant server pool. This information is used to create the *licpath.lic* file used by the AutoCAD program.

## Combined License Files

To combine license files for Autodesk products into one license file, you must edit the existing license file and add lines from the new license file to the existing license file.

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

Below is an example of adding Autodesk® Architectural Desktop 2004 software (3 licenses) to an existing AutoCAD 2004 software (10 licenses) license file:

===== Existing AutoCAD 2004 License File =====

```
SERVER NLMSVR1 0002008B5DB2
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 10 \
    VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
    ISSUED=10-mar-2003 SN=339-01234567 SIGN=285AA4768CAE
```

=====

===== New License File for Autodesk Architectural Desktop 2004 =====

```
SERVER NLMSVR1 0002008B5DB2
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 10 \
    VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
    ISSUED=10-mar-2003 SN=339-01234567 SIGN=285AA4768CAE
```

=====

Using Notepad, open the both the existing license file and the new license file. Copy all of the lines from the new license file starting at the line beginning with "INCREMENT" through the end of the file. Paste these lines at the end of the existing license file. The new combined license file should look like the example below.

===== Combined License File =====

```
SERVER NLMSVR1 0002008B5DB2
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 10 \
    VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
    ISSUED=10-mar-2003 SN=339-01234567 SIGN=285AA4768CAE
```

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

```
INCREMENT 42600ACD_2004_OF adskflex 1.000 permanent 10 \
```

```
VENDOR_STRING=nfr:permanent BORROW=720 SUPERSEDE DUP_GROUP=UH \
```

```
ISSUED=10-mar-2003 SN=339-01234567 SIGN=285AA4768CAE
```

```
=====
```

Save the existing file. For the changes to take effect, you need to reread the license file from LMTOOLS. Start LMTOOLS, go to the Start/Stop/Reread tab and click ReRead License File button.

**Notes:** Do not configure a separate service for the new Autodesk product.

When adding additional licenses of the same Autodesk product to your license file, you must obtain a new license file for the total number of licenses for that feature code, not just the new ones. For example, do not combine two different AutoCAD 2004 license files into one file. Obtain one new license file that contains the required total number of AutoCAD 2004 seats.

If the server computer has more than one network adapter installed, all Autodesk products should be bound to the same adapter.

## Borrowing a License

Although you may typically run AutoCAD software by accessing a license from a network license server, there may be situations where you need to run AutoCAD without access to the network. For example, you may need to work from home or a project site. Or maybe the network is scheduled for extended maintenance and will be inaccessible to an entire department. With AutoCAD 2004 software, you can borrow (check out) a network license for up to 30 days. You can return (check in) the license early or simply let it expire, automatically returning the license to the server. To borrow a network license, choose Programs > AutoCAD 2004 > License Borrowing Utility from the Windows Start menu.

**Note:** In LMTOOLS there is a borrowing tab. Do not use LMTOOLS to borrow a license. Using LMTOOLS from Macrovision to borrow a license will affect all programs that use FLEX/m version 8.

## Tips and Tricks

You can use the Windows Task Manager to test whether the license server is up and the vendor daemon is running.

1. Start Task Manager, and click the Processes tab.
2. Under the column "Image Name," you should see both *lmgrd.exe* and *adskflex.exe* running.
3. If only *lmgrd.exe* is running, the vendor daemon is not running. Shut down the license server and restart it.
4. If the vendor daemon, *adskflex.exe*, fails to restart, check the debug log file. At worst, you may need to re-create the service used to start FLEX/m.

You can also use the Windows tool IPCONFIG to find the host ID.

1. At a command window, enter **IPCONFIG /all**. IPCONFIG returns information about the physical and logical network adapters in the system.

## Installing the Autodesk License Manager for AutoCAD 2004 or AutoCAD 2004-Based Products

2. There are two main fields to look at, Description and Physical Address. The description lists the manufacturer and model of the network adapter; the physical address lists the host ID.

**Note:** Omit the dashes (-) in the host ID when requesting a license file.

Be aware of the following information for servers that have more than one network adapter:

- You must use the host ID that corresponds to a physical adapter. Devices such as VPN adapters, PPP adapters, and modems are not valid.
- If there is more than one physical network adapter, it does not matter which one you use. You just need to make sure it's properly installed and functioning.

**Note:** When multiple adapters are found, LMTTOOLS will report all adapters found in the Ethernet address. You must use the one that represents the physical address.

### Conclusion

The Autodesk License Manager is installed, configured, authorized, and running. The NLM is ready to distribute licenses based on the option you chose. The license manager is configured to restart when the server is restarted. If you have a complete server failure, you can remove the NIC and place it in another server and use the same license files.

You are now ready to create deployments used to install AutoCAD software on the local workstation. Please see the third white paper in this series, "Creating Deployments for AutoCAD 2004 or AutoCAD 2004-Based Products."

**autodesk**<sup>®</sup>

Autodesk, Inc.  
111 McInnis Parkway  
San Rafael, CA 94903  
USA

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