

Advanced Topics in Licensing

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Introduction

This manual provides guidance on managing licenses in a network environment. It answers common questions about how to set up a license server for multiple clients and how to handle unique licensing scenarios.

If this manual does not answer your questions, visit the Support section of our web site: <http://www.exelisvis.com/support>.

Note: If you have an ENVI license, you can view your license number by selecting **Help > About** from the application menu.

Licensing Software

The License Wizard provides the ability to activate a license from the Exelis VIS website as well as configuration steps for your specific license.

1. You can start the License Wizard by navigating to the software installation directory and doing the following:
 - Windows: Double-click the License Wizard shortcut.
 - UNIX: Type `exelislicense` at the command prompt.
 - Macintosh: Double-click `LicenseWizard`.
2. In the License Wizard, select **Activate a license using the internet** and click **Next**.

Note: If you received a license by email, click **Install a license you have received** and click **Help** in the License Wizard for further instructions.

3. The Exelis VIS web page appears. Log into the website to retrieve your license.

As a network administrator, you likely received a *floating license*, which allows one or more non-specific network machines to concurrently access the Exelis VIS software. You can choose how users access the floating licenses, you can reserve licenses for individuals or groups, or you can allow all users to share access to the licenses. For example, if you have a team of 20 people and you purchased a software product with 10 floating licenses, you can reserve licenses for certain individuals, or let all team members share access to the 10 licenses throughout the day.

Floating licenses require the installation of a license server, which runs continually on your system, waiting for a request from the software. When a request arrives, the license server determines whether the proper license for a requested product is available. If the proper license is present and not already in use, the license server allows access to the software.

The following sections discuss how to work with the license server in a network environment.

Installing the license server

The License Wizard allows you the option to install the license server to run at boot time if your license requires it. If you have installed an Exelis Visual Information Solutions product on your system and you run the License Wizard to retrieve a license from the Exelis licensing web site, you have already installed the license server if it is required. You do not need to install the license server separately if the computer that runs your license server also runs an Exelis product.

These instructions describe the process of downloading and installing the license server on a machine that does not have an Exelis product installed. If you do not use a floating license or node-locked license on a UNIX or Macintosh platform, you do not need to install the license server on a separate computer.

Windows

You need Administrator privileges to install the license server. To download and install the license server (where *xx* is the IDL version number):

1. Click the link to download the `LicenseServerxxwin.exe` file. This file works for both 32-bit and 64-bit Windows.
2. Double-click the `LicenseServerxxwin.exe` file to install the license server.
3. Go to the Exelis product installation directory and double-click the **License Wizard** shortcut to run it.

UNIX / Macintosh

You need root (or similar) privileges before installing. To download and install the license server:

1. Select the appropriate download link for your platform. Click on the link to download the license server. The license server installation file is a compressed archive; save it in temporary location.
2. Change directories to the location where you saved the compressed archive.
3. Unpack the archive. First, uncompress the file by entering the following (where platform is the platform name for your platform and xx is the IDL version number):

```
% gunzip licenseserver_platform.tar.gz
```

4. Untar the file:

```
% tar xf licenseserver_platform.tar
```

5. Run the installation script:

```
% ./install.sh
```

6. Open an X Terminal window. (On a Macintosh, you may need to start X11 first.)

Change directories to the directory where you installed and execute the `exelislicense` shell script. (`INSTALL_DIR` is the location where you installed and `xx` is the product version number. The default installation location for UNIX is `/usr/local/exelis`, and for Macintosh it is `/Applications/exelis`).

```
% cd INSTALL_DIR/idlxx/bin  
% ./exelislicense
```

Configuring Client Access to the License Server

The License Wizard provides an easy way to configure access to the license server. In most cases, working through the License Wizard will correctly configure the communication with the license server by placing a copy of the `license.dat` file in the correct location.

If your site uses the same license server to license multiple products, or if the Exelis VIS software product is not properly licensed after using the License Wizard, refer to the following sections.

Manually Copying the license.dat File

The License Wizard can place a copy of your site's `license.dat` file in the correct place on your local machine. If you choose to manually copy the `license.dat` file instead, place it in the `license` subdirectory of your Exelis VIS product directory. If the `license` directory does not already exist, you can create it. If your product is installed in the default location, the `license` directory would be:

Windows:

```
C:\Program Files\Exelis\License
```

UNIX:

```
/usr/local/exelis/license
```

Macintosh:

```
/Applications/exelis/license
```

Setting the LM_LICENSE_FILE Environment Variable

If your site has a license server running on a server machine, you can configure your client machine to ask for licenses from the server by setting the `LM_LICENSE_FILE` environment variable.

Windows

To define the `LM_LICENSE_FILE` environment variable, do the following:

1. Open the **System** control panel.
2. Click the **Advanced** tab, and click the **Environment Variables** button. Click the **New** button below the System Variables box and enter the following information:
 - In the **Variable Name** field, type `LM_LICENSE_FILE` in uppercase letters.
 - In the **Variable Value** field, enter your server's port@host value: for example, `1700@hal`. This information is in your license file. The port number is the last number on the `SERVER` line. The server name immediately follows the word `SERVER`. For example:

```
SERVER hal 12345678 1700
```

If `LM_LICENSE_FILE` has already been defined for another software product, the definition of this license file can be appended using a semi-colon (;) as the delimiter. For example:

```
C:\Program Files\myapplication\License\mylicense.dat;1700@hal
```

3. Save the settings.

UNIX and Macintosh OS X

To define the `LM_LICENSE_FILE` environment variable, do the following:

1. Modify your `.cshrc`, `.profile`, or `.bashrc` file using any text editor. You must define the UNIX environment variable for `LM_LICENSE_FILE` to point to the server and port of the machine running the license server. The syntax for defining the environment variable is:

```
port@host
```

For example, if you are running the license server on a machine named "hal" with a port of 1700, then enter the following:

For C shell: `setenv LM_LICENSE_FILE 1700@hal`

For Korn or Bash shell: `export LM_LICENSE_FILE=1700@hal`

If `LM_LICENSE_FILE` has already been defined for another software product, the definition of this license file can be appended using a colon (:) as the delimiter.

For example:

```
/usr/local/myapplication/license.dat:1700@hal
```

Or,

```
$LM_LICENSE_FILE:1700@hal
```

2. Log out and log back in to execute the `.cshrc`, `.profile`, or `.bashrc` file, or execute the file from the home directory using one of the following commands.

For C shell: `source .cshrc`

For Korn shell: `. .profile`

For Bash shell: `. .bashrc`

Configuring Licensing Through a Firewall

Some firewalls require the system administrator to specify which ports are available outside the firewall. If this is the case, the administrator should define the TCP port that both `lmgrd` and the vendor daemon `idl_lmgrd` will use. Explicitly specify the

vendor daemon port in your license file as follows (using the server above). This is an example only; these are not absolute values:

```
SERVER myserver 00aabb11ccdd 1700  
USE_SERVER  
DAEMON idl_lmgrd PORT=1701
```

The "PORT=" entry on the DAEMON line allows explicit selection of the vendor daemon port. You can use any open, unused port numbers. 1700 is the TCP port reserved for use by the `lmgrd` process, while 1701 is the port used by the vendor daemon process `idl_lmgrd`. Neither port number should be used by other processes.

The `LMGRD` port number can also be any open, unused port number, although this and the `DAEMON` port number must be different.

Accessing the licenses should not be any different than it would be in the absence of a firewall, except that the `license.dat` and `LM_LICENSE_FILE` system variables may need to use the server's fully qualified domain name or IP address. Product license clients must be able to connect to both ports, regardless of whether the clients are inside or outside the firewall.

Please consult your system administrator for details about configuring and opening TCP ports in a firewall. This discussion also pertains to personal firewalls, including the Windows firewall.

Working with the License Server

If your license type requires a license server, you must ensure that it is running. The License Wizard will step you through the process of installing the license server and configuring your system so that it starts automatically. This section describes how to start the license server manually or configure it to start automatically if you are not using the License Wizard.

Starting the License Server

Note: If the license unit count on your `license.dat` file's `INCREMENT` line is "0" or "uncounted," then you do not need to start the license server.

Windows

On Windows platforms, the `LMTools` support utility lets you start, stop, and see the status of the license server. (The License Wizard also starts `LMTools`.) You must have Administrator privileges. To start the license server on Windows:

1. Navigate to the software installation directory, and double-click the **LMTools** shortcut. The LMTools dialog appears.
2. Click the **Config Services** tab and select the name of the license server service. If you installed the license server using the License Wizard, the default name is "Exelis VIS FLEXlm license server." To start the license server automatically at boot time as a service, check **Use Services** and **Start Server at Power Up** boxes. Click **Save Services** to save any configuration changes.
3. Choose the **Start/Stop/Reread** tab and click **Start Server** to start the license server.

Note: For more on configuring the license server service, see "Creating Unique FLEXnet Publisher Services for Each Product."

UNIX and Macintosh

Starting the license server requires no special privileges on UNIX and Macintosh. Note the potential security ramifications of running the license server from a privileged account such as `root` or `Administrator`, as it can be started by any user. However, special privileges are required to shut down the license server. See "Stopping the License Server" for more information. The same special privileges are required to install and start scripts that start the license server at boot time.

On UNIX and Macintosh platforms, start the license server by entering the following command (all one line):

```
idlxx/bin/lmgrd
```

If you have not defined the `LM_LICENSE_FILE` environment variable (as described in "Configuring Client Access to the License Server"), add the following boldface text to the command:

```
idlxx/bin/lmgrd -c /usr/local/exelis/license/license.dat
```

Note: Macintosh users should not start the license server manually if you have already configured the license server to start automatically. If properly configured, the license server should start automatically when you start the Exelis VIS software.

Multiple license servers

If you have more than one Exelis VIS or other Flexera FLEXnet Publisher instances running on a server, conflicts might exist among the license servers. Before starting the license server, see "Using the Same License Server for Different Applications" for more detailed information on customizing your license file.

Configuring the License Server to Start Automatically on UNIX and Macintosh

In most cases, you want the license server to start automatically each time your system starts. This ensures that the system can provide a license when one is requested.

This section describes how to configure the license server to start automatically on UNIX and Macintosh platforms if you are not using the License Wizard. (The License Wizard automatically performs these steps.)

Use one of the following methods to configure the license server to start at boot time (root privileges are required).

- Log in as root and type the following at the command line:

```
cd idlxx/bin
```

```
lmgrd_install
```

- Refer to the comments in the `sys5_idl_lmgrd` script in the `idlxx/bin` directory to install and configure the boot time script manually.

The boot-time startup script works with all supported operating systems. Consequently, if you have previously configured a system boot-time script that is different than the `sys5_idl_lmgrd` script, after you have installed the boot-time startup script, be sure to modify your other boot-time script so that a second instance of the Exelis VIS license server will not be started on the same system. Running two instances of the same vendor's license server on the same system causes a conflict that prevents the license server from working correctly.

Checking the License Server Status

To check the license server status:

Windows

1. Find the hostname and TCP/IP port number in the `SERVER` line of the license file (`license.dat`) used to start the license server. For example, if the `SERVER` line looks like the following:

```
SERVER myserver 12345678 1700
```

Then the server name is `myserver` and the TCP/IP port is `1700`.

2. Open a Windows Command prompt window, and change directories to the IDLxx\bin\bin.<platform> directory of your Exelis VIS software installation. For example:

```
cd /d IDLxx\bin\bin.x86
```

3. Issue an `lmutil lmstat` command at the prompt. For example:

```
lmutil lmstat -a -c 1700@myserver
```

Where the TCP/IP port number and server hostname are those determined in Step 1. The output displays the status of licenses and users on the server.

UNIX and Macintosh

The `lmstat` program provides information about the status of the server nodes, license servers, and currently checked out licenses. To run `lmstat`, change to your `idlxx/bin` directory, and enter a command using the following syntax:

```
lmstat [-a] [-A] [-c license_file] [-s [server]]
```

For example: `lmstat -a -c 1700@myserver`

Optional flags for `lmstat` are shown in the following table.

Flag	Description
-a	This option displays all available information about the license server status. If this argument is not present, only a brief summary of the license server's state is given.
-A	This option displays a list of all active licenses.
-c <i>license_file</i>	This option defines the license file path or the <i>port@host</i> setting. If this switch is not specified, <i>lmstat</i> looks for the LM_LICENSE_FILE environment variable. If that environment variable is not set, <i>lmstat</i> looks for the file <code>/usr/local/exelis/license/license.dat</code> .
-s [server]	This option displays the status of the specified server node(s).

Note: Exelis VIS software products might use a license source different from LM_LICENSE_FILE if IDL_LMGRD_LICENSE_FILE is defined in a `.flexlmrc` file (in the user's home directory that starts the license server) or as an environment variable.

Stopping the License Server

The following instructions describe how to stop the license server. You could choose to stop the license server, for example, if you purchased other Exelis VIS software products and need to install the new license files.

Windows

Administrative privileges may be required.

1. Navigate to the software installation directory, and double-click the **LMTools** shortcut. The LMTools dialog appears.
2. Click **Stop Server** in the **Start/Stop/Reread** tab to disable the selected license server. IDL will run in seven-minute demonstration mode without an available license.

UNIX

The `lmdown` program initiates a shutdown of all license servers by sending a message to every license server asking it to shut down. If you selected the option at installation to use a log file, the license servers write out their last messages to the log file, close the file, and exit. All licenses that have been given out by those managers are rescinded, so that the next time the Exelis VIS software verifies its license, it will not be valid.

To run `lmdown`, change to your `idlxx/bin` directory and type `lmdown` at the UNIX prompt following the syntax below:

```
lmdown [-c license_file] [-q]
```

Option arguments include `-c`, which defines the path to your `license.dat` file and `-q`, which runs `lmdown` in "quiet mode." If you do not specify the `-q` switch, `lmdown` asks for confirmation before asking the license servers to shut down. If this switch is specified, `lmdown` does not ask for confirmation. It is recommended that you use the `-c` option to explicitly specify the license file or `port@host` reference when stopping the license server, especially when multiple license servers are running on your network (for example: `lmdown -c 1700@myserver`).

Unauthorized use of the `lmdown` command can be disruptive; when the license server shuts down, all current Exelis VIS software sessions are terminated. Verify that the file access modes on your system are secure. It is recommended that you set the permissions for `lmdown` using the following UNIX command:

```
chmod 500 idlxx/bin/lmdown
```

Macintosh

The license server is installed to run automatically on Macintosh via the system's `/Library/LaunchDaemons` startup utility. To stop the license server, issue the following command using root or sudo privileges:

```
/bin/launchctl unload -w /Library/LaunchDaemons/com.exelis.lmgrd.plist
```

This command will disable automatically launching the license server. To re-enable automatic launching, issue the following command:

```
/bin/launchctl load -w /Library/LaunchDaemons/com.exelis.lmgrd.plist
```

Neither of these commands will have any effect if the license server automatically starts using the `lmgrd` command or at boot time via the `/Library/StartupItems` utility used by earlier license servers. In these cases, use the UNIX `lmdown` method described above to stop the license server session.

Logging (UNIX and Macintosh)

The License Manager writes a log of its activities to its standard output. If you do not want to keep a log, you can redirect the standard output to the null device (`/dev/null`) by starting the License Manager with the command:

```
idlxx/bin/lmgrd > /dev/null
```

It is also possible to direct the log to the system console with the command:

```
idlxx/bin/lmgrd > /dev/console
```

If you want to keep a permanent log file, you should choose a location on your system where a growing log will not cause disk space problems. On Sun systems, the `/var/adm` directory is a reasonable choice.

If you would like to automatically create a debug log file when the License Manager starts at boot time, you can edit the `LOG_FILE_NAME` variable definition in the `sys5_idl_lmgrd` file by specifying a new log file destination. For example:

```
LOG_FILE_NAME = usr/local/exelis/license/idl_lmgrd.log
```

Then issue the `lmgrd_install` script as described in "Configuring the License Server to Start Automatically on UNIX and Macintosh" on page 10.

Note: On Macintosh, when `lmgrd` is started automatically at boot time, log messages are sent to the Apple console by the sender "com.exelisvis.lmgrd."

Reclaiming Unused Licenses (UNIX and Macintosh)

If you are running licensed Exelis VIS software products when the machine crashes, the license that was in use might not be returned to the server. In this case, the license is not available to other users. The `lmremove` program allows the system administrator to remove a single user's license for a specified feature and allows the license to return to the pool of available licenses.

Do not use `lmremove` to return a license that is being used by an active Exelis VIS software session. Use the command only to reclaim licenses from sessions that are no longer running.

To free a license, first gather information using the status command, `lmstat`. To run `lmstat`, change to your `idlxx/bin` directory and type:

```
lmstat -A | more
```

This shows the status of license servers as well as checked-out licenses. For example, the following line shows user "robin" has a license for IDL checked out from the server "hal7," which is being displayed on the host "josh":

```
robin hal7 josh/:0 (vx.x) (hal7/1700/395), start Mon 10/12 4:34, # licenses
```

The format of this line is:

```
user host display (version) (host/port/license_handle), start_date, #_of_available_licenses
```

To free the license held by user "robin," note the user, host, and display values. Then remove the license with the following `lmremove` syntax:.

```
lmremove idl robin hal7 josh/:0
```

where `idl` is the *feature*, `robin` is the *user*, `hal7` is the *host*, and `josh/:0` is the *display*. You can check to make sure the license was freed by typing the following at the UNIX command prompt:

```
lmstat -A | more
```

The license you just removed should no longer appear in the list of licenses checked out.

To determine the possible values of the *feature* parameter, inspect the `license.dat` file.

Finding the Host ID (UNIX and Macintosh)

You need to know the host ID when combining license files from different vendors. (See Combining License Files for more information.)

The `lmhostid` program obtains a unique FLEXnet host ID from your machine. To run `lmhostid`, change to the directory `idlxx/bin`, and type `lmhostid` at the UNIX prompt. The output of `lmhostid` looks like this:

```
lmhostid - Copyright (C) 1989-2007 Flexera
```

```
The FLEXnet host ID of this machine is "8002add0"
```

The system `hostid` command might not return the same required FLEXnet value that the `lmhostid` command returns.

Running Old and New Versions of Software Concurrently

In many cases, you can run older versions of Exelis VIS software products concurrently with the most recent version. In some cases, new license server capabilities such as the INCREMENT line might prevent older versions of Exelis VIS software products from working with the latest version of the license server.

You should start the license server from the latest Exelis VIS software distribution and use the new license file with the older software distribution. The old software license information should not be combined with the new license information. The license server should only be started once from the new distribution. It should not be started from an old software distribution.

Using the Same License Server for Different Applications

Flexera's FLEXnet Publisher (formerly the FLEXnet License Manager) is used as the network license management facility for Exelis VIS software products. Since this license server is not unique to Exelis VIS software, you may need to run software from two or more vendors that all use FLEXnet. In this case, you may find license server conflicts.

You have the following options if multiple products using FLEXnet have licenses served from the same license server:

- Combining licenses into a single license file
- Creating Unique FLEXNet Publisher Services for Each Product

Combining License Files

If Exelis VIS software products and other vendor products also using FLEXnet will be using the same license server to administer licenses, and if all of the vendor license files are compatible, you can combine the license files in a single license file.

Different FLEXnet vendor licenses are compatible for combination if the `LMHostid` value on the `SERVER` line for each file is exactly the same. For example, if the `SERVER` line in two different vendor license files is the following:

```
SERVER server1.acme.com 12345678 1700
```

and

```
SERVER server1 12345678 1800
```

You can combine the licenses into a single license file using either of the `SERVER` lines above, because the third item is the same in both (12345678).

Warning: Manually combining the information from multiple separated Exelis `VISlicense.dat` files that contain a `SERVER` line will invalidate the license and prevent the license server from running. The newest version of Exelis VIS product license file will normally work with previous versions of the supported products.

After shutting down the license servers, use a text editor to create a single license file. In this single license file, combine all license files by taking the `SERVER` lines from any *one* license file and adding all the `DAEMON`, `FEATURE`, `FEATURESET`, and `INCREMENT` lines from *all* of the license files.

Place copies of this combined license file in the locations required by the various software vendors. Alternatively, a single copy of the license file can be located in any convenient location, in which case each client machine must set the `LM_LICENSE_FILE` environment variable to point to it. For more information, see [Configuring Client Access to the License Server](#).

Windows

When you have edited the license file and saved it in the appropriate locations, restart the license server with the *most recent* version of the license server daemon (`lmgrd`) that you have installed. To determine the version of the license server daemon program (`lmgrd.exe`):

1. Launch a MS-DOS command prompt.
2. Change directory (use the `cd` command) to `IDLxx\bin.<platform>`.
3. Enter the following command at the prompt:

```
lmgrd -version
```

The output should look something like the following example:

```
lmgrd v11.6.0.0 build 60117 i86_n3 ...
```

If an older version of `lmgrd` is used, the license server from the product with a more recent `lmgrd` may not operate correctly.

Changes to an altered license file will not take effect until the license server is restarted using that license file.

UNIX and Macintosh

Exelis VIS software products might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable.

If you are on a client machine, you can also set your environments to point to the `port@host` setting of the license server.

After saving the license files in the appropriate locations, restart the license server with the *most recent* version of the license server daemon (`lmgrd`) that you have installed. If an older version of `lmgrd` is used, the license server from the product with a more recent `lmgrd` will not operate correctly. To determine the version of `lmgrd`, run the `lmgrd` program with the `-version` switch. For example:

```
idlxx/bin/lmgrd -version
```

The output should look something like the following:

```
lmgrd v11.6.0.0 build 60117 i86_n3 ...
```

If you do not combine license files or if the vendor license files are not compatible, you have the option of starting a separate license server for each vendor's license file on the same single license server.

Creating Unique FLEXnet Publisher Services for Each Product

As an alternative to combining the license information from multiple vendors' licenses and running a single instance of the FLEXnet Publisher service, you can install and start a separate instance of the FLEXnet service (with a unique name) for each

separate vendor's license file.

Using separate instances of the FLEXnet service with separate vendor licenses requires administering multiple services and license files. However, multiple FLEXnet services and separate vendor license files let the system administrator stop and start FLEXnet services freely for particular vendors without regard for other vendors' FLEXnet services running on that same system.

Make sure that only one instance of the FLEXnet Publisher will start on the server machine with respect to any Exelis VIS software license file. If an instance of the FLEXnet service is already running for these software products on this same license server, then installing a second instance of the FLEXnet service for the products under a different name can cause a conflict when Windows is loaded. (To resolve such a conflict, stop all but one of the conflicting FLEXnet services immediately after logging on to that license server.)

Each separate vendor license file must contain a unique port number at the end of the SERVER line, or it must not list a port number at all. No two SERVER lines may contain the same port number. By default, Exelis VIS software server-based license files use port number 1700. For example: `SERVER hal 0000c09a23f0 1700`

If the products use different server sessions, a local or shared network copy of each vendor license file is required on each client machine, or a port@host reference might be necessary. The copy of the license file or port@host reference directs the request for a license to the proper server. You will also need to set the existing `LM_LICENSE_FILE` variable to include the new product's license file path or a port@host reference.

Windows

After verifying that there is not already an Exelis VIS software-configured FLEXnet service running on your server machine, you can configure a uniquely named instance of the FLEXnet service for these products to avoid conflict with other vendors' FLEXnet services.

Note: Only one instance of an Exelis VIS software FLEXnet Publisher service can be running on a machine at any one time. Running multiple instances of the Exelis VIS FLEXnet service at the same time will prevent the license server service from operating correctly.

To install a unique instance of the FLEXnet Publisher for an Exelis VIS software license file:

1. Confirm that your updated license is already properly installed on the license server.

2. Select **LMTools** from the Exelis VIS software **Start** menu. The LMTools dialog appears.
3. Click on the **Config Services** tab.
4. Select an existing service name if you have previously configured an Exelis VIS FLEXnet (formerly FLEXlm) Publisher service, you can select this item from the Service Name pull down list to modify. (A service name cannot be changed. If you want to use a different service name, use the instructions in the following step.)
Or,
5. If you are installing a FLEXnet Publisher service for the first time, do the following:
 - Delete the currently shown text in the **Service Name** pull-down list. Note that this does not delete an existing service profile; it is simply a method to add a new profile.
 - In the blank **Service Name** field, enter the name of the new FLEXnet service to add. The default service name for Exelis VIS products is "Exelis VIS FLEXlm license server."
 - Press the **Tab** key to leave the Service name field. Notice that any previously shown path settings will disappear. This does not affect the existing FLEXnet service profiles.
6. Configure or reconfigure the path settings for the FLEXnet service profile by browsing (with the **Browse** buttons) or entering file paths into the appropriate fields:
 - **Path to the lmgrd.exe file**— The default path for the license server daemon is:
`IDLxx\bin\bin.x86\lmgrd.exe`
 - **Path to the license file** — The default path to the license file is:
`Exelis VIS\License\license.dat`
 - **Path to the debug log file** — The debug log file directory must exist, but the debug file itself does not need to already exist. The default path is:
`Exelis VIS\License\lmgrd_log.txt`

7. If you want the license server to start automatically at boot time as a service (recommended), check the **User Services** and **Start Server at Power Up** check boxes.
8. Click the **Save Services** button to save any configuration changes. Confirm saving the changes when prompted.
9. Finally, to start the license server, select the **Start/Stop/Reread** tab and click on the **Start Server** button. Exit LMTools. (Rebooting the system will also start the license server service.)

UNIX and Macintosh

Exelis VIS software products might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable.

For example, if you have an existing product residing in the home directory, the `LM_LICENSE_FILE` environment variable would be defined as follows:

For C shell:

```
setenv LM_LICENSE_FILE /home/otherapp/license.dat
```

For Korn or Bash shell:

```
export LM_LICENSE_FILE=/home/otherapp/license.dat
```

Add the Exelis VIS software license file to the existing `LM_LICENSE_FILE` variable by separating the new application's license path from the existing one with a colon as follows:

For C shell (enter the following command as one line):

```
setenv LM_LICENSE_FILE=  
/home/otherapp/license.dat:/usr/local/exelis/license/license.dat
```

For Korn or Bash shell (enter the following command as one line):

```
export LM_LICENSE_FILE=  
/home/otherapp/license.dat:/usr/local/exelis/license/license.dat
```

If a local or network copy of the license file is not available, you can use a `port@host` reference in the `LM_LICENSE_FILE` definition. For example:

For C shell:

```
setenv LM_LICENSE_FILE /home/otherapp/license.dat:1700@server1
```

For Korn or Bash shell:

```
export LM_LICENSE_FILE=/home/otherapp/license.dat:1700@server1
```

Restart the license server with the most recent version of `lmgrd` that you have installed. The version number of `lmgrd` is displayed when it is started. You can also determine the version by running the `lmgrd -version` command. If an older version of `lmgrd` is used, the license server daemon that uses the product with a more recent version of FLEXnet will not operate correctly.

For starting and stopping the license server in an environment that has multiple license servers running, it is recommended that you use the `-c` switch for `lmgrd` to specify which license server you want to reference. For example, to start the license server with respect to an Exelis VIS software license file in the default location, issue the following command (as one line):

```
idlxx/bin/lmgrd -c exelis/license/license.dat
```

Saving the License File in an Alternative Location

It is strongly recommended that you save your license file with the default path and filename in the following location:

Windows:

```
C:\Program Files\Exelis\License\license.dat
```

UNIX:

```
/usr/local/exelis/license/license.dat
```

Macintosh:

```
/Applications/exelis/license/license.dat
```

If you put your license file in this directory, you do not have to redefine any environment variables.

If you choose a location other than these for the license file, it must be accessible to the Exelis VIS software that you installed on your machine. Therefore, you must define the environment variable `LM_LICENSE_FILE` to point to the actual path of the license file prior to using Exelis VIS software. For example, if you save your license file as:

```
C:\flexnet.files\exelislicense.dat
```

The Exelis VIS software will not run properly until you define the `LM_LICENSE_FILE` variable. See "Configuring Client Access to the License Server" for more information on `LM_LICENSE_FILE`.

Windows

Use the following steps to reference the license file in an alternative location:

1. Open the **System** control panel.
2. Click the **Advanced** tab, and click the **Environment Variables** button. Click the **New** button below the System Variables box and enter the following information:
 - Type, in uppercase letters, `LM_LICENSE_FILE` in the **Variable Name** field.
 - Type the path to the license file in the **Variable Value** field: in this example, `C:\flexnet.files\exelislicense.dat`. Replace this value with the actual path to your license file.
3. Save the settings.

UNIX and Macintosh

Use the following steps to reference the license file in an alternative location:

1. Modify your `.cshrc`, `.profile`, or `.bashrc` file using any text editor. You must define the UNIX environment variable for `LM_LICENSE_FILE` to point to the server and port of the machine running the license server. The syntax for the defining the environment variable is:

```
port@host
```

For example, if you are running the license server on a machine named "hal" with a port of 1700, then enter the following:

For C shell: `setenv LM_LICENSE_FILE 1700@hal`

For Korn or Bash shell: `export LM_LICENSE_FILE=1700@hal`

If `LM_LICENSE_FILE` has already been defined for another software product, the definition of this license file can be appended using a colon (:) as the delimiter.

For example:

```
/usr/local/myapplication/license.dat:1700@hal
```

Or,

```
$LM_LICENSE_FILE:1700@hal
```

2. Log out and log back in to execute the `.cshrc`, `.profile`, or `.bashrc` file, or execute the file from the home directory using one of the following commands.

For C shell: `source .cshrc`

For Korn shell: . .profile

For Bash shell: . .bashrc

Upgrading a Network License Server

The following sections give examples of when you would upgrade the license server. Instructions vary by platform.

Windows

When the License Wizard installs the license server, it also automatically configures a service named "Exelis VIS FLEXlm license server" using default file settings.

If a previously configured license server with a different name is running on the same server administering your Exelis VIS software license file, it is recommended that you stop, then disable or remove, the previously configured service to avoid a potential system conflict caused by simultaneously running two license servers on one machine.

To manually stop and remove the old license server service:

1. Navigate to the software installation directory, and double-click the **LMTools** shortcut. The LMTools dialog appears.
2. Select the **Config Services** tab.
3. From the **Service Name** drop-down list, select the older license server name that you would like to remove.

You can identify the operational status of configured services in the Services control panel utility. If the **Status** field is "Started," the service is currently running.

If the machine is serving licenses for other products that use the FLEXnet Publisher service, and you are unsure which is the unnecessary Exelis VIS license server service, contact your system or network administrator for assistance.

1. Select the **Stop/Start/Reread** tab. The selected license server service is highlighted.
2. Click **Stop Server** to stop the service. If the selected service is not currently running, then clicking **Stop Server** displays a **Status** field message that

verifies that LMTools is unable to stop the selected service (e.g., “Unable to Stop Server”).

3. After stopping the service, return to the **Config Services** tab and click **Remove Service** to complete the removal of the old license server.

UNIX

If you are upgrading to a newer version of Exelis VIS software, you should use the version of the license server that shipped with the latest version of these programs. Newer versions of FLEXnet support applications that were built to work with older versions of FLEXnet. Using a newer version of Exelis VIS software with an older version of the license server (`lmgrd`) might not allow these products to operate correctly.

To determine the version of your license server, run the `lmgrd` program with the `-version` switch. For example:

```
idlxx/bin/lmgrd -version
```

To upgrade the license server to run at boot time, issue the following commands at the command line:

```
cd idlxx/bin  
lmgrd_install
```

Macintosh

To avoid problems, use the License Wizard or `lmgrd_install` to upgrade your license server. Root privileges are required to successfully use this command. If your system was manually configured to launch a previous version of the Exelis VIS license server at boot time, you might need to uninstall or disable the older, manually created item under `/Library/StartupItems`. Simultaneously running more than one license server on the same machine can result in a license server conflict.

Using License Files

The license file controls:

- Which products can run
- Which machines they can run on
- How many copies can run concurrently

The following is an example of an IDL license file. This example is built for the license server "hal," which has the LMHostid "0000c09a23f0" and the designated port number "1700." This license has five floating licenses. The last line in the license file is the FEATURESET line, which ties all the FEATURE and INCREMENT lines together:

```
SERVER hal 0000c09a23f0 1700
USE_SERVER
DAEMON idl_lmgrd
INCREMENT idl idl_lmgrd x.x00 1-jan-0000 30 5BC6A081FA3009FA5673 \
VENDOR_STRING="1234-1Acme Datawack Corp" ck=16 SIGN="1234 ABCD ..."
FEATURESET idl_lmgrd 96C31B1FB71BCAE9
```

The FEATURE or INCREMENT lines of the license file determine which products are available. The *x.x* refers to the IDL version. The SERVER lines define which machines the products run on. The number of copies of the product that can run concurrently is controlled by the number of license units available, as specified by either the FEATURE or INCREMENT lines.

The FEATURE or INCREMENT line for the floating license shows 30 license units. This is not an error. Each *idl* or *idl_rt* counted license requires 6 license units (10 for Solaris SPARC) on the FEATURE or INCREMENT line. The number of license units is a platform-dependent scale factor times the number of licenses you own. For example, if you have 3 Windows floating licenses, this field is set to 18.

You must be logged in as root or have write permissions on the licensing directory to modify the license file.

Modifying License Files

You can modify only the following four data items in the license file:

- Hostname (but not host ID) on SERVER lines
- Port numbers on SERVER lines
- Options file pathnames on DAEMON lines (note that it is not necessary to specify option file pathnames with FLEXnet v6 or later).
- Pathnames on DAEMON lines

On Windows, you normally should not include a path on the DAEMON line of your server-based license file. However, if your license server daemon (`lmgrd.exe`) file and your vendor daemon file (`idl_lmgrd.exe`) are moved to separate directories, then you will need to edit the DAEMON line of your license file to reflect the actual location of your vendor daemon or vendor daemon directory. For example:

Windows:

```
DAEMON idl_lmgrd "C:\Otherdir\Exelis\IDLxx\bin\bin.<platform>\idl_lmgrd.exe"
```

UNIX:

```
DAEMON idl_lmgrd /otherdir/exelis/idlxx/bin
```

Macintosh:

```
DAEMON idl_lmgrd /otherdir/exelis/idlxx/bin
```

Note: Changing license file lines other than those discussed above will invalidate your license file, causing your installation to run only in demonstration mode (IDL only). Individually altering any FEATURE or INCREMENT lines destroys the file.

If you have multiple vendors using FLEXnet Publisher, see "Using the Same License Manager for Different Applications" for more detailed information on customizing your license file.

Changes to a modified license file will not take effect until the license server is restarted using that license file.

License Sources

FLEXnet stores the latest successful IDL or ENVI license information on UNIX and Mac OS X in a FLEXnet resource file called `.flexlmrc` in the user's home directory. This file defines a variable named `IDL_LMGRD_LICENSE_FILE` to indicate the license source. For example, the definition in the file might read as follows (using IDL as an example):

```
IDL_LMGRD_LICENSE_FILE=/usr/local/exelis/license/license.dat
```

IDL or ENVI continues to use this information until the `IDL_LMGRD_LICENSE_FILE` value is redefined, the `.flexlmrc` file is removed, or a system environment variable called `IDL_LMGRD_LICENSE_FILE` is defined in the shell environment used to start IDL.

Note that even if a system environment variable named `IDL_LMGRD_LICENSE_FILE` is defined, the `IDL_LMGRD_LICENSE_FILE` setting in the `.flexlmrc` file will continue to be referenced, but as a secondary license source if the `IDL_LMGRD_LICENSE_FILE` system environment variable does not supply a viable license source for the IDL session.

A license source defined by `IDL_LMGRD_LICENSE_FILE` in your `.flexlmrc` file or as a system variable will always hold precedence over any `LM_LICENSE_FILE` environment variable's definition. Only if IDL or ENVI cannot successfully access a license source defined by `IDL_LMGRD_LICENSE_FILE` will it attempt to access a license defined by `LM_LICENSE_FILE`. Here is the order of license source precedence:

1. The `IDL_LMGRD_LICENSE_FILE` environment variable (Exelis VIS product-specific)
2. The `IDL_LMGRD_LICENSE_FILE` definition in `.flexlmrc` (Exelis VIS product-specific)
3. The `LM_LICENSE_FILE` environment variable (seen by all products using FLEXnet)
4. The `license.dat` file in the default location (`/exelis/license/license.dat`)
5. The evaluation license (`/exelis/license/*.lic`)

To override the `.flexlmrc` license source definition, define an `IDL_LMGRD_LICENSE_FILE` system environment variable that points to the desired license file. For example, for a C shell:

```
setenv IDL_LMGRD_LICENSE_FILE /usr/local/exelis/license/license.dat
```

For a Korn or Bash shell:

```
export IDL_LMGRD_LICENSE_FILE=/usr/local/exelis/license/license.dat
```

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