



Using the Intel® License Manager for FLEXIm*

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Chapter 1: About This Guide

This guide helps you get started using the Intel® License Manager for FLEXlm* with your Intel® Software Development Product. This guide contains the following chapters:

- *Chapter 1, About This Guide* – describes the contents of this guide, related publications, and conventions used in this guide.
- *Chapter 2, Introduction* – describes the supported platforms, license types, and how to obtain technical support.
- *Chapter 3, Installing the Intel® License Manager for FLEXlm** – describes the necessary steps in identifying host name and host id, registering your product serial number, downloading and installing the product, and using the product for the first time and troubleshooting.

Related Publications

For information on Globtrotter FLEXlm software, see <http://www.globetrotter.com>. See <http://www.globetrotter.com/TOC.htm> for the “*FLEXlm End User’s Guide*” from Globtrotter. For information on Intel Software Development Products, see <http://developer.intel.com/software/products>.

Document Conventions

This document assumes the following terms and conventions:

- The term “License Manager” refers to the Intel® License Manager for FLEXlm*.
- File names and command-line entries use `this notation`.
- Place-holder names are indicated as `<place_holder_name>`.
- Hyperlinks use [this notation](#).

Chapter 2: Introduction

Before you can use Intel® Software Development Products, you must have the correct license installed for Intel products. The Intel® License Manager for FLEXlm* is a collection of software components included with your product purchase (or downloaded separately) to help you manage your license file in a multiple-user environment. This document describes the installation and use of the Intel License Manager for FLEXlm for [supported platforms](#).

Counting the number of concurrent users is the main function of the License Manager. The License Manager is needed only when you have a counted license (see [License Types](#)). For uncounted license types, you need to install the license file, but not the License Manager. See your product documentation for more information on installing the license file for an uncounted license.

Supported Platforms

While Intel Software Development Products are engineered for the Microsoft Windows* platform and Linux* platform, the Intel License Manager for FLEXlm is supported on all the platforms listed below:

- Microsoft Windows (IA-32 and Itanium®-based systems)
- Linux (IA-32 and Itanium-based systems)
- IBM AIX*
- HP HP-UX*
- Sun Solaris*
- Compaq Tru64 UNIX*
- SGI IRIX*

This means you can have the License Manager running on one of the supported platforms listed above, with Windows or Linux applications running on separate network nodes. For example, you can install the License Manager and license file on a Solaris system to manage 10 floating licenses for the Intel® C++ Compiler on Linux, and 15 floating licenses for the Intel® Fortran Compiler on Windows.

License Types

Before installing the Intel® License Manager for FLEXlm*, you should be familiar with the different license types and how they are used with Intel® Software Development Products.

- Evaluation License (uncounted)
- Noncommercial-Use License (uncounted)
- Academic (uncounted)
- Single-User License (uncounted)
- Node-Locked License (counted or uncounted)
- Floating License (counted)

Only the “counted” license types require the License Manager. Uncounted license types do not require the License Manager. Node-locked and floating license types are used in multiple-user environments, where the License Manager monitors the number of concurrent users permitted in the [license file](#). For example, if your license permits 20 users, then the License Manager will “check out” a license to the first 20 users. Whenever the license count is less than 20, other licensed users may check out a license from the License Manager to run their application.

The differences between node-locked and floating license types are:

- With [node-locked license types](#), users access the Intel Software Development Product using an account on a central (node-locked) system where both the Intel Software Development Product and the License Manager are installed. In this case, the Intel Software Development Products are not installed on remote systems. For example, a user might use Telnet to log into an account on the central system and use the command-line window and run the Intel Software Development Product on the node-locked system. Also, Windows* Terminal Server* and related X-window capabilities allow more than command-line window use.
- With [floating license types](#), users access the Intel Software Development Product on their local system, where the license use is controlled by one central system running the License Manager.

Node-Locked License Configuration

There are two versions of the node-locked license:

- Counted – the license limits the number of concurrent users.
- Uncounted – the license does not limit the number of concurrent users.

In both cases, only the node running the application and License Manager needs a license file. Consider the example illustrated in the table below:

Node	Operating System	Applications	License Manager	License File
A	Linux*	Intel® C++ Compiler Intel® Fortran Compiler	X	X
B	Windows*			
C	Solaris*			

In this example, the Intel C++ Compiler, the Intel Fortran Compiler, the License Manager, and license file all run on Node A. Anyone on the network who can connect to Node A, may run either application, as long as a license is available.

Floating License Configuration

With a floating license you can manage, from a single node, applications running on different nodes. Consider the example illustrated in the table below:

Node	Operating System	Application	License Manager	License File
A	UNIX*		X	X
B	Windows	Intel C++ Compiler		X
C	Linux	Intel C++ Compiler Intel Fortran Compiler		X
D	Linux	Intel Fortran Compiler		X

In example above, the License Manager running on Node A counts how many licenses are in use. The license file on each node must be identical, but may use a different file name, provided all file names include a `.lic` extension.

Sample License File

The sample counted license file below is for a License Manager installed on Linux*. The same license file is used with Windows* or Linux products that rely on the License Manager to serve and count licenses.

Sample Counted License File
SERVER mslid073 000629856A25 28518 VENDOR INTEL PACKAGE I00000000002L INTEL 2003.1025 12222F8900CF COMPONENTS="CComp \\ FComp" OPTIONS=SUITE ck=86 \\ SIGN=8BF3D0867076 FEATURE I00000000002L INTEL 2003.1025 permanent 20 FD312CFD3BA9 \\ VENDOR_STRING=SUPPORT=INT HOSTID=ANY PLATFORMS="i86_n i86_r \\ ia64_n it64_lr" DUP_GROUP=UH ck=127 SN=INT2002917543 \\ SIGN=A3A79E168CD2

The essential components of the sample license file are listed below, along with their corresponding values from the sample above:

- **Host name:** mslid073
- **Host id:** 000629856A25
- **Supported Software Products:** CComp (Intel® C++ Compiler), FComp (Intel® Fortran Compiler).
- **Supported Product Platforms:** i86_n (Windows on IA-32 systems), i86_r (Linux on IA-32 systems), ia64_n (Windows on Itanium®-based systems), it64_lr (Linux on Itanium-based systems).
- **Intel Support Expiration Date:** 2003.1025 (October 25, 2003).
- **Product Expiration Date:** permanent (never expires).
- **License Count:** 20.

Note: Editing any portion of the license file will render it invalid.

Technical Support

When you purchase an Intel® Software Development Product, you receive [Intel® Premier Support](#) and free product upgrades for one year. You must register your product with the [Registration Center](#) to activate Premier Support. All [license types](#), except the noncommercial-use license, qualify for Intel Premier Support.

Chapter 3: Installing the Intel® License Manager for FLEXlm*

It is necessary to install the License Manager only if you are using a counted license (see [License Types](#)). Once you have purchased an Intel® Software Development Product, follow the steps below to install the License Manager and invoke your product:

1. [Identify host name and host id](#)
2. [Register your product serial number](#)
3. [Download \(unless you purchased the CD-ROM version\) and install the product](#)
4. [Using the Product for the First Time and Troubleshooting](#)

Identify the host name and host id

The host name and host id are system-level identifiers on [supported platforms](#) that are used in the [license file](#) to identify the node on which you plan to install the License Manager and license file. These unique values must be available when you register your product to obtain a counted license. For node-locked licenses, you will also need the host name and host id of the node from which your applications will run, if different from the node for the License Manager. Directions for obtaining the host name and host id for each supported platform follow below:

Microsoft Windows*

1. From the **Start** menu, click **Run...**
2. Type `cmd` in the **Open:** field, then click **OK**.
3. Type `ipconfig /all` at the command prompt, and press **Enter**.

In the resulting output, host name is the value that corresponds to `Host Name`, and host id is the value that corresponds to `Physical Address`.

For example, if the output of `ipconfig /all` included the following:

```
Host Name . . . . . : mycomputer
```

```
...
```

```
Physical Address . . : 00-06-29-CF-74-AA
```

then host name is `mycomputer` and the host id is `00-06-29-CF-74-AA`.

Linux*

1. Run the `hostname` command to display the host name.
2. Run the command `/sbin/ifconfig eth0` to display the hardware address.

For example, if the `/sbin/ifconfig eth0` command returns
`HWaddr 00:D0:B7:A8:80:AA`, then the host id is `00:D0:B7:A8:80:AA`.

IBM AIX*

Run the `hostname` command to display the host name.

Run the command `uname -m`. This will display a 12-character string.

Remove the first two and last two digits, and use remaining eight digits.

For example, if the `uname -m` command returns `000123456700`, then the host id is
`01234567`.

HP HP-UX*

Run the `hostname` command to display the host name.

Run the command `uname -i`. This will display a string of characters.

Add a “#” character to the beginning of this string.

For example, if the `uname -i` command returns `123AB456`, then the host id is
`#123AB456`.

Sun Solaris*

Run the `hostname` command to display the host name.

Run the command `hostid`. This will display the system's host id.

For example, if the `hostid` command returns `123a1234`, then the host id is
`123a1234`.

Compaq Tru64 UNIX*

Run the `hostname` command to display the host name.

Run the command `netstat -I` and use the Ethernet address. The output of the
commands is multiple lines, each with multiple columns. Look for an address of a form
similar to `08:00:2b:c4:45:1b` in the Address column of the output.

Remove the colons.

In this example the host id is `08002bc4451b`.

SGI IRIX*

Run the `hostname` command to display the host name.

Run the command `/etc/sysinfo s`. This will display a string of characters.

Add a “#” character to the beginning of this string.

For example, if the `/etc/sysinfo s` command returns 123AB456, then the host id is #123AB456.

Register Your Product Serial Number

Next, register each product serial number at the Intel® Software Development Products Registration Center. The registration process is required for the following reasons:

- For electronically-transferred products, this is the only means to obtain the required license file and download location for the software.
- For boxed (CD-ROM) products, this is the only means to activate Intel® Premier Support and receive product updates. Note: CD-ROM products are encoded with a Single-User license. Therefore, they cannot be used with the License Manager.
- For counted licenses, this is the process by which the [host name and host id](#) are sent to Premier Support for license creation.

Go to the Registration Center at

<http://www.intel.com/software/products/registrationcenter/index.htm>.

and complete each step.

Download and Install the Product

After you register your product serial number, you will receive e-mail instructions to download your Intel® Software Development Product. Obtain your product download by going to the URL included in the instructions. You do not need to download your product if you purchased the CD-ROM version. Also, check to see if there is a more recent product update before downloading.

After downloading your product, begin by unpacking (if necessary) the installation program. See the product Release Notes for installation details. When you begin the product installation, you will need to identify the location of the license file you received with your product. The installation will proceed only if you have a valid license file. When the installation is complete, you will be prompted to install [not install] the License Manager. You should install the License Manager if you will be running the License Manager on the same machine used for the license file. If you do not install the License Manager, you will need to copy your license file to the product's license directory.

On Windows*, license files are in:

..\Program Files\Common Files\Intel\Licenses

On Linux*, license files are in: /opt/intel/licenses

Starting the License Manager

After installing the License Manager, you need to start it before running your product. Follow these steps to start the License Manager on Windows:

1. From the Windows* Start Menu, select
 - >**Programs Intel® Software Development Tools**
 - >**Intel® FLEXlm License Manager**
 - >**Configure Intel® FLEXlm License Manager**
2. Select the license file.
3. Click **Apply**, then close the window.

For all [supported platforms](#) (other than Windows),

run: `./lmgrd.intel -c <path to license file>`

from the directory where the License Manager files are installed.

Compatible Versions of License Manager and Vendor Daemons

In a complex installation of multiple FLEXlm* licensed products, which include daemons from different vendors, a single lmgrd is used to manage the use of all licensed products. Any lmgrd whose product version (`lmgrd -v`) is greater than or equal to all of the vendor daemons' product versions may be used. If your lmgrd version is less than any of the vendor daemons versions, server start-up failures may result.

License Manager Software

If you obtained the License Manager software as a stand-alone package for Linux or UNIX* platforms, follow the steps below to install the License Manager software:

1. Place the downloaded package `flexlm.<platform>.tar.Z` in a directory in which you wish to extract its files. This need not be the same location in which you plan to install the License Manager files.
2. Uncompress the package using the command:
`uncompress flexlm.<platform>.tar.Z`
3. Extract the files from the package with the command:
`tar -xvf flexlm.<platform>.tar`
This will extract the files and prepare you for installation.
4. Move to the `flexlm/` directory created by the above step.
5. Run the `Install_INTEL` script, following the directions to install and configure the License Manager

To set up the License Manager to start automatically, follow the steps below. If you used the Server Installation program and follow the instructions it will make these changes automatically. This step is necessary only if you used the Product Distribution or skipped the setup during Server Installation.

Add the following steps to the `/etc/rc.d` file to ensure that the server is started at system startup (ensure there is a space ‘ ‘ between each argument). It is recommended that server start up be done as root.

1. `cd <server-directory>`
2. ``pwd`/lmgrd.intel -c `pwd`/<licensefile> -l `pwd`/<log file>`

Ensure that the change directory is set to the one created in Step 1 above. The `-c <license file>` should point to the license file copied to the server directory from the registration e-mail. Use the full path. The `-l <log file>` will capture information that will be useful for debugging unanticipated server or license check-out problems. Use the full path.

Shutting Down or Removing the License Manager

To shut down or remove the License Manager from Linux* or UNIX* systems, follow the instructions below:

1. Move to the `<server-directory>`.
2. Execute the command:
`lmdown -c <license file>` (use the full path)
3. Killing the `lmgrd.intel` and `INTEL` processes are not recommended. However, if `lmdown` cannot successfully shut down the License Manager, it may be required.
4. To permanently remove the License Manager, delete the lines that were added to the `/etc/rc.d` file.

Verifying the License Manager

To verify that the License Manager is running on Linux or UNIX systems, follow these instructions:

1. Move to the `<server-directory>`.
2. Execute the command `lmstat -c <license file>`. Use the full path.

Using the Product for the First Time and Troubleshooting

The installation process should be complete at this step. Invoke the product to ensure that everything has been properly installed.

If for some reason you run into an issue where the licensing is not working properly review the steps above to verify the installation. Once verified, if the problem persists, open a support case with Intel® Premier Support.

In preparation for opening the support case, set the environment variable `INTEL_LMD_DEBUG` to 1 and execute the product (see [Setting Environment Variables](#)). This will generate more detailed information on the licensing failure. Please provide this information when filing a support issue. A product support engineer will then work closely with you to resolve the outstanding issue.

Setting Environment Variables

On the Windows* command line, the `SET` command lets you:

- Set an environment variable to a value. For example:
`SET INTEL_LMD_DEBUG = 1`
- View the current value of an environment variable. For example:
`SET INTEL_LMD_DEBUG` returns `INTEL_LMD_DEBUG = 1`

On Linux* (or UNIX*) systems, the commands used depend on the shell in use.

- With the C Shell, use the `setenv` command to set an environment variable:
`% setenv INTEL_LMD_DEBUG 1`
- To remove the association of an environment variable and an external file with the C shell, use the `unsetenv` command:
`% unsetenv INTEL_LMD_DEBUG`
- With the Bourne shell (`sh`), Korn shell (`ksh`), and bash shell, use the `export` command and assignment command to set the environment variable:
`$ export INTEL_LMD_DEBUG $ INTEL_LMD_DEBUG = 1`
- To remove the association of an environment variable and an external file with the Bourne, Korn, or bash shell, use the `unset` command:
`$ unset INTEL_LMD_DEBUG`