

## Autodesk® Network License Manager

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This class is for anyone who wants to learn how to manage network licenses. You will learn the steps required to install and configure Autodesk Network License Manager and use the Options file to manage group license permissions. We will also cover command-line tools, how to troubleshoot and diagnose problems, optimization, limit borrowing, and upgrade licenses. You will learn how to list current users and create usage reports. This class will benefit everyone new to network licenses and those that want to learn more.

### Learning Objectives

At the end of this class, you will be able to:

- Report license usage
- Install and configure Autodesk Network License Manager
- Troubleshoot network license issues
- Manage network licenses

### About the Speaker

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## Table of Contents

Learning Objectives .....	1
About the Speaker .....	1
Install and configure Autodesk Network License Manager .....	5
Autodesk Network License Manager .....	5
Planning .....	6
Single License Server .....	7
Distributed License Servers .....	8
Advantages of the Distributed License Server Model .....	8
Disadvantages of the Distributed License Server Model .....	8
Redundant License Servers .....	9
Global Network Use License (GNUL) .....	10
MultiFlex .....	10
Internet licensing .....	10
System Requirements .....	10
Installation .....	11
How to Request a License File .....	11
Configure the License Server .....	13
Manage network licenses .....	18
How Network License Manager is Working .....	18
FlexNet Configuration Tools .....	19
Stop and Restart the License Server .....	19
Update FlexNet from a Previous Version .....	20
Set Up and Use an Options File .....	21
Create an Options File .....	22
2048 character limit for lines .....	22
Set Up License Timeout .....	23
Defining Groups of Users or Computers .....	25
Projects .....	25
License Borrowing .....	25
Configure License Borrowing with the Options File .....	26

Limiting borrowing .....	26
Limit borrow period.....	26
Excluding license borrowing .....	26
Including license borrowing.....	27
Reserve network licenses .....	27
Restrict maximum license usage.....	28
Excluding license usage .....	28
Including license usage .....	28
Report log creation .....	29
Sample Options File.....	29
Changing server location of the FlexNet licensing service .....	29
Using an IP address in place of server hostname .....	30
Network License File described .....	30
Package License described .....	33
Updating network license files.....	35
Combining network license files .....	35
Combining Autodesk with another vendor's products already using FLEXlm .....	36
Cascade licensing and the PLIST increment.....	36
Dynamic Licensing in Inventor Products.....	37
How products find license servers.....	37
FlexNet feature code descriptions for Autodesk products .....	38
How to set up priority user access.....	38
Backup servers .....	38
Troubleshoot network license issues .....	39
Windows Services Console and Task Manager .....	39
FlexNet debug log .....	40
Perform Status Enquiry .....	44
Increasing verbosity of FlexNet errors on the server .....	45
Increasing verbosity of FlexNet errors on the client.....	45
Losing Your Connection to the License Server .....	45
FLEX service did not start automatically.....	45

Network licenses are not released after exiting product.....	46
How to change the lmgrd port number on a FlexNet server and client.....	46
Network licensing error [1.5.-4] when starting the software.....	46
No such Feature Exists error [1.5.-5] when starting the software .....	46
Error when network version of software is started: Error [1.5.-12].....	47
Error: FlexLM error [1.5.-14] .....	47
Error [1.5.-15] or [1.5.-18] when starting the software.....	47
Error: FlexLM error 1.5.-18 .....	47
No Valid License Error [1.5.-96], [1.5.-97], [1200.5.-96], [1200.5.-97].....	48
Error getting status: Cannot connect to license server system. ....	48
Lmstat is not finding server .....	48
Corrupt CascadeInfo.cas file results in failure of cascading functionality .....	48
Valid host ID characters for network license files .....	48
Using the licpath.lic file for Autodesk network license enabled products.....	48
LMTOOLS Error: Data Execution Prevention.....	49
FlexNet License Administrator .....	49
Autodesk® License Manager and server clustering .....	49
NIC Failure Recovery .....	49
Usage across WAN.....	49
License management and support for VPN connections .....	49
Autodesk Product Support and Knowledge Base.....	50
Report license usage .....	51
Using LMTOOLS.....	51
Using LMUTIL.....	51
SAMreport-Lite.....	51
JTB FlexReport LT .....	53
JTB FlexReport.....	54
References and resources: .....	55

## **Install and configure Autodesk Network License Manager**

### **Autodesk Network License Manager**

Network licenses are managed by one or more network license managers running on servers within your company's network. The network license manager is the software that makes licenses available to users. Network licensed software installed on workstations does not require individual registration and activation. Network licenses are also called "floating licenses," because they are not tied to a particular workstation or user. Most network licensed Autodesk products allow you to run unlimited concurrent sessions of a product on a single workstation while using only one network license.

With network licenses you can have more installations of software than you have licenses for. With for example 100 network licenses of AutoCAD there can be a maximum of 100 concurrent users running AutoCAD at any point in time but more than 100 computers can have AutoCAD installed.

Network licenses are more expensive than single licenses. Make sure to get a good return of investment (ROI) for them. The more users the easier it is to save money by using network licenses. Depending on how much the users are using the Autodesk product, network licenses can make sense even for companies with just 5-10 users. For companies with more users there is almost never a reason to have single licenses.

When you start a network licensed Autodesk product, it requests a license from the license server. If the number of available licenses has not been exceeded, the Network License Manager assigns a license to the computer, and the number of available licenses on the license server is reduced by one.

Likewise, when the last session is closed, the license is released and checked in to the License Manager.

### ***Trivia***

AdLM or NLM is often used as short for Autodesk Network License Manager.

Network licenses are also known as floating licenses or concurrent licenses.

Autodesk's network license manager is based on Flexera Software's FlexNet Publisher license manager product.

FlexNet was formerly known as FLEXnet and before that FLEXlm.

FLEXlm was originally a joint development by GLOBEtrotter Software and Highland Software in 1988 and has since then been developed and owned by GLOBEtrotter, Macrovision, Thoma Cressey Bravo (Acesso Software) and today Teachers' Private Capital (Flexera Software).

## **Planning**

The Network License Manager can be installed on one or multiple servers. There are three possible server models that support the Network License Manager. A server network can include Windows, Mac OS X, and Linux servers in any combination.

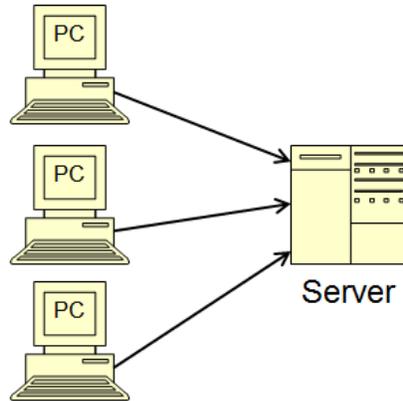
Take into consideration factors like the number of users, how much they will use the software, how many part time users and full time users are there, a user might be a lot on meetings or on site, another user might use the software almost all the time while another user spends a lot of time using other software. What does the existing network look like, are there multiple offices, what is the network connection speed and reliability between the offices? How should you handle license downtime and what does it cost?

Autodesk Network License Manager software does not cost anything but hardware and other software does plus the extra time it takes to manage multiple servers. This has to be compared to the cost of a potential server failure where users will not have access to their software.

There are advantages and disadvantages of each model and sometimes a mix of the models is the best choice.

### Single License Server

In the single license server model, the Network License Manager is installed on a single 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.

It is possible to have multiple single license servers in a network.

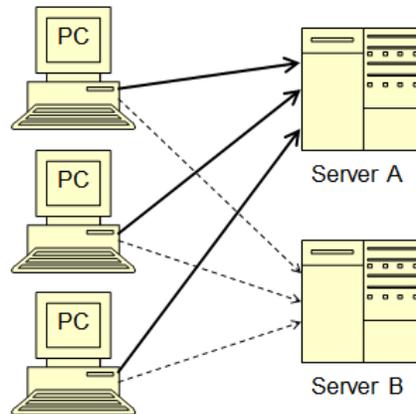
Normally this model is used where there are just a few licenses, users at one office and the overhead of using multiple servers cannot be justified.

If you already have a single point of failure, such as one file server, the single server option may be ideal for you.

LICPATH.LIC is typically used.

### Distributed License Servers

In the distributed license server model, licenses are distributed across two or more servers. A unique license file is required for each server. Each server can have different features and number of licenses. When a network licensed product starts up, it tries each server for a license in the order you specified on the client as specified during installation or later by updating the `ADSKFLEX_LICENSE_FILE` environment variable.



#### 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 strategic placement of the distributed servers provides fault tolerance of server and infrastructure failures.
- 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 reactivate the entire pool.
- Workstation or server operating systems may be used as license managers.
- It's easy to set up priority user access.
- There is no communication between the different distributed servers.

#### Disadvantages of the Distributed License Server Model

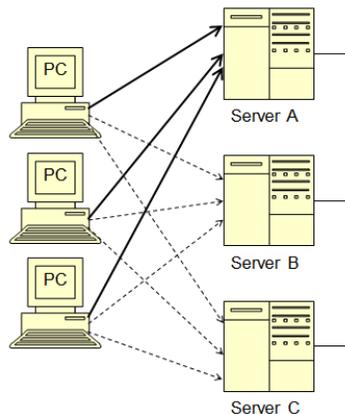
- If a server in the distributed server pool fails, the licenses on that server are unavailable.
- Wide area network (WAN) technology suffers from latency and reliability issues.
- This model can require more time for setup and maintenance than other models.

Tip! Put the distributed servers close to the users. For example one per each physical office location or city.

Distributed servers can also function simultaneously as single servers if you combine the license files.

### Redundant License Servers

In the redundant license server model, three servers are used. Licenses can be issued as long as at least two license servers are functional. The Network License Manager is installed on each server, and the license file is identical on each server.



#### 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.
- Redundant servers offer the highest level of fault tolerance of server failure but are intolerant of infrastructure failure.

#### 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 does not provide network fault tolerance. (Recommendation is to have all servers in the same data center)
- Slow, erratic, or dial-up connections are not supported.
- If one of the three servers is replaced, the complete redundant server pool must be rebuilt with new license files.
- 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.
- It requires server-edition operating systems. Mixing server operating systems or using workstation operating systems (such as Windows 2000, XP, Vista or Windows 7) is not supported.
- Using one computer as both a redundant and single server is not possible.
- It is complex to administer.
- Unless you are actively monitoring the status of the servers, you may not know if one server has failed.

Autodesk Product Support strongly recommends the distributed server configuration for most applications and I agree on that.

Redundant license servers also known as failover servers or triads.

LICPATH.LIC is used to define the three servers and their ports.

### **Global Network Use License (GNUL)**

Global Network Use License aka GNUL is a licensing option from Autodesk that allow usage across different countries or regions that are not allowed by the standard EULA (End-user license agreement). GNUL licenses are more expensive than standard network licenses.

### **MultiFlex**

Autodesk's MultiFlex is based on GNUL and similar to Autodesk's suit licenses, except that it covers almost all Autodesk products. MultiFlex licenses are more expensive than standard network licenses.

### **Internet licensing**

Internet licenses is something that has been piloted by some companies and requires approval of Autodesk. Because the licenses are available on the open Internet, license borrowing on the Internet license server needs to be restricted. Further protection is done with the System Environment Variable LM\_PROJECT. A unique LM\_PROJECT value (acting like a password) needs to be used on the Internet license server and on the clients. This makes it possible for only clients with the correct LM\_PROJECT value checking out a license.

### **System Requirements**

The Network License Manager supports Windows, Linux and MacOS X in Ethernet network configurations only.

The Network License Manager can be installed on a low spec server or PC (Intel® Pentium® III or higher with 450 MHz as minimum) as it does not require much and it can be on another existing server like a deployment or file server.

Virtual Machine Support is available. The Autodesk implementation of FlexNet is only supported on VMware ESX 3.5 SP1 and only on specific guest operating systems. Refer to Autodesk TS85748

In most every case the latest version of FlexNet can be used and is backward compatible.

VPN, Wireless, DSL/Cable is supported.

Internet licensing is not supported but requires permission from Autodesk to be used.

Dialup is not supported but might work even though several tries might be needed to start a product and find the license server.

For full details see the requirements for the software to be used as described in the Autodesk's documentation or online.

### **Installation**

For Windows, start the Autodesk Product Installer, click on the Install Tools & Utilities panel, select Network License Manager and install. For Mac OS X and Linux, see Autodesk's documentation.

The installer can also be found on the installation media, for AutoCAD 2012 found here:

`\x64\en-us\Tools\NLM\NLM.msi` or `\x86\en-us\Tools\NLM\NLM.msi`

You can install the Network License Manager before or after you install the products that will use it. Network License Manager must configure the license servers before any products can obtain licenses and start running.

If an earlier version of the Network License Manager is already installed on the computer, you should upgrade by stopping the license server in LMTOOLS, uninstall and then install the new Autodesk Network License Manager into the folder where the old version was located.

Default installation folder is "C:\Program Files\Autodesk\Autodesk Network License Manager" but it might be a good idea to install to a short path like C:\FlexNet to avoid potential problems especially if you need to support multiple vendor daemons.

To uninstall the Network License Manager stop the license server (or service) with the LMTOOLS utility. Uninstall Autodesk Network License Manager. Optionally manually delete files that been created for use with the Network License Manager, such as log files, license files, and the options file.

Important! 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. You must specify the drive letter; the universal naming convention (UNC) is not permitted.

### **How to Request a License File**

The preferred method of registering and obtaining your network licenses is to use the [Autodesk Registration web site](http://register.autodesk.com) <http://register.autodesk.com>. If you require assistance, complete the online [License Registration and Activation Assistance form](http://usa.autodesk.com/adsk/servlet/item?siteID=123112&id=13642197) <http://usa.autodesk.com/adsk/servlet/item?siteID=123112&id=13642197> or have your authorized Autodesk reseller handle licensing for you. 1-800-551-1490 can also be called.

Autodesk uses the server host name, host ID, and product serial number to generate a license file. This information is also needed: name and version of each Autodesk product as well as quantity of licenses for each product/version per license server. It's also needed to provide Autodesk with the server setup (Single, Redundant or Distributed).

The Host ID also known as MAC Address or Ethernet Address can be obtained in two ways. Using ipconfig /all or LMTOOLS.

To obtain the information, use one of the following procedures.

***Windows Command Prompt Procedure for Host Name and ID***

To obtain the host name and ID at the Windows command prompt

1. At the Windows command prompt, enter ipconfig /all
2. Record the Host Name and Physical Address line. Eliminate dashes from the physical address (e.g. "00-1F-16-FE-30-90"). This is your twelve-character host ID (e.g. "001F16FE3090").

Note! If your server has more than one network adapter, select the one that corresponds to a physical network adapter. 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. Devices such as VPN adapters, PPP adapters, and modems are not valid.

3. Close the Windows command prompt.

***LMTOOLS Procedure for Host Name and ID***

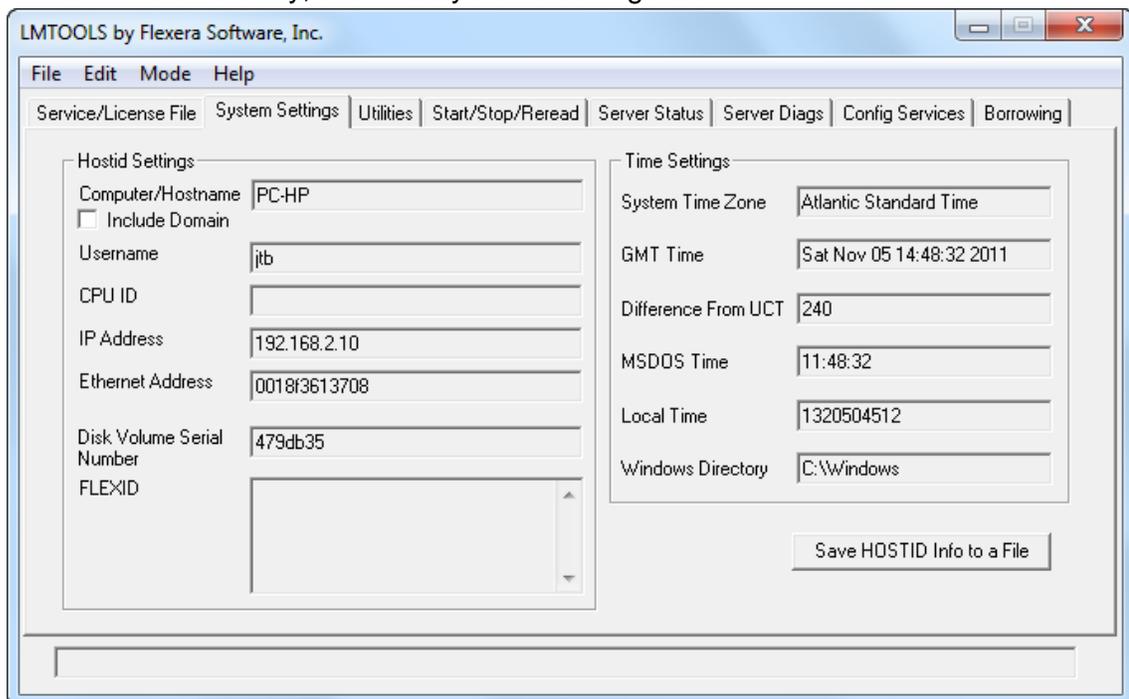
To obtain the host name and ID using the LMTOOLS utility

Important! Do not run LMTOOLS on a remote computer.

You should be logged in with Administrator rights when working with the LMTOOLS utility.

1. Click Start > All Programs > Autodesk > Network License Manager > LMTOOLS Utility.

- In the LMTOOLS utility, click the Systems Settings tab.



- Locate the Computer/Hostname box. Copy the host name and paste the information into a text editor.
- Locate the Ethernet Address box. The 12-character Ethernet address is the host ID. Note! If your server has more than one Ethernet adapter, select one that corresponds to a physical network adapter.
- Close LMTOOLS.

Only the NetBIOS name is required (not the FQDN). So if the server name is “ServerA.contoso.com” you can simply use “ServerA” for requesting a license.

To obtain the host name and ID using the Mac OS X or Linux terminal window see the Autodesk product documentation.

### **Configure the License Server**

You configure a license server to allow usage of and manage your Autodesk product licenses.

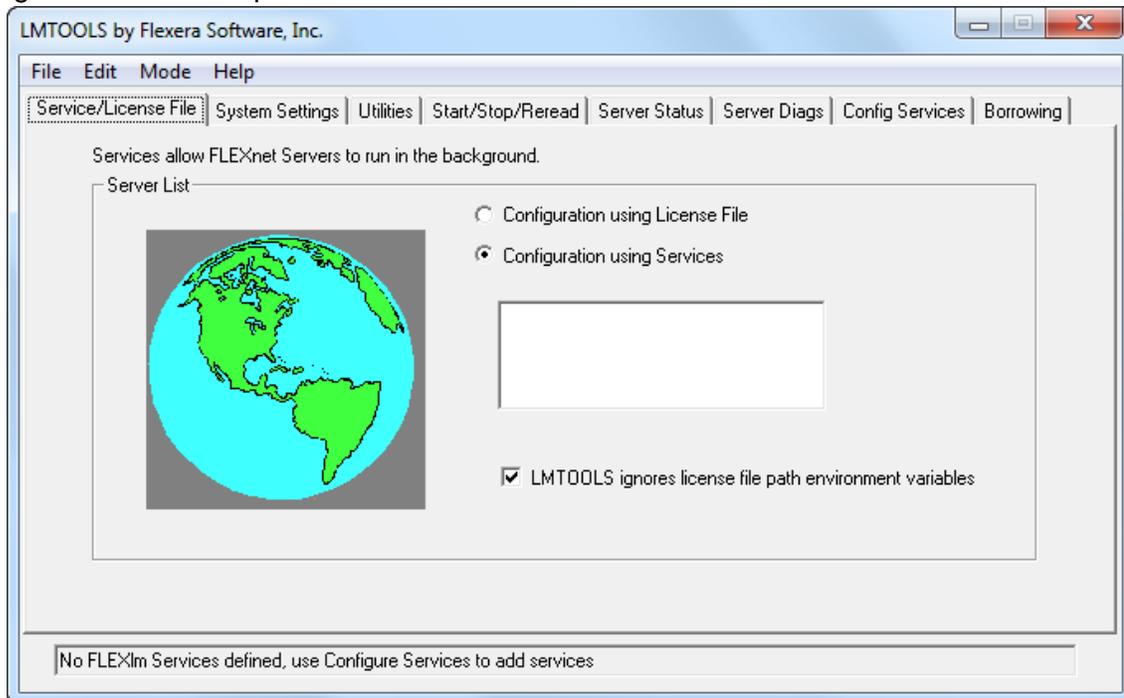
Configure the license server using the following procedure.

#### ***Windows License Server Configuration Procedure***

To configure a license server use LMTOOLS that is located in the Autodesk Network License Manager installation folder.

Make sure to be logged in with Administrator rights.

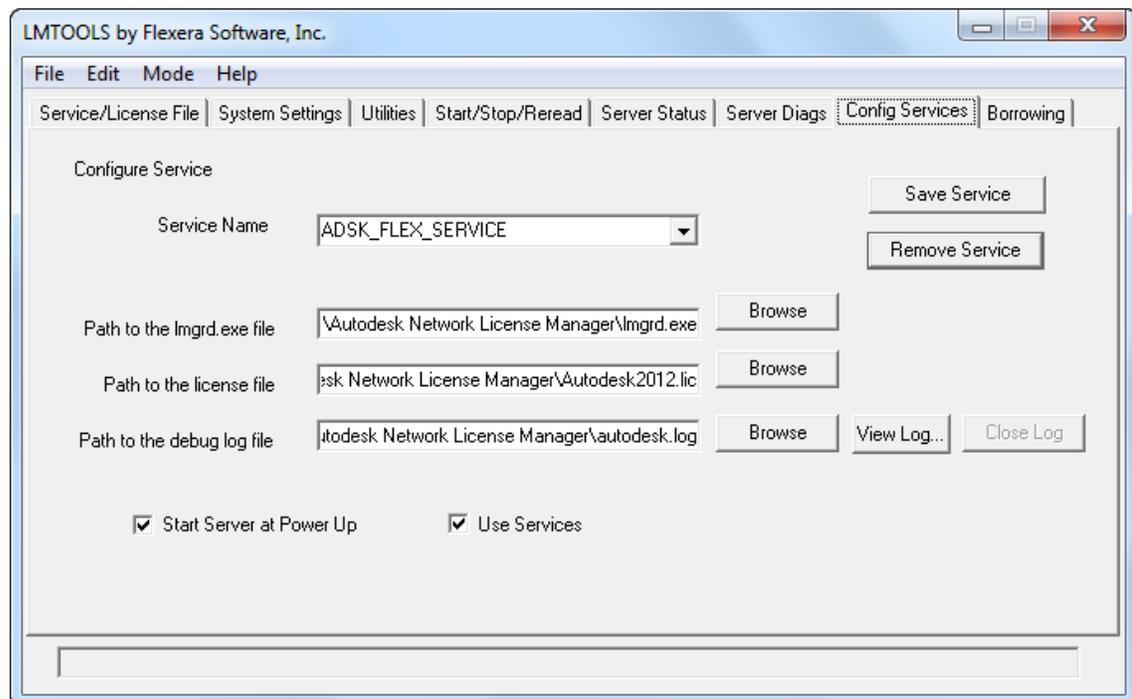
1. Click Start > All Programs > Autodesk > Network License Manager > LMTOOLS Utility or run lmtools.exe from the installation folder.
2. In the LMTOOLS utility, on the Service/License File tab, make sure the Configure Using Services option is active. Autodesk products do not support the Configuration Using License File method. It is also usually a good idea to check the option for “LMTOOLS ignores license file path environment variables”.



3. Click the Config Services tab.

- In the Service Name list, select the service name you want to use to manage licenses. By default, the service name is Flexlm Service 1. If FlexNet is managing other software on your computer in addition to Autodesk, you can change the service name to avoid confusion. For example, you can rename Flexlm Service 1 to Autodesk NLM. This name will also appear as a Windows service and can be monitored accordingly with for example Microsoft System Center Operations Manager.

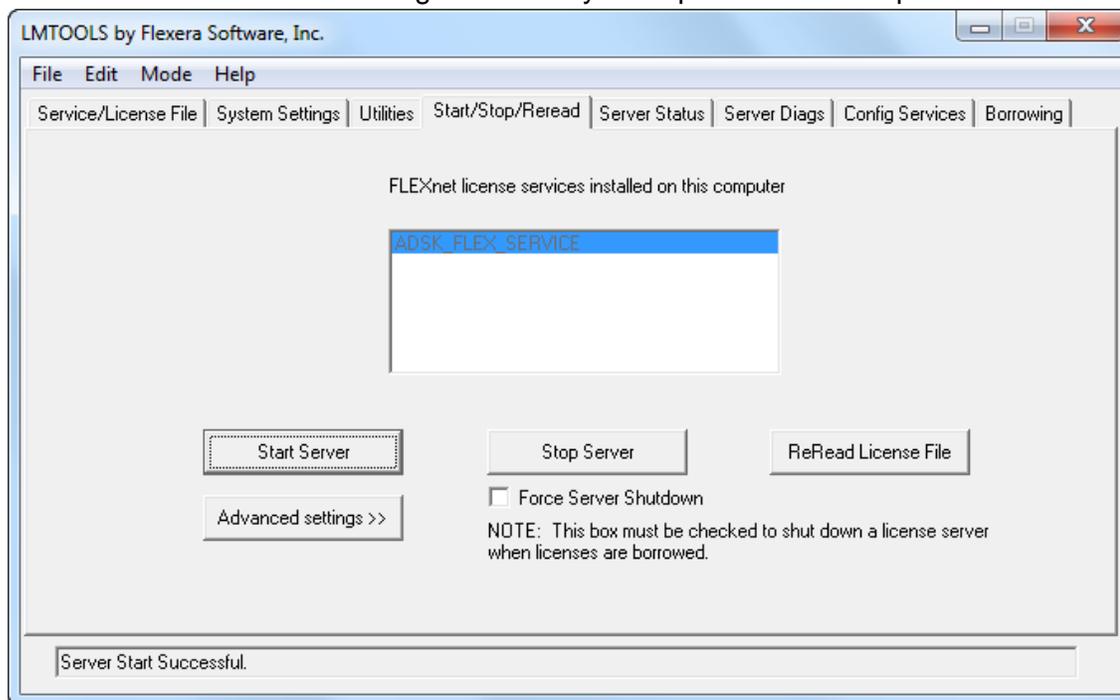
Note! If you have more than one software vendor using FlexNet for license management, the Service Name list contains more than one option. Make sure that only one Autodesk service is listed. Do not use forward slash “/” or back slash “\” in the service name.



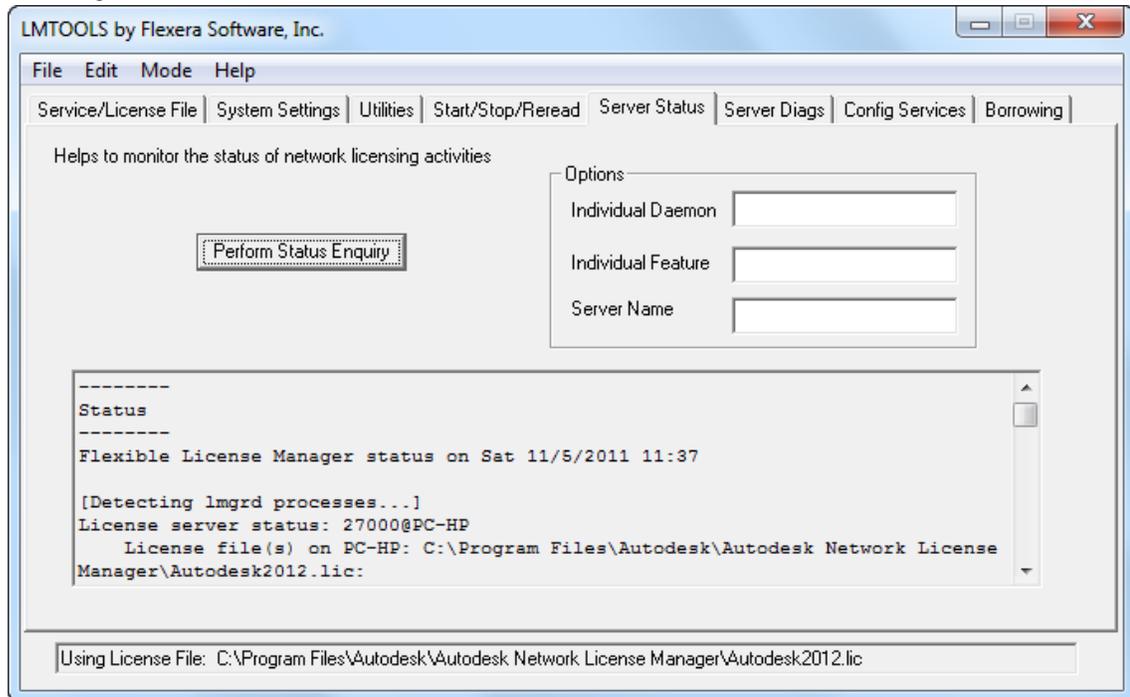
- In the Path to Lmgrd.exe File field, enter the path to the Network License Manager daemon (lmgrd.exe), or click Browse to locate the file. By default, this daemon is installed in the C:\Program Files\Autodesk Network License Manager folder.
- In the Path to the License File box, locate or enter the path. This is the path to the license file obtained through autodesk.com or the location where you placed the license file if you obtained it offline.
- In the Path to the Debug Log File box, enter a path to create a debug log, or click Browse to locate an existing log file. It is recommended that you save to the installation folder or a subfolder. The log file must have a .log file extension. For new log files, you must enter the .log extension manually. The debug log file is not an optional setting and the license manager will not start correctly without a valid path and file name specified.

8. To run Imgrd.exe as a service, select Use Services.
9. To start Imgrd.exe automatically when the system starts, select Start Server at Power Up.
10. Click Save Service to save the new configuration under the service name you selected in step 4. Click Yes when prompted if you would like to save the settings to the service.
11. Click the Start/Stop/Reread tab and do one of the following:
  - If a service has not yet been defined for Autodesk, click Start Server to start the license server.
  - If a service for Autodesk is already defined and running, click ReRead License File to refresh the Network License Manager with any changes made to the license file or options file.

The license server starts running and is ready to respond to client requests.



12. Click the Server Status tab and click on Perform Status Enquiry to ensure that it's working.



13. Close LMTOOLS.

Make sure that the Use Services and Start Server at Powerup options are enabled as well or the license manager will not run once LMTOOLS is closed or the license manager machine is rebooted.

Autodesk product licenses do not support the Utilities, Server Diags or Borrowing tabs in LMTOOLS. These tabs exist to support other products that use FlexLM and they should not be used when configuring or troubleshooting the Autodesk Network License Manager.

Important! If you have a firewall between the license server(s) and the client computers, you need to open some TCP/IP ports on the server for license-related communication. Open port 2080 for adskflex, and open ports 27000 through 27009 for lmgrd. If these port addresses are restricted by a router or firewall software, users on the remote side of the router will not have access to licenses controlled by the Network License Manager.

Test that it works by running an Autodesk product and verify that it can pull a license.

## Manage network licenses

### How Network License Manager is Working

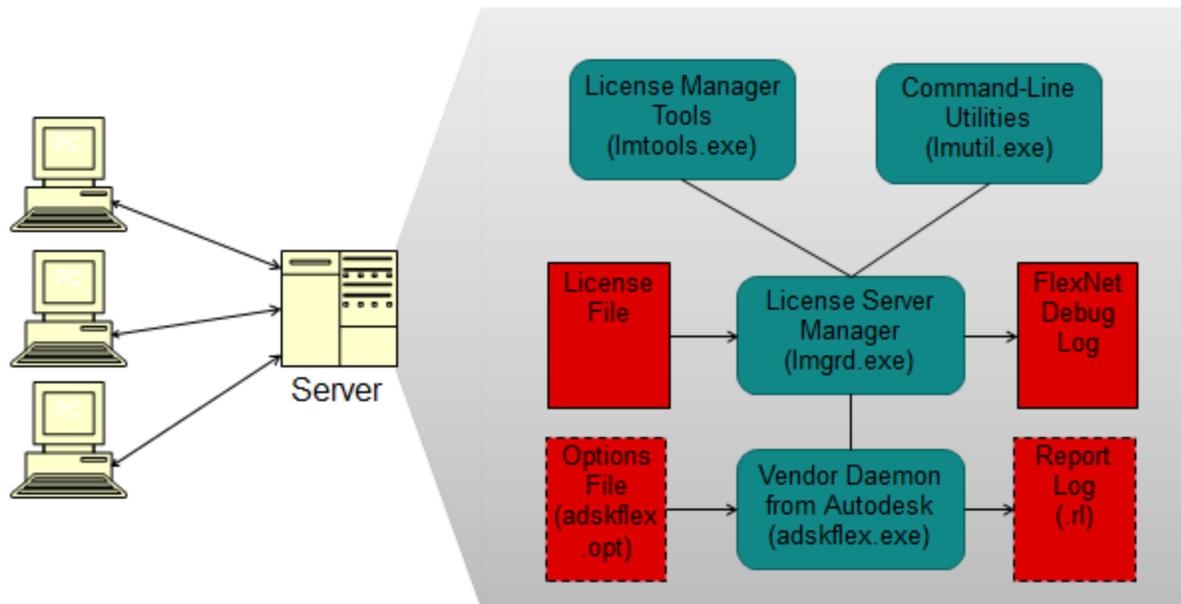
The following three things manage the distribution and availability of licenses:

- **License manager daemon** (lmgrd or lmgrd.exe) handles the original contact with the application, and then passes the connection to the vendor daemon. By using this approach, a single lmgrd daemon can be used by multiple software vendors to provide license authentication. Lmgrd starts, restarts and stops the vendor daemons as needed. Lmgrd reads the license file and writes to the FlexNet debug log.
- **Autodesk vendor daemon** (adskflex or adskflex.exe) tracks the Autodesk licenses that are checked out and the computers that are using them. Each software vendor has a unique vendor daemon to manage vendor-specific licensing.  
Note: If the adskflex vendor daemon terminates for any reason, all users lose their licenses until lmgrd restarts the vendor daemon or until the problem causing the termination is resolved.
- **License file** is a text file that holds the needed license information.

Then there are these components:

- **License Manager Tools** or LMTOOLS is a UI utility
- **Lmutil.exe** is a command line utility
- **FlexNet Debug Log** contains a log of events that lmgrd and adskflex creates and is useful to debug and confirm that the network license manager is working as expected.
- **Options file** is an optional file that can be used to configure how licenses are used.
- **Report Log** is an optional file holding license usage that can be reported on.

The license manager network traffic or heartbeat is a two-way communication between client and license server and happens about one time per minute per session and the packets are small. 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. Most Autodesk products give you the opportunity to save open documents before shutting down.



### FlexNet Configuration Tools

FlexNet provides two administrative utilities for managing the license server. These tools are located in the Autodesk Network License Manager installation folder.

LMTOOLS Utility (**lmttools.exe**) provides a graphical user interface for managing the license server.

Normally the checkbox “LMTOOLS ignores license file path environment variable” should be checked.

Use only the checkbox “Force Server Shutdown” when a service fails to stop.

**lmutil.exe** provides a set of command-line options for managing the license server.

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

Start, stop, and restart the server.

Configure, update, and reread the license file.

Diagnose system or license problems.

View server status, including active license status.

### Stop and Restart the License Server

Before performing system maintenance on your license server (including uninstalling the Autodesk Network License Manager) you must stop the license server. When you have completed maintenance, you can restart the license server.

### Update FlexNet from a Previous Version

Normally with a new release of Autodesk products it is required to upgrade FlexNet.

To determine the installed version of FlexNet, you need to verify the version of the following files: lmgrd.exe, lmtools.exe, lmutil.exe and adskflex.exe. Normally the version can be seen by checking the properties of the file. LMTOOLS can also be used. Click the Utilities tab and browse for the .exe file and click on Find Version.

To update FlexNet in Windows

You should be logged in with Administrator rights when working with the LMTOOLS utility.

1. Back up your license, options and other files that are vital.
2. Click Start > All Programs > Autodesk > Network License Manager > LMTOOLS Utility or run lmtools.exe from the installation folder.
3. In the LMTOOLS utility, click the Start/Stop/Reread tab.
4. Click Stop Server.
5. Close LMTOOLS.
6. Note the location where the Network License Manager is installed and then uninstall the Network License Manager.
7. Install the Network License Manager to the same location as the previous version.
8. Do one of the following:  
(Windows XP) Click Start > Programs > Autodesk > Network License Manager > LMTOOLS.  
(Windows 7/ Windows Vista) Double-click the LMTOOLS icon on the desktop.  
Run lmtools.exe from the installation folder
9. In the LMTOOLS utility, click the Start/Stop/Reread tab.
10. Click Start Server.
11. Click the Server Status tab and click on Perform Status Enquiry to ensure that it's working.
12. Close LMTOOLS.
13. Test run the network licensed product.

The version of the license server manager (lmgrd.exe) must be greater than or equal to the version of FlexNet Publisher used in the application/application's vendor daemon (for Autodesk it is adskflex.exe). You can always use the latest license server manager and utilities; they will be backward-compatible with your application and its license file.

Download them from [http://www.globes.com/support/fnp\\_utilities\\_download.htm](http://www.globes.com/support/fnp_utilities_download.htm) and select your Operating System. Normally updating is not needed unless your application vendor requires it. But if you experience problems in some way, then it can be a good idea to see if it helps with the latest version. Take backup of the old exe files. Stop the license service(s). Replace the exe files. Start the license service(s).

This procedure can be performed without affecting users who are running the software, provided the entire procedure is completed within a reasonable amount of time. However, during this procedure new users will be unable to acquire licenses. If this interruption is unacceptable, you might consider doing this upgrade when users will not need licenses.

If you have multiple servers the easiest thing is to install the new version on one and then for the other servers you can just stop the service, replace the exe files and start the service.

You can upgrade FlexNet even if licenses are borrowed. It is possible to release licenses early to the updated FlexNet server.

The version of the FlexNet license manager required for the corresponding version of AutoCAD is as follows:

- AutoCAD 2012 - Version 11.9.0.0
- AutoCAD 2011 - Version 11.7.0.0
- AutoCAD 2010 - Version 11.5
- AutoCAD 2009 - Version 11.4.100.0
- AutoCAD 2008 - Version 11.4.0.0
- AutoCAD 2007 - Version 10.8.0
- AutoCAD - Version 10.1.5
- AutoCAD 2005 - Version 9.2.2
- AutoCAD 2004 - Version 8.3a
- AutoCAD 2002 - Version 7.1f

### **Set Up and Use an Options File**

With an options file, you set configuration options that determine how a license server manages licenses. The options file is optional.

The options file on each server specifies the license-handling behavior for that server. By managing the contents of the options files, you can specify the same behavior on all license servers, or implement particular differences among the servers.

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

- License timeout
- License borrowing
- Report log file

You can also set up advanced license parameters, such as reserving a license, restricting license usage, or defining groups of users or hosts (machines). To learn more about setting advanced options file parameters, see the FlexNet documentation. This documentation is installed on the license server, in the Network License Manager directory.

**Create an Options File**

Open a text editor, enter the parameters you want, and then save the document as a file named `adskflex.opt` to the same folder as 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.

The options file might be corrupted if edited in a non-ASCII editor like Wordpad or Word. Use Notepad.

For options file changes to take effect on a license server run LMTOOLS utility, on the Start/Stop/Reread tab, click Reread License File. In some cases the first time the option file is used a stop and start is needed.

Verify that the license manager is using the Options File by checking the debug log. Look for a row including the text “(adskflex) Using options file:”

All syntax following a number sign (#) will be ignored by the license manager.

**2048 character limit for lines**

Lines in the options file are limited to 2048 characters. The backslash “\” is a continuation character in options file lines.

If the group you are planning to create has a line length that exceeds 2048 characters, you can either create an additional group with the same name that contains the users or hosts that exceed the limit or split the GROUP into two or more groups.

```
GROUP mygroup USER1 USER2 ... USER124 USER125
```

```
GROUP mygroup USER126 USER127 ... USER249 USER250
```

## 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 computer 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.

License timeout is not supported by all Autodesk products. But for those that are it is a great way to household on licenses.

You can use the TIMEOUT parameter to set individual license timeouts for each Autodesk product, or use the TIMEOUTALL parameter to set one license timeout for all Autodesk products.

To set license timeout parameters:

- For individual Autodesk products: In the options file, enter the following syntax on its own line (TIMEOUT must be uppercase):  
**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 900** means that for the product Autodesk\_f1, the license timeout period is 900 seconds.
- For all Autodesk products: In the options file, enter the following syntax on its own line (TIMEOUTALL must be uppercase):  
**TIMEOUTALL n**  
 In the TIMEOUTALL syntax, "n" is the number of seconds before an inactive license is reclaimed by the license server.  
 For example, the syntax **TIMEOUTALL 900** means that for all Autodesk products, the license timeout period is 900 seconds.

Any of the following activity in the active application prevents the client workstation from being idle:

- Any keystroke.
- Any mouse click.
- Any command, Lisp expression, menu macro or script in progress.
- Any Modal dialog box opened (a dialog box which needs to close before continuing to other tasks).

Unfortunately the Automatic save functionality triggers a command activity. Thus it can take longer time than the minimum timeout before the license is available for others.

The lowest acceptable value for timeout of Autodesk products is 900 seconds (15 minutes).

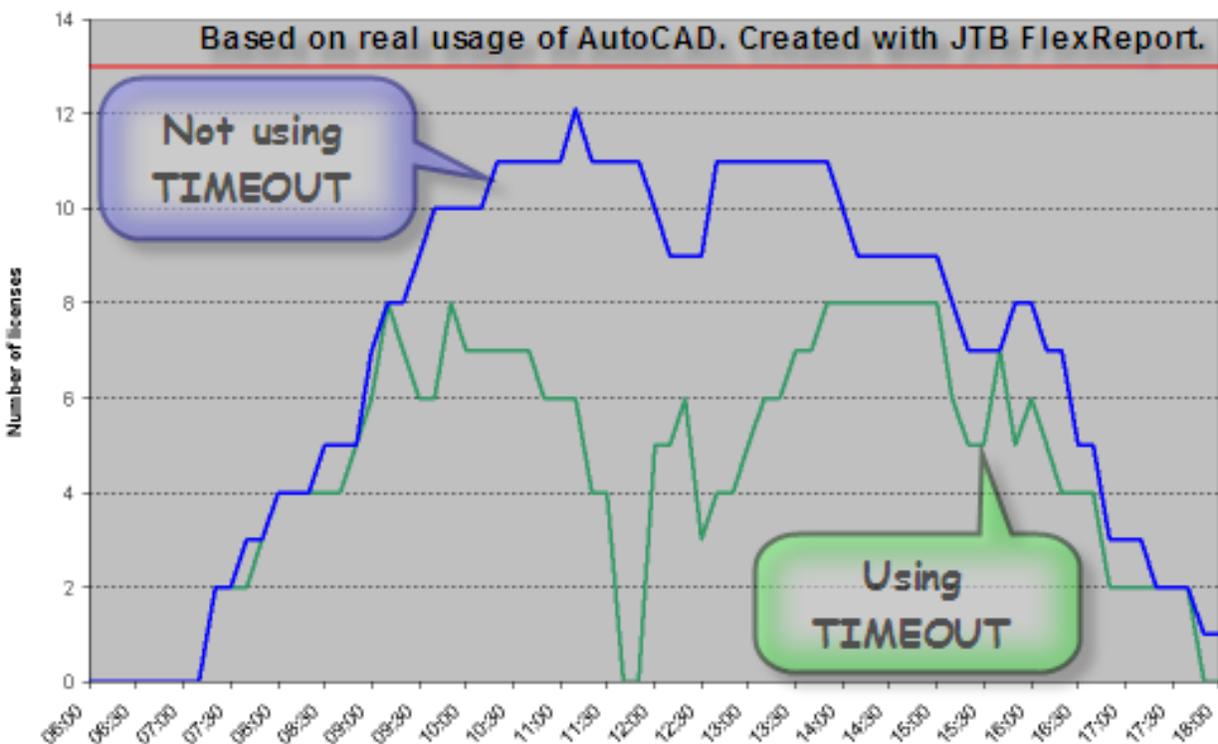
If a product crashes a wire is disconnected the session might end up in limbo and might not be returned until the license server is restarted. This in itself is a reason to always make use of timeout.

Recommendation is to use lowest timeout and use it for all features:

`TIMEOUTALL 900`

Make sure to inform your users about how license timeout works and that they don't leave a command running or a modal dialog box opened while leaving the application.

To confirm it works open the FlexNet debug log and search for "(INACTIVE)".



### Defining Groups of Users or Computers

Defines a group of users for use in INCLUDE, INCLUDEALL, INCLUDE\_ENTITLEMENT, EXCLUDE, EXCLUDEALL, EXCLUDE\_ENTITLEMENT, and RESERVE option lines.

By default, computer names (host names) and user names are case sensitive unless the GROUPCASEINSENSITIVE ON statement has been added to the options file. Because the case can change from time to time on machines it is recommended to always use case insensitivity.

Syntax for user groups: GROUP [groupname] [user1] [user2] [user3]

Syntax for host groups: HOST\_GROUP [groupname] [computername1] [computername2] [computername3]

The following example defines a group called EngineeringGroup for three users:

```
GROUP EngineeringGroup userA userB userC
```

The following example defines a group called DraftingDept with three computers:

```
HOST_GROUP DraftingDept computer1 computer2 computer3
```

### Projects

Specific computers can be defined as part of a project by configuring an environment variable on those client machines. This project designation can then be used to control license access in the options file. The project environment variable is an optional component and is not required when you define groups directly in the options file. The value of LM\_PROJECT can only be seen in tools using the FlexNet report logs.

### License Borrowing

License Borrowing allows users to borrow a product license from the network license server to use the Autodesk product for a specified time even if the computer is not connected to the network. When a license is borrowed, one license less is available for other users. The license is automatically returned to the license server at the end of the day on the return date set when the license was borrowed. The user can return a license early but that must be done when connected to the network license server and be done from the same user and computer that initially borrowed the license. A borrowed license cannot be returned earlier from the license server. The maximum borrowing period is six months but can be limited by editing the options file.

Most network licensed Autodesk products allow you to use the software while temporarily disconnected from your company's network, such as when you are on business trip or working at a remote location. Unless 6 months are needed set as low limit as possible to avoid licenses from being orphaned, something that can happen if a laptop is stolen during a trip.

Because network licenses are more expensive than single licenses make sure users don't borrow licenses just to be sure they have a license all the time. Make sure users return the borrowed license as soon as they don't need it any more.

### **Configure License Borrowing with the Options File**

AutoCAD 2004 and AutoCAD 2005 maximum borrowing period is 720 hours (30 days).

AutoCAD 2006 up to AutoCAD 2012 maximum borrowing period is 4320 hours (180 days).

The absolute maximum borrowing period is determined by the BORROW=statement in the license file increment for the product. This cannot be amended.

If the license file has a package increment use both Product and Package feature codes.

### **Limiting borrowing**

You can specify a number of specific licenses that cannot be borrowed.

```
BORROW_LOWWATER [productfeature] [count]
```

The following example blocks license borrowing for 5 AutoCAD 2012 licenses:

```
BORROW_LOWWATER 85730ACD_2012_OF 5
```

### **Limit borrow period**

You can specify the maximum duration of time that a specific license can be borrowed for in hours. This value cannot be above the maximum borrow period specified by Autodesk in the product license file. Note! Licenses are borrowed in increments of 24 hours only. Any number that is more than a 24-hour increment is not used. For example, the number 365 would be rounded down to 360 hours, or 15 days.

```
MAX_BORROW_HOURS [productfeature] [hours]
```

The following example limits license borrowing of AutoCAD 2012 licenses to 3 days:

```
MAX_BORROW_HOURS 85730ACD_2012_OF 72
```

### **Excluding license borrowing**

You can block the ability to borrow specific licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive). Any users, hosts or IP addresses not explicitly excluded will continue to have the ability to borrow licenses.

```
EXCLUDE_BORROW [productfeature] [type] [name]
```

The following examples block borrowing of AutoCAD 2012 licenses for a variety of types:

```
EXCLUDE_BORROW 85730ACD_2012_OF USER smithj
EXCLUDE_BORROW 85730ACD_2012_OF HOST computer1
EXCLUDE_BORROW 85730ACD_2012_OF GROUP EngineeringGroup
EXCLUDE_BORROW 85730ACD_2012_OF HOST_GROUP DraftingDept
EXCLUDE_BORROW 85730ACD_2012_OF INTERNET 192.168.0.100
EXCLUDE_BORROW 85730ACD_2012_OF INTERNET 192.168.0.*
EXCLUDE_BORROW 85730ACD_2012_OF PROJECT CivilProject
```

### Including license borrowing

You can provide the ability to borrow specific licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive).

Note: Any users, hosts or IP addresses not explicitly included will not have the ability to borrow the specified licenses. If you want to block license borrowing for only a few users, you should consider using the EXCLUDE\_BORROW syntax above.

```
INCLUDE_BORROW [productfeature] [type] [name]
```

The following examples allow borrowing of AutoCAD 2012 licenses for the specified type only:

```
INCLUDE_BORROW 85730ACD_2012_OF USER smithj
INCLUDE_BORROW 85730ACD_2012_OF HOST computer1
INCLUDE_BORROW 85730ACD_2012_OF GROUP EngineeringGroup
INCLUDE_BORROW 85730ACD_2012_OF HOST_GROUP DraftingDept
INCLUDE_BORROW 85730ACD_2012_OF INTERNET 192.168.0.100
INCLUDE_BORROW 85730ACD_2012_OF INTERNET 192.168.0.*
INCLUDE_BORROW 85730ACD_2012_OF PROJECT CivilProject
```

### Reserve network licenses

You can reserve a specific count of licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive by default).

```
RESERVE [count] [productfeature] [type] [name]
```

The following examples reserve either 1 or 5 AutoCAD 2012 licenses for a variety of types:

```
RESERVE 1 85730ACD_2012_OF USER smithj
RESERVE 1 85730ACD_2012_OF HOST computer1
RESERVE 5 85730ACD_2012_OF GROUP EngineeringGroup
RESERVE 5 85730ACD_2012_OF HOST_GROUP DraftingDept
RESERVE 1 85730ACD_2012_OF INTERNET 192.168.0.100
RESERVE 5 85730ACD_2012_OF INTERNET 192.168.0.*
RESERVE 5 85730ACD_2012_OF PROJECT CivilProject
```

**Restrict maximum license usage**

You can limit usage of specific licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive by default).

MAX [count] [productfeature] [type] [name]

The following examples set a limit of either 1 or 5 AutoCAD 2012 licenses for a variety of types:

```
MAX 1 85730ACD_2012_OF USER smithj
MAX 1 85730ACD_2012_OF HOST computer1
MAX 5 85730ACD_2012_OF GROUP EngineeringGroup
MAX 5 85730ACD_2012_OF HOST_GROUP DraftingDept
MAX 1 85730ACD_2012_OF INTERNET 192.168.0.100
MAX 5 85730ACD_2012_OF INTERNET 192.168.0.*
MAX 5 85730ACD_2012_OF PROJECT CivilProject
```

**Excluding license usage**

You can block access to specific licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive). Any users, hosts or IP addresses not explicitly excluded will continue to have access to these licenses.

EXCLUDE [productfeature] [type] [name]

The following examples block access to AutoCAD 2012 licenses for a variety of types:

```
EXCLUDE 85730ACD_2012_OF USER smithj
EXCLUDE 85730ACD_2012_OF HOST computer1
EXCLUDE 85730ACD_2012_OF GROUP EngineeringGroup
EXCLUDE 85730ACD_2012_OF HOST_GROUP DraftingDept
EXCLUDE 85730ACD_2012_OF INTERNET 192.168.0.100
EXCLUDE 85730ACD_2012_OF INTERNET 192.168.0.*
EXCLUDE 85730ACD_2012_OF PROJECT CivilProject
```

**Including license usage**

You can provide access to specific licenses for a user, computer, group of users or computers, IP address, IP address range or by LM\_PROJECT variable association (computer names and user names are case sensitive). Any users, hosts or IP addresses not explicitly included will not have access to the specified licenses. If you want to block license usage for only a few users you should consider using the EXCLUDE syntax.

INCLUDE [productfeature] [type] [name]

The following examples provide access to AutoCAD 2012 licenses for the specified type only:

```
INCLUDE 85730ACD_2012_OF USER smithj
INCLUDE 85730ACD_2012_OF HOST computer1
INCLUDE 85730ACD_2012_OF GROUP EngineeringGroup
INCLUDE 85730ACD_2012_OF HOST_GROUP DraftingDept
INCLUDE 85730ACD_2012_OF INTERNET 192.168.0.100
INCLUDE 85730ACD_2012_OF INTERNET 192.168.0.*
INCLUDE 85730ACD_2012_OF PROJECT CivilProject
```

### Report log creation

You can configure the creation of a report log (RL) file for use with Flexera FlexNet Manager reporting tools or SAMreport-lite usage reporting tools. For more information about configuring them you should refer to the related documentation.

The plus sign (+) preceding the report log file path indicates that the license manager should append to the report log instead of overwriting it. Also, the path for the report log should not contain spaces (or be enclosed by quotations) and must already exist (the license manager will not create this location for you). The license manager will create the report log file.

```
REPORTLOG +<Path\ReportLog.rl>
```

The following example defines a report log file to be created in a specific location:

```
REPORTLOG +"C:\Reports\MyServer.rl"
```

### Sample Options File

Below is a sample of an options file.

```
# Comment rows are starting with #
TIMEOUTALL 900
GROUPCASEINSENSITIVE ON
GROUP Drafters pete john emma
HOST_GROUP DraftingDept computer1 computer2 computer3
BORROW_LOWWATER 85730ACD_2012_OF 5
MAX_BORROW_HOURS 85730ACD_2012_OF 240
EXCLUDE_BORROW 85730ACD_2012_OF USER smithj
INCLUDE_BORROW 85730ACD_2012_OF GROUP Drafters
RESERVE 1 85730ACD_2012_OF HOST computer1
MAX 5 85730ACD_2012_OF HOST_GROUP DraftingDept
EXCLUDE 85730ACD_2012_OF PROJECT CivilProject
INCLUDE 85730ACD_2012_OF INTERNET 192.168.0.*
REPORTLOG +"C:\Reports\MyServer.rl"
```

### Changing server location of the FlexNet licensing service

Automate this using a login script updating the registry or Group Policy Object setting.

See Knowledge Base document TS1066086.

**Using an IP address in place of server hostname**

See Knowledge Base document TS1053533.

**Network License File described**

The network license file you receive from Autodesk contains licensing information required for a network installation. It also contains an encrypted digital signature that is created when Autodesk generates the file.

The license file configures network license servers to manage licenses.

The following table defines each license file parameter.

<b>Definitions of license file parameters</b>			
<b>Line</b>	<b>Parameter</b>	<b>Definition</b>	<b>Example</b>
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
	Port Number	Optionally specify a port to be used	port=27000
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 by Autodesk products running the Autodesk vendor daemon	port=2080
PACKAGE	Name	Name of feature code group	<i>SERIES_1</i>
	Version	Internal version number reference	1.000
	COMPONENTS	List of feature codes supported in the package	COMPONENTS= "526000REVIT_9_OF\ 51200ACD_2007_OF\ 513001INVBUN_11_OF"
	OPTIONS		OPTIONS=SUITE

	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
	SIGN	Encrypted signature used to authenticate the attributes of the license file	SIGN=0 SIGN2=0
INCREMENT	Feature Code	Product supported by the license file	85730ACD_2012_OF
	Expiration Date	Amount of time the licenses are available	permanent
	Number of Licenses	Number of licenses supported by the license file	25
	VENDOR_STRING	License usage type and license behavior of the product that is supported by the license file	COMMERCIAL
	BORROW	Definition of the license borrowing period for the licenses defined under the same increment line. In this example, the maximum period that licenses can be borrowed is 4320 hours (180 days), unless otherwise noted. License borrowing is disabled when this parameter is absent in the license file.	BORROW=4320
	DUP_GROUP	Definition of multiple license requests when the same user and same host share the same license	DUP_GROUP=UH
	ISSUED	Date that the license file was generated by Autodesk	15-jul-2010
	Serial Number	Serial number of the Autodesk product	123-12345678
	SIGN	Encrypted signature used to authenticate the attributes of the license file	SIGN=6E88EFA8D44C

## License File Examples

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

```
SERVER XXHP0528 0019bbd68993
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 57600ACD_2009_OF adskflex 1.000 permanent 5 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH ISSUED=09-Jan-2008 SN=123-12345678 SIGN="1393 \
  E368 816E D417 C1CD 7DBD 7B90 1354 D6F0 48FE EBB8 9C84 C3AF \
  7D79 BEE1 0181 0655 76FF 996C B707 14B5 D4DE A3FE 0B2D 2D36 \
  057C A579 7866 26BF 44E2" SIGN2="1280 943B 53A7 9B93 E00B D967 \
  D821 BD37 BE6D B78A F074 B223 88AA 242C DD0A 1292 D56F 4108 \
  62CD FA35 E365 0736 A011 7833 8B35 7BFF DAD8 34A8 452F 2EB4"
```

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

```
SERVER CCN12378042 001cc4874b03 27005
SERVER XXHP0528 0019bbd68993 27005
SERVER CCN12378043 001cc4874b10 27005
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 57600ACD_2009_OF adskflex 1.000 permanent 5 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH ISSUED=10-Jan-2008 SN=123-12345678 SIGN="11C4 \
  CA79 07FC 7AD0 409A 6E04 6E98 D76C 197C 0416 076C B211 1CDD \
  D0AB 698B 16BF 7A0E D4F8 1CFE 2985 644F 64CD CECE 0DDB 5951 \
  3262 7C31 13A8 F08F 55B2" SIGN2="19A6 FDA3 2ED5 5301 8675 7B81 \
  1B0E 451B 19F1 1A99 C8E9 CBA6 8CB3 6AC3 8B38 1519 13F2 2373 \
  82AE 55E5 1A25 4952 4458 F3A2 6F28 D25D 1DC0 E066 209B 0953"
```

You can combine a license file for different releases of the same Autodesk product or for different Autodesk products, and run all products from one license server.

Here is an example of the contents of a combined license file for AutoCAD 2008 and AutoCAD 2009:

```
SERVER XXHP0528 0019bbd68993
USE_SERVER
VENDOR adskflex port=2080
INCREMENT 57600ACD_2009_OF adskflex 1.000 permanent 5 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH ISSUED=09-Jan-2008 SN=123-12345678 SIGN="1393 \
  E368 816E D417 C1CD 7DBD 7B90 1354 D6F0 48FE EBB8 9C84 C3AF \
  7D79 BEE1 0181 0655 76FF 996C B707 14B5 D4DE A3FE 0B2D 2D36 \
  057C A579 7866 26BF 44E2" SIGN2="1280 943B 53A7 9B93 E00B D967 \
  D821 BD37 BE6D B78A F074 B223 88AA 242C DD0A 1292 D56F 4108 \
  62CD FA35 E365 0736 A011 7833 8B35 7BFF DAD8 34A8 452F 2EB4"
INCREMENT 54600ACD_2008_OF adskflex 1.000 permanent 3 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH ISSUED=09-Jan-2008 SN=123-12345678 SIGN="1E6E \
  4B61 5712 4766 92A0 6782 9EF4 3F47 56A1 1F38 6DE8 C0C7 90AC \
  7289 152E 0EA2 CC0D 3F10 577A 0489 CEB6 10D5 FBCC B552 0C9D \
  5966 91A6 59F0 2788 FACE" SIGN2="1DDF 3B9D 3392 71D5 AB08 7E05 \
  8497 111E 092F 0E54 8DC2 2BED 17C2 2CC1 981B 0EC2 BC15 8F00 \
  C79A ABFD 2136 BABA 2EDF E941 EA53 32C6 597F F805 5A8A 599A"
```

The license file might be corrupted if edited in a non-ASCII editor like Wordpad or Word. Use Notepad. Knowledge Base document TS1068266 describes how Imgrd can crash.

The machine name and daemon ports in the license file can be changed. Spare network adapter can be used and if the machine dies you move the network adapter to another machine and quickly get the licenses up and running again.

### Package License described

Autodesk offers a package license file option, which allows the use of a suite of products that are packaged and sold together. Running an instance of any one of the features uses one license of the package. Packaged license files support prior versioning for subscription users. Package license files operate under the following guidelines:

- Package license files come with the current version of the software and three previous versions of the same product.
- License files can be combined with license files for different products. For more information about combining license files, see Example of a Package License File for Combined Autodesk Product Versions.
- Package license files cannot be combined with non-package license files for product versions contained in the package. For example, you cannot combine an Autodesk 2009 package license file with a regular license file for an Autodesk Product 2008, 2007, or 2006.
- Both the PACKAGE and INCREMENT sections of the license are required for licensing to work properly. When you combine license files, be sure to include both of these sections.
- License borrowing, option files, and licensing cascading work the same for package licenses as they do for regular license files.
- A new license file supersedes an older one.

Prior version support for subscription customers allow usage of current version plus the three prior releases. In the license file there is a PACKAGE part describing what can be used.

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

```
SERVER Server1 1a34567c90d2
USE_SERVER
VENDOR adskflex port=2080
PACKAGE SERIES_1 adskflex 1.000 COMPONENTS="54700REVIT_2009_OF \
54600ACD_2009_OF 51300INVBUN_11_OF" OPTIONS=SUITE SUPERSEDE \
ISSUED=09-Jan-2008 SIGN="1707 9EAC CBCB 2405 692E 4A89 \
AA26 30CC 2AC2 D6B3 A61B AB5E 492E 3EBD 0B48 4E75 193A DA82" \
FC45 C009 E360 944A 14BA E99C 9B24 5A1B 4A44 083A BE5F 3827 \
SIGN2="004A FC90 AB47 3F6B 59BC 0E6D 6681 6971 A76A BA52 98E2 \
5671 26B3 0E78 791B 109F 0591 7DC3 F09F 4D8D 4FB7 E341 4A03 \
```

```

CD68 1D77 27F8 8555 9CF7 DEDD 9380"
INCREMENT SERIES_1 adskflex 1.000 permanent 100 \
  VENDOR_STRING=commercial:permanent BORROW=4320 DUP_GROUP=UH \
  SUITE_DUP_GROUP=UHV SN=123-12345678 SIGN="1707 9EAC CBCB \
  692E 4A89 FC45 C009 E360 944A 14BA E99C 9B24 5A1B 4A44 BE5F \
  3827 AA26 30CC 2AC2 D6B3 A61B AB5E 492E 3EBD 0B48 DA82" \
  SIGN2="004A FC90 AB47 3F6B 59BC 0E6D 6681 6971 A76A BA52 \
  5671 26B3 0E78 791B 109F 0591 7DC3 F09F 4D8D 4FB7 E341 4A03 \
  CD68 1D77 27F8 8555 9CF7 DEDD 9380"

```

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

```

SERVER 1a34567c90d2 27005
SERVER 2a34567c90d2 27005
SERVER 3a34567c90d2 27005
USE_SERVER
VENDOR adskflex port=2080
PACKAGE 64300ACD_F adskflex 1.000 COMPONENTS="57600ACD_2009_OF \
  54600ACD_2008_OF 85730ACD_2012_OF 64300ACD_F" \
  OPTIONS=SUITE SUPERSEDE ISSUED=27-May-2008 SIGN="1092 05D8 \
  A206 276B 2C84 EFAD ACA5 C54B 68A4 653E C61F 31DE C8CE B532 \
  CFBB 0006 5388 347B FDD6 A3F4 B361 7FD4 CDE4 4AAC 0D11 B0EF \
  4B44 BFD6 3426 97DD" SIGN2="0670 B01A D060 0069 FF25 F1CD D06B \
  314E E7C9 3552 5FFA 4AC7 28A7 C897 F56A 19BB FB1C 754E 6704 \
  DEEA AC4E F859 2E9B 64B6 0DD0 9CCE 9556 269F EAC0 2326"
INCREMENT 64300ACD_F adskflex 1.000 permanent 50 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH SUITE_DUP_GROUP=UHV ISSUED=27-May-2008 \
  SN=399-99999999 SIGN="1B5B 8D70 4CAD 32E5 9CA2 82E0 5C47 291C \
  35AB 9B9C 5B3E 5067 F61B 4139 1B32 0716 1FD3 5105 A991 B78E \
  9D1E 63AB BC23 0D1E B70C 2A05 E1C1 F605 ABB1 2EA8" SIGN2="01D6 \
  31F5 2951 4500 E5C8 058F 7490 9789 9EF4 CBED DA27 5F06 6780 \
  9033 2018 0C3B E1E0 3580 E60E C2BB B4AB 8D6A 4245 3059 8CA6 \
  2EFE DFAE 027F 2ABE 3F2B"

```

Here is an example of a completed package license file for combined Autodesk product versions:

```

SERVER servername 123456789111
USE_SERVER
VENDOR adskflex port=2080
PACKAGE 64300ACD_F adskflex 1.000 COMPONENTS="57600ACD_2009_OF \
  54600ACD_2008_OF 85730ACD_2012_OF 64300ACD_F" \
  OPTIONS=SUITE SUPERSEDE ISSUED=25-Jun-2008 SIGN="03EF DE18 \
  8046 0124 4EA4 6953 F82D 3169 7C24 D0DE E58E 8168 FFA3 D891 \
  B43B 08D8 7E7F C6ED CBCC FE2A BB0A 4566 C2AE F1C1 D373 8348 \
  E6E3 884A E398 1C78" SIGN2="07AC D696 8844 D19F AB00 8B75 53A3 \
  2F76 91DF AED0 3231 1506 0E6B ADC6 C3B8 1797 93B5 9756 8C0F \
  8811 56E6 B2BA 0523 FE2E 82B7 1628 076F 173B F37C 7240"
INCREMENT 64300ACD_F adskflex 1.000 permanent 2 \
  VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
  DUP_GROUP=UH SUITE_DUP_GROUP=UHV ISSUED=25-Jun-2008 \
  SN=399-99999999 SIGN="1CCB E88D B819 8604 06FA 9AEE 42F1 CBEA \
  37B9 3CFA A0A8 697F 9CB1 8354 6256 05ED 69D4 D2FF D512 6A2E \
  D5DD B722 EF5B 3172 BA95 4625 F8D3 DD24 BB39 6A58" SIGN2="0DFF \
  FA6F C378 20E0 2622 BE52 B434 F99F 2681 2B93 64F2 CE0C 7F4A \
  7024 B3D1 051A 6920 72BD DE35 8920 E6A1 C8D6 AF23 7BE7 CC91 \

```

```

6916 70B1 9E80 AB07 1644"
PACKAGE 64800INVPRO_F adskflex 1.000 \
COMPONENTS="59600INVPRO_2009_OF \
55300INVPRO_2008_OF 51400INVPRO_11_OF 49000INVPRO_10_OF" \
OPTIONS=SUITE SUPERSEDE ISSUED=25-Jun-2008 SIGN="1306 5990 \
F8A1 56FB 1D8A 9DA7 D6AE 8E9E F6EC 2862 367A 36E2 C5FB E6E1 \
4AAA 0128 8C2D 95FD 09B2 ABA1 6F98 A0A3 70DE 3220 6835 7E51 \
3849 9D81 8BDC 9DC1" SIGN2="0021 AA08 F2E7 8AEB 5345 341A 7E42 \
3001 B8C5 DFC2 6EB8 87C5 C04A AE43 A10F 1DA1 EF8A F0FA 10F5 \
AC81 1E22 789F A18D 650F 6BBB 563A BDA5 DD1C 82EC 27F6"
INCREMENT 64800INVPRO_F adskflex 1.000 permanent 2 \
VENDOR_STRING=commercial:permanent BORROW=4320 SUPERSEDE \
DUP_GROUP=UH SUITE_DUP_GROUP=UHV ISSUED=25-Jun-2008 \
SN=399-99999966 SIGN="0BE4 51F4 570C DC48 5E66 F952 629E EDF0 \
019C 6FF7 0509 1FF0 D4FB 3B16 1981 073F 31EC A241 8CB3 8782 \
E655 00C6 E097 D5EF B0D8 67D3 199D 699D 2E09 B16F" SIGN2="1254 \
3E37 0CE4 F42D B7CD 858C 92FC A963 5274 770F 9354 FE29 E117 \
205D C632 0C4E AEC0 7501 9D9E FFEB D84D F154 16A1 E120 339A \
FDBF 3F07 4477 B8B3 5DA4"

```

### Updating network license files

If you purchase more network licenses make sure you get the INCREMENTS correct or you might end up with less licenses available than expected. If the issue date is the same multiple increments of the same feature can be used otherwise only the one with the most recent date.

### Combining network license files

Only one service should be configured in LMTOOLS for Autodesk products. Combine multiple Autodesk product license files into a single file and configure them as a single service.

Licenses for different releases of the same product or licenses for different Autodesk products can be combined in one license file.

Multiple licenses for the same product and version or a combination of package licenses and non-package licenses cannot be combined in one license file.

If you have 10 licenses of AutoCAD 2012 and you need 5 more licenses you need to request a new license file from Autodesk for the 15 licenses and replace the license file or the increments in the existing license file.

Make sure to backup your license files first and only edit using Notepad.

Take a copy of the most recent license file. Copy everything except the first three rows (rows starting with SERVER, USE\_SERVER and VENDOR) from the other license file and insert between row 3 and 4 or at the bottom of the new license file.

Always combine all increments included in all license files, including PLIST increments. FlexNet will automatically determine which PLIST is the most current and use that increment

accordingly. If you fail to include PLIST increments, certain Autodesk products may not be able to acquire a network license.

Once the license files are combined, click ReRead License File on the LMTOOLS Start/Stop/Reread tab to make the changes effective. Sometimes it may be necessary to stop and restart the license manager before the new license file will be read.

### **Combining Autodesk with another vendor's products already using FLEXlm**

It's good practice to specify the port for the vendor daemon in the license file.

See Knowledge Base document TS67745.

### **Cascade licensing and the PLIST increment**

License Cascading applies only to mixed-product environments and allows a product to run from a more expensive license.

The INCREMENT PLIST in the license file was used for this up until the 2009 versions but now only exists for the legacy products. For 2010 products and newer the priority list is defined in the ProductInformation.pit file (encrypted) on the client machine.

The product will attempt to pull a license sequentially until it finds a license or reaches the end of the cascade list.

Link to cascade sequence online for 2012 products:

<http://usa.autodesk.com/getdoc/id=TS16981643>

Cascading cannot be disabled or changed.

Example on one machine a user has product A and B installed:

Product A is started and takes one license of feature A.

Product B is started and takes one license of feature B.

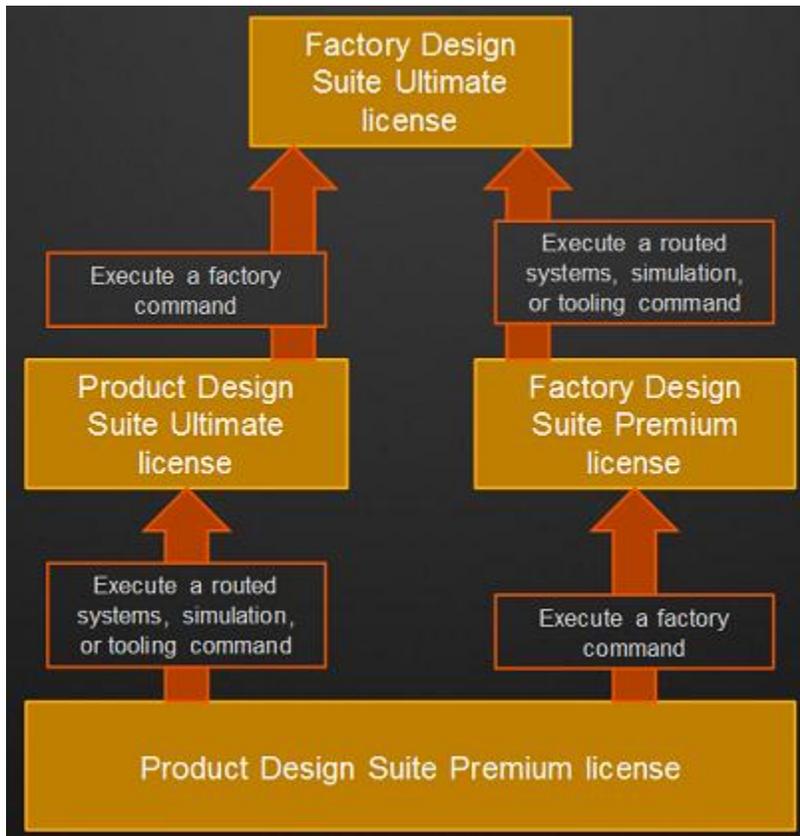
Now 2 licenses are in use by this one user.

After around 3 minutes the license for feature A is returned to the server and Product A also uses the license of feature B and the other license is free for others to use.

If the user stops Product B the license of feature B will be used until Product A is stopped.

### Dynamic Licensing in Inventor Products

Inventor always tries to start with the most economical license using the cascading sequence and when certain commands are activated more expensive licenses are checked out.



### How products find license servers

On the client machine the product look for licenses in this order:

1. ADSKFLEX\_LICENSE\_FILE environment variable and if multiple servers are specified they are searched for in the order they are specified
2. Windows registry  
HKEY\_LOCAL\_MACHINE\SOFTWARE\FLEXlm License Manager\ADSKFLEX\_LICENSE\_FILE
3. LM\_LICENSE\_FILE environment variable
4. Licpath.loc located in the root installation folder of the product
5. If no available licenses are found there, the License Finder dialog box is displayed.

It is good practice to use the port otherwise all ports between 27000 and 27009 will be tested until the license server is found and if you have many license servers this can take some time.

Bad example: ADSKFLEX\_LICENSE\_FILE=@server1; @server2

Good example: ADSKFLEX\_LICENSE\_FILE=27000@server1;27000@server2

See Knowledge Base documents TS37913, TS71384, TS1065268 and TS64909

### **FlexNet feature code descriptions for Autodesk products**

JTB World is hosting an extensive list of Autodesk product feature codes at:

[http://www.jtbworld.com/jtbflexreport/FLEXnet\\_FLEXlm\\_feature\\_codes.htm](http://www.jtbworld.com/jtbflexreport/FLEXnet_FLEXlm_feature_codes.htm)

### **How to set up priority user access**

This requires distributed servers where only high priority users have feature access privileges on certain servers the rest of the user population only draws on the other servers.

1. Setup multiple license servers each controlling a portion of your license seat count.
2. Designate one or more servers to only service Priority Users.
3. Set the ADSKFLEX\_LICENSE\_FILE variable for Priority Users to include all servers.
4. Set the ADSKFLEX\_LICENSE\_FILE variable for the general user population not to include the Priority License Server(s).
5. Set an Include statement in the options file for each feature on the Priority Server(s) to allow license access only by Priority Users.

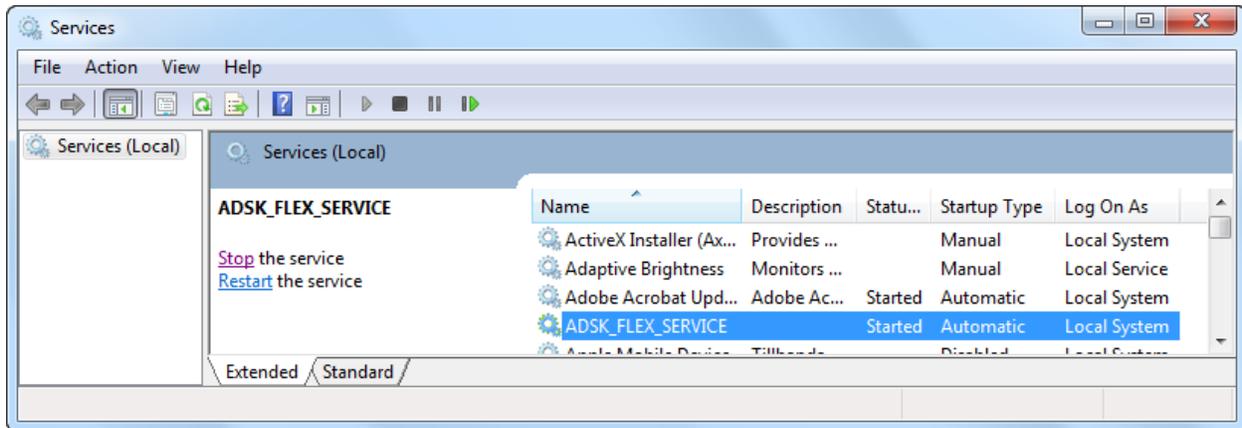
### **Backup servers**

One method that has been piloted by companies together with Autodesk is to create a virtual FlexNet license server that is automatically started if the primary license server goes down. The cost is the time to set it up and manage it as well as the Windows OS license cost.

## Troubleshoot network license issues

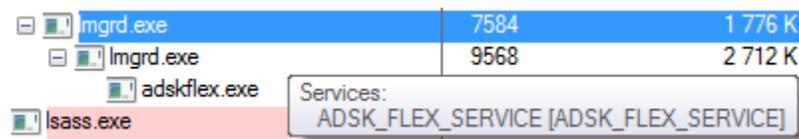
### Windows Services Console and Task Manager

The vendor daemon service can be found in Windows Services Console having the same name as specified when creating it in LMTOOLS.



The processes lmgrd.exe and adskflex.exe should be seen in Windows Task Manager.

Using Microsoft's Process Explorer the service lmgrd.exe (here ADSK\_FLEX\_SERVICE) can be seen as well as its child process lmgrd.exe and its child process adskflex.exe



### Network License Manager startup

These steps are taken when LMGRD starts.

1. LMGRD writes to the debug log
2. Reads the license file
3. Starts the vendor daemon (ADSKFLEX)
4. ADSKFLEX writes to the debug log file
5. Reads the license file
6. Reads option file (if found)
7. Writes report log (if configured)

### Application startup

These steps are taken when an application starts.

1. Application is executed

2. Application generates a request for a license
3. Server resolution occurs
4. LMGRD receives request
5. LMGRD determines the appropriate Vendor Daemon
6. Request is passed to Vendor Daemon (ADSKFLEX)
7. ADSKFLEX grant or denies a license
8. ADSKFLEX maintains a heartbeat with each active application session (Every session per machine started will write to the debug log even though only one license is used)

### FlexNet debug log

The FlexNet debug log file is useful to find out what happens in the Network License Manager and to identify and diagnose problems.

```

11:41:26 (lmgrd) FLEXnet Licensing (v11.9.0.0 build 87342 x64_n6) started on PC-HP (IBM PC)
(11/5/2011)
11:41:26 (lmgrd) Copyright (c) 1988-2010 Flexera Software, Inc. All Rights Reserved.
11:41:26 (lmgrd) US Patents 5,390,297 and 5,671,412.
11:41:26 (lmgrd) World Wide Web: http://www.flexerasoftware.com
11:41:26 (lmgrd) License file(s): C:\Program Files\Autodesk\Autodesk Network License
Manager\Autodesk2012.lic
11:41:26 (lmgrd) lmgrd tcp-port 27000
11:41:26 (lmgrd) Starting vendor daemons ...
11:41:26 (lmgrd) Starting vendor daemon at port 2080
11:41:26 (lmgrd) Using vendor daemon port 2080 specified in options file
11:41:26 (lmgrd) Started adskflex (pid 4200)
11:41:26 (adskflex) Unable to initialize license file: C:\Program Files\Autodesk Network License
Manager\Autodesk2012.lic
11:41:26 (adskflex) FLEXnet Licensing (v11.9.0.0 build 87342 x64_n6)
11:41:27 (adskflex) Using options file: "C:\Program Files\Autodesk Network License
Manager\adskflex.opt"
11:41:28 (adskflex) Server started on PC-HP (IBM PC)
11:41:28 (adskflex) 64300ACD_F (consisting of: 85730ACD_2012_0F
11:41:28 (adskflex) 85536ACD_2011_0F 71200ACD_2010_0F 57600ACD_2009_0F)
11:41:28 (adskflex) PLIST
11:41:28 (adskflex) Report log started (+C:\Program Files\Autodesk Network License Manager\report.rj).
11:41:28 (adskflex) RESERVING 1 64300ACD_F/1D7A F565 91F7 9F30 license for USER tester

```

FlexNet Version

License File

FlexNet daemon port

Vendor daemon port

Options File

Licensed features

Options records

```

11:52:50 (adskflex) OUT: "64300ACD_F" jtb@PC-HP
11:52:50 (adskflex) OUT: "85730ACD_2012_0F" jtb@PC-HP
11:53:35 (adskflex) IN: "85730ACD_2012_0F" jtb@PC-HP
11:53:35 (adskflex) IN: "64300ACD_F" jtb@PC-HP
12:12:18 (adskflex) Rereading options file...
12:12:18 (adskflex) ALL FEATURES: INACTIVITY TIMEOUT set to 900 seconds
12:12:18 (adskflex) ...Finished rereading
11:55:02 (lmgrd) Rereading license file... Requested from jtb@PC-HP
11:55:02 (adskflex) 11:55:02 (lmgrd) file...
Done rereading
11:55:02 (lmgrd) ...Finished rereading
11:57:48 (adskflex) REMOVING jtb@PC-HP:PC-HP from 85730ACD_2012_0F by administrator request.
11:57:48 (adskflex) IN: "85730ACD_2012_0F" jtb@PC-HP (USER_REMOVED)
11:57:48 (adskflex) IN: "64300ACD_F" jtb@PC-HP (USER_REMOVED)
11:57:52 (adskflex) OUT: "64300ACD_F" jtb@PC-HP
11:57:52 (adskflex) OUT: "85730ACD_2012_0F" jtb@PC-HP
12:24:51 (adskflex) IN: "85730ACD_2012_0F " jtb@PC-HP (INACTIVE)
12:32:37 (adskflex) DENIED: "85730ACD_2012_0F " jtb@PC-HP (Licensed number of users already
reached. (-4,342))
14:56:21 (adskflex) DENIED: "85730ACD_2012_0F " jtb@PC-HP (User/host not on INCLUDE list for
feature. (-39,349))

```

License Check  
Out and In

Rereading Options File

Borrowed License  
Returned Earlier

Denied License  
Requests

In this row we can see that the FlexNet version is 11.9.

11:41:26 (lmgrd) FLEXnet Licensing (v11.9.0.0 build 87342 x64\_n6) started on PC-HP (IBM PC) (11/5/2011)

The License Manager port being used is 27000.

11:41:26 (lmgrd) lmgrd tcp-port 27000

The vendor daemon (adskflex) port using is 2080.

11:41:26 (lmgrd) Using vendor daemon port 2080 specified in license file

Confirming that the options file is loaded.

11:41:27 (adskflex) Using options file: "C:\Program Files\Autodesk\Autodesk Network License Manager\adskflex.opt"

Confirming features issued by the license file.

11:41:28 (adskflex) 64300ACD\_F (consisting of: 85730ACD\_2012\_OF  
11:41:28 (adskflex) 85536ACD\_2011\_OF 71200ACD\_2010\_OF 57600ACD\_2009\_OF)

Confirming that the options file is being used as expected.

11:41:28 (adskflex) RESERVING 1 64300ACD\_F/1D7A F565 91F7 9F30 license for USER tester

Checked out licenses and checked in licenses.

11:52:50 (adskflex) OUT: "85730ACD\_2012\_OF" jtb@PC-HP

11:53:35 (adskflex) IN: "85730ACD\_2012\_OF" jtb@PC-HP

Example of rows when a user is returning a license earlier to the license server.

11:57:48 (adskflex) REMOVING jtb@PC-HP:PC-HP from 85730ACD\_2012\_OF by administrator request.

11:57:48 (adskflex) IN: "85730ACD\_2012\_OF" jtb@PC-HP (USER\_REMOVED)

11:57:48 (adskflex) IN: "64300ACD\_F" jtb@PC-HP (USER\_REMOVED)

11:57:52 (adskflex) OUT: "64300ACD\_F" jtb@PC-HP

11:57:52 (adskflex) OUT: "85730ACD\_2012\_OF" jtb@PC-HP

This shows what can happen when a product cascades. AutoCAD 2012 is started but no 64300ACD\_F licenses are available so it uses the 65900REVITS\_F feature instead.

12:00:16 (adskflex) ALL FEATURES: INACTIVITY TIMEOUT set to 900 seconds

12:00:16 (adskflex) RESERVING 2 64300ACD\_F/1D7A F565 91F7 9F30 licenses for USER tester

12:00:16 (adskflex) RESERVING 2 85730ACD\_2012\_OF/1D7A F565 91F7 9F30 licenses for USER tester

12:00:16 (adskflex) RESERVING 2 85536ACD\_2011\_OF/1D7A F565 91F7 9F30 licenses for USER tester

12:00:16 (adskflex) RESERVING 2 71200ACD\_2010\_OF/1D7A F565 91F7 9F30 licenses for USER tester

12:00:16 (adskflex) RESERVING 2 57600ACD\_2009\_OF/1D7A F565 91F7 9F30 licenses for USER tester

12:00:16 (adskflex) ...Finished rereading

12:00:38 (adskflex) OUT: "65900REVITS\_F" jtb@PC-HP

12:00:38 (adskflex) OUT: "85791REVITS\_2012\_OF" jtb@PC-HP

12:02:40 (adskflex) IN: "85791REVITS\_2012\_OF" jtb@PC-HP

12:02:40 (adskflex) IN: "65900REVITS\_F" jtb@PC-HP

LMUTIL lmstat will show the following, but there is no way to see product using the feature.

Users of 65900REVITS\_F: (Total of 1 license issued; Total of 1 license in use)

"65900REVITS\_F" v1.000, vendor: adskflex  
floating license

jtb PC-HP PC-HP (v1.000) (PC-HP/27000 106), start Sat 11/5 12:05

In some cases when a user is denied a license there is no record of it in the FlexNet debug log. The user might see the Licensing Error: A valid license could not be obtained by the network license manager. If you are still unable to access a license, contact your system administrator.  
Error [0.0.0]

One example is if the host PC-HP is excluded in the options file like this: EXCLUDEALL HOST PC-HP

The debug log does not show if a feature is borrowed but LMUTIL lmstat does.

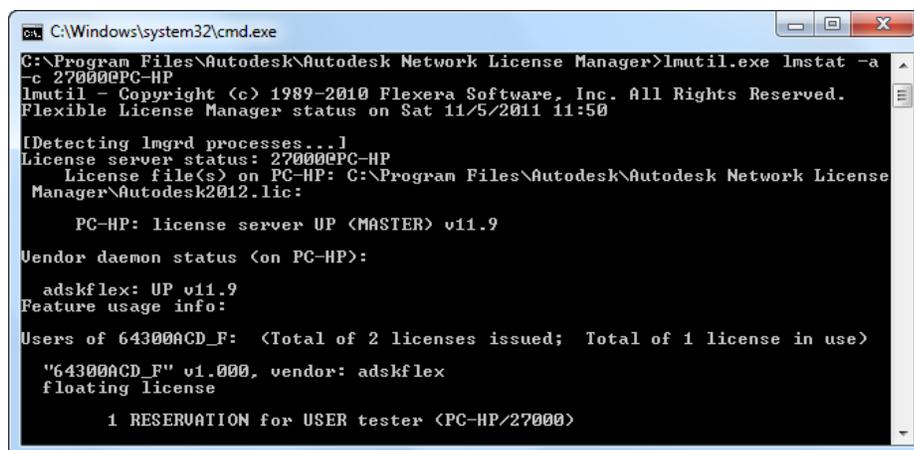
This lists the various informational messages used within FlexNet Publisher.

Message	Description
Connected to host	This daemon is connected to its peer on host.
CONNECTED, master is host	The license daemons log this message when a quorum is up and everyone has selected a master.
DENIED: num_lic feature to user	user was denied access to num_lic licenses of feature.
EXITING DUE TO SIGNAL nnn EXITING with code nnn	All daemons list the reason that the daemon has exited.
EXPIRED: feature	feature has passed its expiration date.
IN: "feature" user (num_lic licenses)	user has checked in num_lic licenses of feature.
Lost connection to host	A daemon can no longer communicate with its peer on node host, which can cause the clients to have to reconnect, or cause the number of daemons to go below the minimum number, in which case clients may start exiting. If the license daemons lose the connection to the master, they kill all the vendor daemons; vendor daemons shut themselves down.
Lost quorum	The daemon lost quorum, so it processes only connection requests from other daemons.
MULTIPLE vendor servers running. Kill and restart license daemon.	The license server manager has detected that multiple vendor daemons with the same vendor name are running. Shutdown lmadm or lmgrd and all vendor daemons and then restart lmadm or lmgrd.
OUT: feature user (num_lic licenses)	user has checked out num_lic licenses of feature.
RESERVE feature for USER user RESERVE feature for HOST host	A license of feature is reserved for either user or host.
REStarted vendor (internet port	Vendor daemon vendor was restarted at TCP/IP port nnn.

nnn)	
Retrying socket bind (address in use)	The license servers try to bind their sockets for approximately six minutes if they detect “address in use” errors.
Selected (EXISTING) master host.	This license daemon has selected an existing master host as the master.
SERVER shutdown requested.	A daemon was requested to shut down via a user-generated kill command.
Server started on host for: feature_list	A (possibly new) server was started for the features listed.
Shutting down vendor	The license server manager is shutting down the vendor daemon vendor.
SIGCHLD received. Killing child servers.	A vendor daemon logs this message when a shutdown was requested by the license daemon.
Started vendor	The license server manager logs this message whenever it starts a new vendor daemon.
TIMESTAMP	A vendor daemon logs this message at regular intervals. The default interval between vendor daemon timestamps is 6 hours 5 minutes. A license server manager (ladmin or lmgrd) logs this message at regular intervals. The default interval between license server manager timestamps is 6 hours.
Trying to connect to host	The daemon is attempting a connection to host.

## Perform Status Enquiry

LMTOOLS or the LMSTAT argument of LMUTIL can be used to perform a status enquiry.



```

C:\Windows\system32\cmd.exe
C:\Program Files\Autodesk\Autodesk Network License Manager>lmutil.exe lmstat -a
-c 27000@PC-HP
lmutil - Copyright (c) 1989-2010 Flexera Software, Inc. All Rights Reserved.
Flexible License Manager status on Sat 11/5/2011 11:50

[Detecting lmgrd processes...]
License server status: 27000@PC-HP
  License file(s) on PC-HP: C:\Program Files\Autodesk\Autodesk Network License
  Manager\Autodesk2012.lic:
    PC-HP: license server UP <MASTER> v11.9
Vendor daemon status (on PC-HP):
  adskflex: UP v11.9
Feature usage info:
Users of 64300ACD_F: <Total of 2 licenses issued; Total of 1 license in use>
  "64300ACD_F" v1.000, vendor: adskflex
  floating license
    1 RESERVATION for USER tester <PC-HP/27000>

```

Row showing the number of issued and in use licenses for a feature

Users of 85730ACD\_2012\_0F: (Total of 1 license issued; Total of 1 license in use)

Row showing a license that is in use

jtb PC-HP PC-HP (v4.000) (PC-HP/27000 301), start Sat 11/5 13:40

Row showing a borrowed license.

jtb PC-HP PC-HP (v1.0) (PC-HP/27000 101), start Sat 11/5 12:36 (linger: 40980)

Row showing a reserved license.

1 RESERVATION for HOST tester (PC-HP/27000)

### **Increasing verbosity of FlexNet errors on the server**

The argument `-verbose` can be used when running `lmutil.exe` and will display longer description for all errors found.

### **Increasing verbosity of FlexNet errors on the client**

You want a more detailed explanation of why a network licensing error has occurred.

You can increase the information that is displayed when a network licensing error occurs by setting the `FLEXLM_DIAGNOSTICS` environment variable on your computer. In addition, a log file will be created that contains the error information. This log file will be located in the “Program files” folder of the respective Autodesk product (or on the Desktop or My Documents folder) and will be named `flex###.log`, where `###` is a three digit number.

To set the `FLEXLM_DIAGNOSTICS` environment variable

1. Click Start menu (Windows) > Settings > Control Panel.
2. In the Control Panel, double-click System.
3. In the System Properties dialog box, click the Advanced tab.
4. Click Environment Variables.
5. Under System Variables, click New.
6. In the Variable Name box, enter **FLEXLM\_DIAGNOSTICS**
7. In the Variable Value box, enter **3**
8. Click OK to close each dialog box.

When ready the variable `FLEXLM_DIAGNOSTICS` can be deleted.

### **Losing Your Connection to the License Server**

#### **FLEX service did not start automatically**

Make sure that Start Server at Powerup option is selected in `LMTOOLS`.

Check Windows Event Viewer, if there is an error message similar to “FLEXlm service failed to start. Cannot find the network path.” make sure to use only valid, local drive letter paths when you configure the FLEX service in LMTOOLS.

**Network licenses are not released after exiting product**

If you find that licenses are not being returned to the Network License Manager pool for a long period of time after the connection with a client workstation is lost a workaround can be to make use of TIMEOUT or TIMEOUTALL in the options file.

When a client machine crashes, the license is still checked out by the license server until the time out period.

You can use the LMREMOVE utility to free licenses. You will need to get the needed information about the locked license by using the LMSTAT command.

**How to change the lmgrd port number on a FlexNet server and client**

It’s also described how the adskflex port can be changed.

See Knowledge Base document TD1321.

**Network licensing error [1.5.-4] when starting the software**

When you tried to start AutoCAD® based software from a client workstation, the following error message was displayed:

The network license manager was not able to get a valid license. If this problem continues, please contact your system administrator. Error [1.5.-4]

All available licenses are either reserved for other users or are in use.

See Knowledge Base documents TS69953 and TS1059136.

**No such Feature Exists error [1.5.-5] when starting the software**

When you tried to start AutoCAD®-based software from a client workstation, the following error message was displayed: The network license manager was not able to get a valid license. If this problem continues, please contact your system administrator. Error [1.5.-5]

Correct feature code does not exist in license file to support the product.

Ensure that the product is looking to the correct license server and that the feature for the product exists in the license file.

For 2009 products and earlier ensure PLIST from the most recent license file exists in the license file.

Ensure that the Network License Manager status shows available licenses without errors.

See Knowledge Base documents TS1076387 and TS1059136.

**Error when network version of software is started: Error [1.5.-12]**

Because of port filtering done at the client workstation or at the license server, this error may be generated when starting an Autodesk product that uses FLEXlm license management technology. The Autodesk Network License Manager needs unrestricted access to TCP port 2080 and ports 27000 - 27009.

See Knowledge Base document TS68138.

**Error: FlexLM error [1.5.-14]**

Bad SERVER Hostname in License File

Possible causes and solutions: DNS name resolution issue, where Server Hostname does not translate to correct IP address. DNS not working or is improperly configured. Incorrect entry in local "Hosts" file can be solved by substituting server IP Address for the Hostname of server in the licpath.lic file.

**Error [1.5.-15] or [1.5.-18] when starting the software**

When you tried to launch your AutoCAD®-based software, the following error message was displayed: The network license manager was not able to get a valid license. If this problem continues, please contact your system administrator. Error [1.5.-15] or [1.5.-18]

Possible causes could be that communication is blocked by a firewall either on the server or client machine, the server is not powered on or accessible or the client machine points to a non-existing server.

This error can occur if the Internet Protocol version 6 (IPv6) component is enabled on your server's operating system.

This situation can occur when you access the license manager through a VPN, dial-up or a slow DSL/ISDN link and when accessing licenses over long distances.

Possible solutions are to make sure the ports 2080, 27000-27009 are not being filtered or blocked or set the FLEXLM\_TIMEOUT environment variable to extend the license request timeout.

See Knowledge Base documents TS71257, TS1059136, TS1101507 and TS1057817.

**Error: FlexLM error 1.5.-18**

Explanation of the client product license alert: A valid license could not be obtained by the network license manager. Try again. If you are still unable to access a license, contact your system administrator. Error [1.5.-18]

Possible causes:

- No licenses left to be issued
- No licenses for that feature in license file

- License Manager is not started
- Autodesk Network License Manager version is out-of-date
- Errors in the license file like PLIST is missing
- If all licenses are reserved using the option (OPT) file or in use you might get this message but unfortunately there is nothing in the debug log indicating the denial.

See Knowledge Base documents TS1076426, TS1056448, TS70382, and TS1059136.

### **No Valid License Error [1.5.-96], [1.5.-97], [1200.5.-96], [1200.5.-97]**

You received this error message because the client computer was not able to communicate with the license server. You can resolve this issue using one of the following methods:

Make sure the ports 2080, 27000-27009 are not being filtered or blocked or set the FLEXLM\_TIMEOUT environment variable to extend the license request timeout.

The error indicates that there is an issue with the HOSTNAME. You can substitute the ip address of the server for the HOSTNAME of the server in the licpath.lic file on the client computer.

See Knowledge Base document TS1053258.

### **Error getting status: Cannot connect to license server system.**

Using LMSTAT this error can show: Error getting status: Cannot connect to license server system. (-15,10:10060 "WinSock: Connection timed out")

Solution is usually to open any of the ports being used.

### **Lmstat is not finding server**

If license servers cannot be reached using LMSTAT you can try to set the timeout to something. Use the argument -t for timeout with lmutil.exe lmstat. It is probably microseconds so a value of 1,000,000 would be a second. Try increase with a second until it works.

### **Corrupt CascadeInfo.cas file results in failure of cascading functionality**

Cascading functionality is lost due to a corrupt CascadeInfo.cas file.

If the CascadeInfo.cas file is corrupt due to a power failure or any reason, cascading functionality will not be available. This issue only applies to network licensed products and does not affect stand-alone licensed products.

See Knowledge Base document TS13894457.

### **Valid host ID characters for network license files**

See Knowledge Base document TS64910.

### **Using the licpath.lic file for Autodesk network license enabled products**

See Knowledge Base document TS65652.

### **LMTOOLS Error: Data Execution Prevention**

After you restarted the license server, you received an error message similar to the following:

Data Execution Prevention – Microsoft Windows To help protect your computer, Windows has closed this program. Name: LMTOOLS Utility

To resolve this error, you need to change the Data Execution Prevention settings in Windows.

See Knowledge Base document TS1067712.

### **FlexNet License Administrator**

The latest FlexNet Publisher license server manager, ladmin, is currently available for selected platforms. ladmin offers a graphical user interface that provides a number of server administration improvements around usability, efficiency, and capability.

FlexNet License Administrator is not supplied by Autodesk.

### **Autodesk® License Manager and server clustering**

Clustered servers are not supported by the Autodesk® License Manager. The Network License Manager cannot be run in a clustered server environment. Clustered servers have not been tested with the Network License Manager. As a result, they are not supported.

See Knowledge Base document TS40213.

### **NIC Failure Recovery**

If the authenticating NIC (network interface card) survives a server failure the NIC can be moved to the replacement hardware and the license file reused.

If the new server inherits the failed units name nothing else is required

If the replacement hardware used a different hostname then the license file server name parameter must be edited.

Single and Distributed server NIC replacement does not affect other servers

If the NIC fails or is on the Server system board a new license file will be required

If the failed server was a member of a redundant pool then a new redundant license file must be obtained and installed on each redundant member.

### **Usage across WAN**

See Knowledge Base document TS17859.

### **License management and support for VPN connections**

Autodesk has not tested VPN connections for license management and does not support this type of connection.

See Knowledge Base document TS73294.

**Autodesk Product Support and Knowledge Base**

Problems configuring the Autodesk Network License Manager (FlexNet) see Knowledge Base document TS1076366.

Network licensing errors during software startup see Knowledge Base document TS1076386.

Product Support page: [www.autodesk.com/support](http://www.autodesk.com/support)

To easily find a specific document use <http://usa.autodesk.com/getdoc/id=XXXXX> and replace XXXXX with the document ID. Example <http://usa.autodesk.com/getdoc/id=TS1056448>

## Report license usage

### Using LMTOOLS

Current usage can be seen in LMTOOLS.

If you are experiencing problems with the Server Status tab > Perform Status Enquiry, make sure that the "LMTOOLS Ignores License File Path Environment Variables" option is selected on the Service/License File tab and run the Status Enquiry again. In many cases this will correct erroneous Status Enquiries.

Note that there is a limitation on how much is showed using Perform Status Enquiry. To see everything you may need to use LMUTIL.

### Using LMUTIL

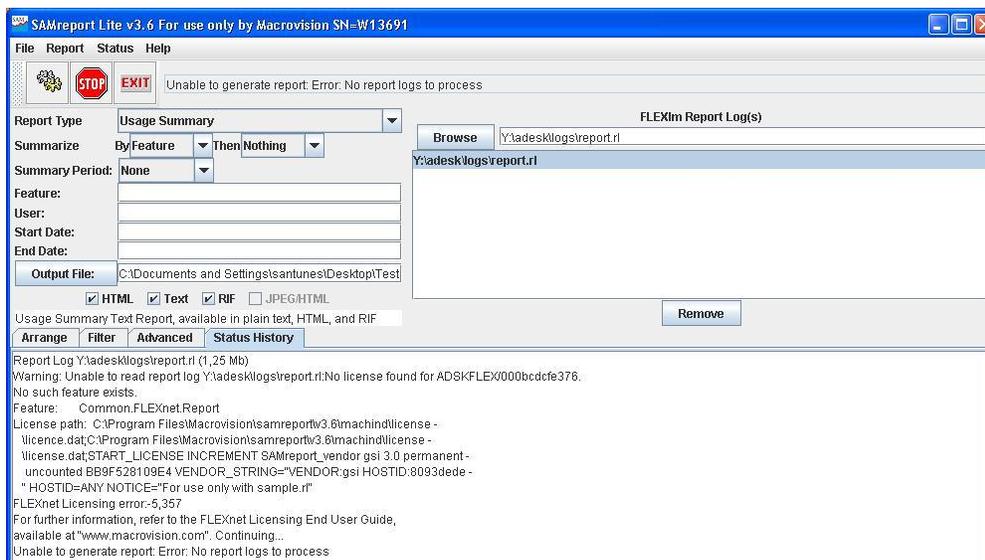
This is a command line tool that together with the lmstat argument can show the current usage.

LMUTIL can be scripted using a Windows batch file and output may be filtered using flags and/or external filters such as GREP.

Linger is a value that indicates the original borrow period in seconds.

### SAMreport-Lite

SAMreport-Lite is a report generator that can providing basic historical usage reports using the FlexNet report log. SAMreport-Lite is not distributed with Autodesk products, but it is available from Autodesk's website for free. It has its limitations like no usage over time or high water mark reporting as well as no filtering and grouping functionality. For more information see <http://www.autodesk.com/samreportlite>.



A Usage Summary report in SAMreport-Lite:

HTML Summary: C:\Examples\SA  
Text Summary: C:\Examples\SA

Features With Usage:  
GLOBEclient, FLEXadmin, FLEXexpress, FLEXreport, GLOBEserver, GLOBEtrack

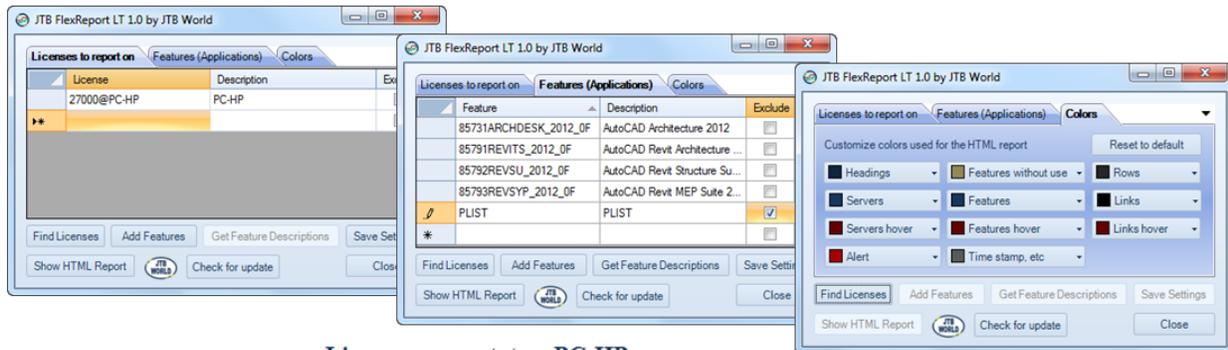
Features Without Usage: none

Time Period	Available max hours	License Requests total	used	que	den	unsup	iden	Used max hours	hrs
-----Summary For: GLOBEclient-----									
Total	50 4677	423	423	0	0	0	0	35 1269	27.1
-----Summary For: FLEXadmin-----									
Total	20 1871	37	37	0	0	0	0	6 58.7	3.1
-----Summary For: FLEXexpress-----									
Total	50 4677	257	257	0	0	0	0	31 911.5	19.5
-----Summary For: FLEXreport-----									
Total	20 1871	9	9	0	0	0	0	2 23.6	1.3
-----Summary For: GLOBEserver-----									
Total	4 374	61	59	0	2	0	3	4 214.9	57.4
-----Summary For: GLOBEtrack-----									
Total	50 4677	253	253	0	0	0	0	33 1207	25.8

If you need more detailed reporting, you may want to consider the Flexera FlexNet Manager reporting tools (priced to suit larger enterprise customers).

## JTB FlexReport LT

JTB FlexReport LT is a freeware from JTB World for HTML reports showing current FlexNet usage. It supports multiple servers, aggregation and descriptions for features.



### License server status: PC-HP

AutoCAD 2009: 2 licenses 0 in use.

AutoCAD 2010: 2 licenses 0 in use.

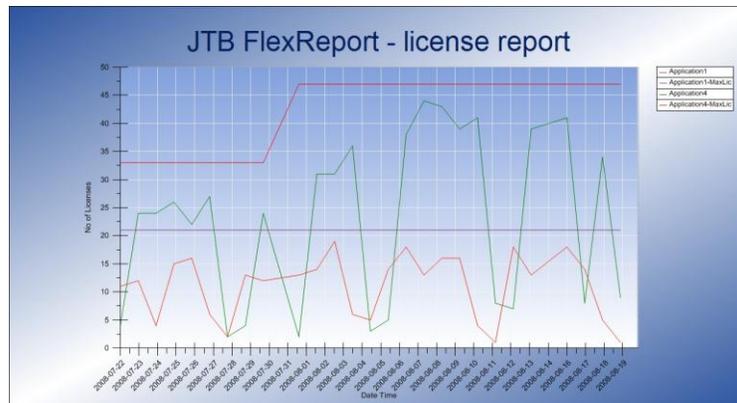
AutoCAD 2011: 2 licenses 0 in use.

AutoCAD 2012: 2 licenses 1 in use.

jtb@PC-HP Checked out license at 2011-07-30 09:10 Hours used: 0:32

## JTB FlexReport

JTB FlexReport is a report tool from JTB World that gives you graphic reports or detailed list reports on your usage of FlexNet / FLEXlm as well as other network license systems. By the license tracking JTB FlexReport does and the reports that can be produced JTB FlexReport will help you to manage and forecast future license usage and license usage trends at your company.



JTB FlexReport will help you to see the license usage over the time and help to justify new purchases. This will help you to decide when and how many licenses you will need to purchase next time. Instead of guessing and purchasing more licenses than you really need.

User Name	Feature Name	Year Month	Hours
User1091	AutoCAD 2010	2009-05	409,68
User1002	AutoCAD 2010	2009-05	270,15
User1081	AutoCAD 2010	2009-05	234,67
User1148	AutoCAD 2010	2009-05	233,73
User1040	AutoCAD 2010	2009-05	224,82
User1104	AutoCAD 2010	2009-05	221,50

Record: 1 of 135 Filtered Search

Feature Name	Date	Hours	Hours&Minutes
AutoCAD 2010	2009-05-25	440,87	440:52
AutoCAD 2010	2009-05-26	423,72	423:43
AutoCAD 2010	2009-05-27	416,27	416:16
AutoCAD 2010	2009-05-28	215,80	215:48
AutoCAD 2010	2009-05-29	51,93	51:56
AutoCAD 2010	2009-05-30	113,52	113:31

Record: 161 of 165 Filtered Search

**References and resources:**

Autodesk Product Support: [www.autodesk.com/support](http://www.autodesk.com/support)

Autodesk's YouTube Channel: <http://www.youtube.com/user/Autodesk>

Autodesk Registration web site: <http://register.autodesk.com>

Autodesk Network License Manager downloads: <http://autodesk.com/licensetools>

Installation & Licensing Discussion Group: <http://forums.autodesk.com/t5/Installation-Licensing/bd-p/24>

Up and Ready Blog by Autodesk: <http://upandready.typepad.com>

License File Parser: [www.licenseparser.com](http://www.licenseparser.com)

Download page for FlexNet files and documentation:  
[http://www.globes.com/support/fnp\\_utilities\\_download.htm](http://www.globes.com/support/fnp_utilities_download.htm)

AUGI networks forum: <http://forums.augi.com/forumdisplay.php?f=33>

Network Administrator's Bible by David M. Stein available on Amazon.com

JTB World: [www.jtbworld.com](http://www.jtbworld.com) and <http://blog.jtbworld.com>