



# License Management Guide



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# Chapter 1: License Management Concepts

Access to IDL and other products from Research Systems is controlled by a software application that ensures a proper license has been installed on the user's system. In most cases, Research Systems' products will run in demonstration mode without a license installed. Demonstration mode allows for short demonstrations and tests, but some software features are unavailable and the program automatically exits after seven minutes. The software becomes fully functional after a license file has been installed.

Research Systems supports a number of license types for a variety of platforms. Depending on the type of computer you have and the type of license you have purchased, you will have received either an evaluation license, a node-locked license, a HASP license, or a floating license, also known as a client/server license. This chapter describes each type of license and discusses some general license management topics.

If you are installing a single permanent license or an evaluation license, the information contained in your Installation Guide should be adequate to license your RSI software. While this chapter discusses general licensing concepts, the following chapters discuss platform-specific license management issues.

# License Types

Several types of product licenses are available for each platform, as illustrated by the table below.

License Type	UNIX/VMS	Windows	MAC
<b>Demonstration</b>	X	X	X
<b>Evaluation</b>	X	X	X
<b>Permanent</b>			
• <b>Node-Locked</b>	X	X	
• <b>Floating</b>	X	X	
• <b>HASP</b>		X	X

*Table 1-1: Licensing options by platform*

## Demonstration Licenses

Demonstration licenses are the default license provided with your Research Systems software products. These licenses allow you to run limited versions of the software products in seven minute demonstration mode. You do not need to request or install a license file.

## Evaluation Licenses

Evaluation licenses are temporary trial licenses allowing access to all software features for a specified number of days. Once the evaluation license expires, you will be alerted by a dialog box stating that the application is available only in 7 minute demonstration mode. Contact Research Systems or your local distributor to purchase a permanent license or to extend your evaluation license. For more information, see “Installing an Evaluation License” in your Installation Guide.

## Permanent Node-Locked Licenses

Node-locked licenses are personal licenses tying a single software application to a single machine. A license file requires incorporating a machine’s unique host ID into the license request file. After this information is sent to Research Systems, or your local distributor, a license file is returned. Installing the license file enables full

functionality of the Research Systems product. See “Installing a Permanent License” in your Installation Guide for more information.

---

**Note**

UNIX Alpha Linux customers do not need to use the licensing wizard to request or install a license file. See “[Licensing for Alpha Linux](#)” on page 49 for instructions.

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**Note**

Both node-locked and floating license installations on UNIX ( except Alpha Linux) require that you start the licenses manager unless the increment line of the license file indicates only unlimited user, type MU, licenses. Windows NT license installations require that you start the license manager unless you are installing only a single user, no-server, node-locked license.

See “[Controlling Licenses with the License Manager](#)” below for more information concerning the license manager.

---

## Permanent Floating (Client/Server) Licenses

Floating licenses allow multiple users to concurrently access Research Systems products. After installing and licensing the software product on the server machine, the license manager, installed along with your software, handles requests for licenses from remote client machines. As the server administrator, you can choose how users access the licenses. You can select to reserve licenses for individual or groups, or select to allow all users to share access to the licenses. If you have a team of 20 people, and you have purchased your RSI software with 10 floating licenses, you can select to reserve licenses for certain individuals in the group, or allow all team members to share access to the ten licenses throughout the day.

While both *node-locked* and *floating licenses* use a license file containing information based on a unique host ID from the machine being licensed, floating licenses additionally require the installation of a license manager. For complete details, see “Installing a Floating License” in the following platform specific chapter.

### Controlling Licenses with the License Manager


Research Systems products that use node-locked or floating licenses use the Globetrotter Software FLEXIm license manager. The license manager runs continuously on your system, waiting for a request from a Research Systems product. When a request arrives, the license manager determines whether the proper license for a requested product is available. If the proper license is present and not already in use, the license manager allows access to the software.

Depending on your platform, as described in the previous note, you may need to start the license manager. After receiving and installing your license file, you must then start the license manager in order to operate IDL in licensed mode. See “Starting the License Manager” in the following platform specific chapter for more information. Administrators can also control access to floating licenses by creating an options file. The options file allows an administrator to reserve licenses for users, groups or specific machines. See “Managing Floating Licenses” in the following chapter for your platform for more information.

## Permanent HASP Licenses

HASP licenses, also known as *Hardware-based node-locked licenses*, use a combination of a physical hardware dongle (HASP) and a software key code that allows Research Systems products to run in licensed mode. The HASP must be installed on the same machine as the software. Both the hardware key and the license code are required in order to run the software in licensed mode. See the “HASP Licensing” section in the following chapter for your Windows or Macintosh platform for more information.





## Chapter 2:

# UNIX License Management

If you are installing an evaluation license, the information contained in the Installation Guide should be adequate to license IDL. This chapter covers the installation and management of node-locked and floating licenses which require the use of the license manager, including these topics:

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# Introduction

## The Default RSI Directory

When you install a product from Research Systems, the installation program asks you to choose a directory in which the product will be installed. In these instructions, as in your installation guide, we refer to this directory as the *RSI-Directory*. We recommend that you install Research Systems products in the default *RSI-Directory*, `/usr/local/rsi`.

## Research Systems Products Based on IDL

Research Systems distributes several products based on IDL and written in the IDL language. License management for these products is essentially the same as for IDL itself; the differences generally consist of added products listed on the FEATURE line in the license file.

In these instructions *RSI-Directory/product\_version* denotes the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example <code>/usr/local/rsi</code> .
<i>product_version</i>	The product you are installing, for example <code>idl_5.4</code> .

---

### Note

If you are installing IDL, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/idl_5.4`.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/envi_3.4/idl_5.4`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

# Requesting a License

To license your Research Systems software after installing it, open the licensing wizard by changing to your *RSI-Directory/product\_version/bin* directory and typing `rsilicense` at the UNIX prompt. The *RSI-Directory* is where you have installed your RSI software and *product\_version* denotes the software, for example `idl_5.4` or `envi_3.4/idl_5.4`.

---

**Note**

Alpha Linux customers do not need to use the licensing wizard to request or install a license file. See [“Licensing for Alpha Linux”](#) on page 49 for instructions.

---

If you have properly set your `IDL_DIR` environment aliases, you can type `rsilicense` at the UNIX prompt.

---

**Note**

The electronic registration program can't retrieve the correct information unless you have a TCP/IP addressable network communication card (for example, an ethernet card) and a TCP/IP service set up on your system.

Note also that you must run the licensing wizard from the server machine or the node-locked machine, on which you have installed your Research Systems software. This ensures proper generation of the server `LMHostid` and `Nodename` for your license file.

---

---

**Note**

You need write permissions for the *RSI-Directory/license* directory in order to save the license request file, `request.txt`, created by the license wizard.

---

## Preparing a License Request

1. **Begin the license request process.** Select **Permanent** from the Permanent Licensing dialog.
2. **Prepare a Request file.** Click **Request** to prepare a license request file to submit to Research Systems. The licensing wizard guides you through the creation of a license request file that will contain all the information necessary

for Research Systems to create a valid license file for your software installation.

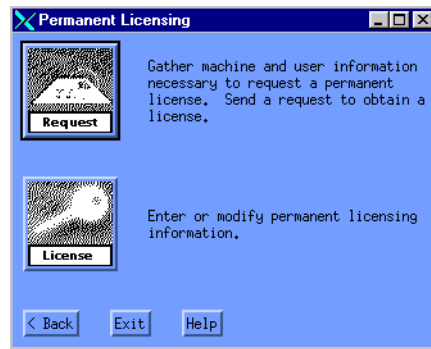


Figure 2-1: Permanent Licensing dialog

3. **Enter your information.** Fill in the following text fields in the Permanent Licensing dialog:
  - Contact Person — Enter the name of the person to whom the license file should be sent.
  - E-mail Address — Enter the e-mail address of the contact person.
  - Installation Number — Enter the installation number found on your Product Installation Form. You should have already received this form from Research Systems by electronic mail or fax. If you have not received it, contact Research Systems technical support. See [“Contacting Research Systems”](#) on page 50 for more information.
  - Site Notice — Enter the name that you want to appear when you launch the software. The name you select will replace <your site notice> in the following statement: “licensed for use by <your site notice>.” This is typically your company’s name, department, or project.

Permanent Licensing - Enter Request

Contact Person: Anthony Roberts

Email Address: aroberts@acmedata.com

Installation Number: 3XGK987R098

Site Notice: Acme Data Corporation

Node Locked  Node Floating

Node Hostname:

Node LMHostid:

Server Hostname: hal

Server LMHostid: 0002001

Comments:

< Back Next > Exit Help

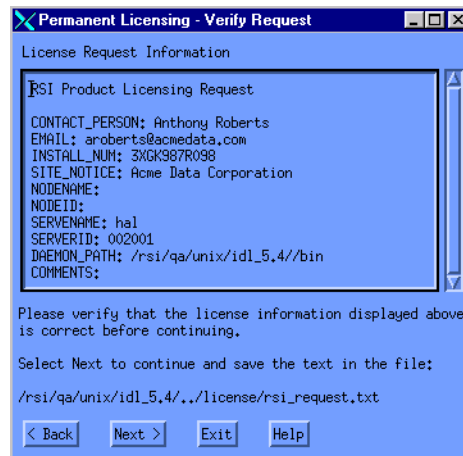
Figure 2-2: License Request Dialog

4. **Select the license type.** Select **Node Locked** if you are installing a license for a single user working on a single machine. Select **Floating** if you are installing a client/server license that will allow users to access the software from client machines. The license wizard automatically generates the correct Hostname and LMHostid.
  - Node Hostname — This value is automatically generated by the registration program. Do not modify this value.
  - Node LMHostid — This value is automatically generated by the registration program. Do not modify this value.
  - Server Hostname — This value is automatically generated by the registration program. Do not modify this value.

- Server LMHostid — This value is automatically generated by the registration program. Do not modify this value.
- Comments — Enter any comments you may have.

Click **Next** to continue.

5. **Review your license request.** If the information is correct, click **Next** to save the license request file and proceed. If the information is incorrect, edit it in the text window or click **Back** to make any corrections.



*Figure 2-3: Your License Request Information*

6. **Send the license request file.** Click **Next** to send the license request file to Research Systems. If you did not purchase your software directly from Research Systems, alter the e-mail address and send the file to your local distributor.

### Note

If you can't send e-mail from your machine or if you receive a message stating that an attempt to send the e-mail was unsuccessful, see [“Manually Sending a License Request”](#) on page 16. A license file will be sent to you at the e-mail address or fax number you supply.

7. **Exit the License Wizard.** Click **Finish** to exit the license request program.

When you receive your license file from Research Systems, run the license wizard again to install your license file. See [“Installing Floating / Node-locked Licenses”](#) on page 17.

If you do not receive a license file or any confirmation that the request was received, see [“Manually Sending a License Request”](#) on page 16 to re-send the request.

## Manually Sending a License Request

To manually send a license request, select the appropriate step below and e-mail your request to [register@ResearchSystems.com](mailto:register@ResearchSystems.com) or fax the text of the request file to Research Systems at 303-786-9909.

- **From the license wizard** — Select **Back** to display the request file. Copy all of the request information into an e-mail message or fax this text to Research Systems.
- **Outside of the license wizard** — Copy the request file, located in `RSI-Directory/license/rsi_request.txt`, and send it by fax or e-mail.

If you did not purchase your software directly from Research Systems, send the file to your local office or distributor.



# Installing Floating / Node-locked Licenses

To license your RSI product using a software-based node-locked license or a floating license, you need to install your license file. After completing and sending your license request file, described in “[Requesting a License](#)” on page 11, your license file will be sent to you via electronic mail or fax. If your file is sent via e-mail, you can save the e-mail message as a file named `license.dat`, removing any header lines before the beginning of the actual license information. If you receive your license file via fax, you will have to enter the information into the text window of the license wizard as described below.

## Locate the License File

1. **Start the IDL Licensing Wizard.** Type `rsilicense` at the UNIX command prompt.
2. **Display the Enter License Text dialog.** Select **Permanent** and then **License** from the licensing wizard dialogs.

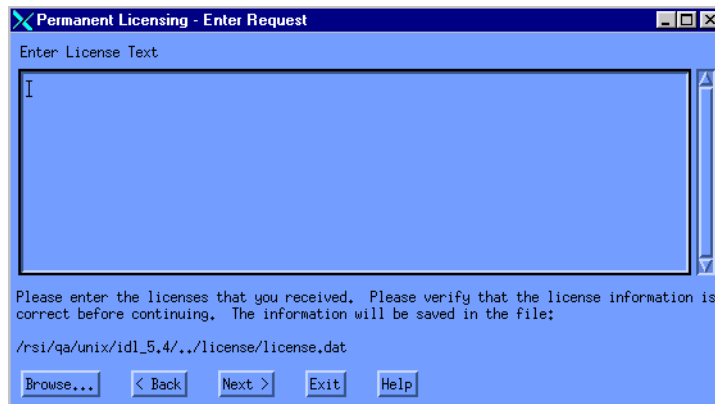


Figure 2-4: License Text Window

3. **Enter your license file.** Paste the text of the license file into the dialog’s text window, or select **Browse** to select the license file which you have named `license.dat`. If you paste in your license file, remove any header lines that are included in the file but keep the comment lines that begin with the “#” character. If you have received your license file via fax or other hardcopy method, enter the information directly into the text window.

---

**Note**

Be sure that the DAEMON line of the license file points to the `idl_lmgrd` program in the `RSI-Directory/product_version/bin` directory where `RSI-directory` is the directory where you have installed your RSI software and the `product-version` directory is, for example, `idl_5.4` or `envi_3.4/idl_5.4`. If this is not the case, be sure to correct license file path before proceeding.

---

4. **Save the license file.** Click **Next** to save the `license.dat` file in the `RSI-Directory/license` directory. If you have installed IDL in a directory other than the default, `/usr/local/rsi`, you must set the environment variables pointing to the `license.dat` file before starting your Research Systems software or the license manager. See instructions for setting the `LM_LICENSE_FILE` environment variable on page 19.

---

**Note**

If you receive a message that there is an existing license file, save the existing file under a different name before proceeding. While the new license usually contains information for all currently licensed products, save the old file as a safeguard against destroying license information. Run the license wizard again to save the new license file in the default location.

---

5. **Exit the licensing wizard.** Click **Finish**. Your software is now licensed. Proceed with “Defining the `LM_LICENSE_FILE` environment variable” on page 19.

---

**Note**

If you have other software that uses Globetrotter Software’s FLEXlm license manager you may want to combine the Research Systems license file with the existing ones. See “[Multiple Applications That Use The Same License Manager](#)” on page 37 for instructions and options.

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**Note**

We recommend saving your license file with the path and filename `RSI-Directory/license/license.dat` where `RSI-Directory` is `/usr/local/rsi`. If you put your license file in this directory, you do not have to redefine any environment variables.

---

6. **Define the LM\_LICENSE\_FILE environment variable.** If you choose a location other than *RSI-Directory/license* for the license file, it must be accessible from all server and client machines that run Research Systems software products. Therefore, you must define the UNIX environment variable for LM\_LICENSE\_FILE to point to the license file prior to using your RSI software or the license manager.

For example, if you save your license file as:

```
/myhome/license.dat
```

define the LM\_LICENSE\_FILE variable as follows:

For C shell:

```
setenv LM_LICENSE_FILE /myhome/license.dat
```

For Korn shell:

```
export LM_LICENSE_FILE='/myhome/license.dat'
```

If you are installing a node-locked or floating license file in a location other than the default location, each machine's environment variable for LM\_LICENSE\_FILE must be set to the actual license file path.

---

### Note

If you have saved the license file in the default location, *RSI-Directory/license/license.dat* where *RSI-Directory* is */usr/local/rsi*, you can set client machines to access the server machine's license file instead of installing a local copy of the license file on each client machine. Set each client machine's LM\_LICENSE\_FILE environment variable to *serverport@servername*, for example:

```
setenv LM_LICENSE_FILE 1700@hal
```

---

7. **Set the IDL\_DIR environment variable.** Define the IDL\_DIR environment variable for the license manager as follows, where *RSI-Directory* is the main installation directory for your Research Systems software, for example IDL 5.4:

For C shell:

```
setenv IDL_DIR /RSI-Directory/idl_5.4
```

For Korn shell:

```
export IDL_DIR='/RSI-Directory/idl_5.4'
```

8. **Starting the License Manager Daemon.** The license manager daemon must be running before you can use the Research Systems software. See [“Starting the License Manager”](#) on page 21 for instructions.

# Starting the License Manager

---

**Note**

If you are running *only* type MU (unlimited usage) licenses, as indicated on your license file's INCREMENT line, you do not need to start the license manager.

---

With a floating or node-locked license, you will need to start the license manager before Research Systems products can access a network license and run in licensed mode. You can also set up your system so that the license manager is automatically started when your system is booted.

Client machines need to be set up to access the Research Systems software and the license file. After installing the license manager, see [“Configuring Client Environments for License Access”](#) on page 24 for instructions.

## Start the License Manager

This section describes how to start the license manager. For information on other license manager functions such as creating a log file, checking the license manager status, and stopping the license manager, see [“Working with the License Manager”](#) on page 30.

If you have more than a single FLEXlm license manager running on a server, conflicts may exist among the license managers. Before starting the license manager, see [“Multiple Applications That Use The Same License Manager”](#) on page 37 for more detailed information on customizing your license file.

Once you have the license file in place on your system, start the license manager by entering the following:

```
RSI-Directory/product_version/bin/lmgrd [-c license_path]
```

for example:

```
/usr/local/rsi/idl_5.4/bin/lmgrd \  
-c /usr/local/rsi/license/license.dat
```

where:

*RSI-Directory* is the directory where you have installed your RSI software, *product\_version* denotes the software you have installed, for example either *idl\_5.4* or *envi\_3.4/idl\_5.4*, and *license\_path* is the full pathname to the license file, including the license filename. The default license path is *RSI-Directory*/license/license.dat. If you have used this default location

or have defined the `LM_LICENSE_FILE` environment variable (as described on 19), it is not necessary to specify the `-c license_path` option.

The `lmgrd` script locates the Research Systems software distribution by using the value of the `IDL_DIR` environment variable. Failing that, it looks for a directory named `/usr/local/rsi/product_version`. Therefore, if the main IDL directory is not accessible as `/usr/local/rsi/product_version`, complete the following steps to set the `IDL_DIR` environment variable.

### Setting the IDL\_DIR Environment Variable

Define the `IDL_DIR` environment variable as follows, where *RSI-Directory* is the main installation directory for your software, and *product\_version* is the software name followed by the version number, for example `idl_5.4`.

#### For C shell:

```
setenv IDL_DIR /RSI-Directory/product_version
```

For a product based on IDL, such as ENVI, this would be

```
setenv IDL_DIR RSI-Directory/envi_3.4/idl_5.4
```

#### For Korn shell:

```
export IDL_DIR='/RSI-Directory/product_version'
```

For a product based on IDL, such as ENVI, this would be

```
export IDL_DIR='/RSI-Directory/envi_3.4/idl_5.4'.
```

If you receive an error message while trying to start the license manager, consult [“License Manager Startup Troubleshooting”](#) on page 45 for possible solutions to your problem.

#### Note

---

Starting the license manager requires no special privileges. Note the potential security ramifications of running the license manager from the `root` account, as it can be started by any user. However, special privileges *are* required to *shut down* the license manager.

---

## Automatically Starting the License Manager at Boot Time

To have the license manager automatically start every time your server is booted, you should add the following license manager startup command to the system startup script:

```
RSI-Directory/product_version/bin/lmgrd [-c license_path],
```

for example

```
/usr/local/rsi/idl_5.4/bin/lmgrd -c /usr/local/rsi/ $  
license/license.dat
```

(On some systems, you may need to install a controlling script rather than changing the system startup script.)

Although the general idea is the same for all UNIX systems, the exact details differ between platforms. In all cases, you should consult the documentation for your system. The guidelines below are intended to serve as a starting point.

---

**Note**

These systems all require modification of system files and/or directories to start the license manager. Such changes may be lost when you update the operating system. Therefore, you should keep notes on the changes made, so that you can properly customize new operating system releases. The following instructions may differ for your platform. For additional information, refer to your host operating system documentation or the man pages for `init`, `rc0`, `rc2`, and `rc3`.

---

**IBM AIX**

Using any text editor, add the startup command for the license manager to the end of the `/etc/rc` file.

**Linux**

Using any text editor, add the startup command for the license manager to the end of the `/etc/rc.d/rc.local` file.

**Sun Solaris, SGI IRIX, HP/UX, and Compaq Tru64 UNIX**

You must place a controlling script in a directory (usually `/etc/init.d` or `/sbin/init.d`) and create links to that script that are run at system startup and shutdown.

A template for the controlling script can be found in the file `RSI-Directory/product_version/bin/sys5_idl_lmgrd`. Read this file for instructions that apply to your system. After customizing this script for your site, copy the file to the appropriate directory and create the links that are described in the file. For additional information, see the system administrator's manual for your system or the man pages for `init`, `rc0`, `rc2`, and `rc3`.

**Note**

These instructions cover most situations. For information about license manager error messages or for permissions needed to run and shut down the license manager, see the “[License Manager Startup Troubleshooting](#)” on page 45 or “[Working with the License Manager](#)” on page 30.

## Configuring Client Environments for License Access

To allow access to a Research Systems software installed on a server, the client machines must have access to both the RSI software and the license file used by the license manager. This access can be ensured in several ways.

### Mount a NFS Partition

One way is to use NFS to mount the partition on the license server containing the *RSI-Directory* onto the client machines. Assuming that the license file was in the *RSI-Directory/license* directory, this method would give access to both the Research Systems software and the license file from any machine mounted on the system.

### Installing License File Copies on Client Machines

Another method is to have a separate *RSI-Directory* on the client machine. You can copy the `license.dat` file onto the client machine’s local *RSI-Directory/license* directory. However, with this method, each license file will need to be updated on all client machines whenever the license file is changed on the server machine. All license files installed on the client machines must be an exact duplicate of the file on the server machine. Note that the hostname and LMHostid on the SERVER line of the `license.dat` file indicate the server machine which should be contacted to obtain a license.

### Setting Port@Host License File Variable

You can set client machines to access the server machines license file instead of having to install a local copy of the license file on each client machine. Set each client machine’s `LM_LICENSE_FILE` environment variable to `serverport@servername`, for example:

```
setenv LM_LICENSE_FILE 1700@hal
```

While the methods described above are the most simple, there are other possible configurations. Research Systems software could be installed on a file server machine which may be different from either the license server machine or the client machine on which you want to run IDL or ENVI. Also, the environment variable



LM\_LICENSE\_FILE could be used to change license access from a local `license.dat` file in the default location to a `license.dat` file in a different location. The key is to make sure that both the RSI software and the correct license file are accessible.

## If You Encounter Errors

If the license manager gives an error message when starting, turn to [“License Manager Startup Troubleshooting”](#) on page 45.

# Managing Access to Licenses

Administrators can customize license management by creating an options file. This file allows administrators to:

- Allow or deny access to a product or product features.
- Reserve licenses for users or groups.
- Control what is logged in the report log file.

## The Options File

To customize the license manager, create an options file in a text editor as described below. See “[Sample Options Files](#)” on page 28 for examples.

---

### Note

Any time the options file is modified, the license manager must be stopped and restarted before the changes will take effect.

---

To easily create an options file, follow these guidelines:

1. Use an text editor to create your options file.
2. Save the options file for Research Systems products in the same directory as `license.dat`. The default directory is *RSI-Directory/license*. The options file **must** be named `idl_lmgrd.opt` for any RSI product.
3. Specify each option file feature on a separate line, beginning each line with one of the keywords listed in the table below.
4. Limit each line to 2048 characters. If the line extends beyond this length, use “\” as a line continuation character.
5. Add comment lines by using # at the beginning of the line.

---

### Note

All items in an options file are case sensitive so be sure user names and group names are defined and entered consistently.

---

## Option File Keywords

Keyword	Example	Description
EXCLUDE	EXCLUDE <i>feature type type_name</i> EXCLUDE idl USER bob Excludes user “bob” from using IDL.	Can exclude user, group, host, or host_group from using IDL. EXCLUDE takes precedence over INCLUDE statements.
EXCLUDEALL	EXCLUDEALL <i>type type_name</i> EXCLUDEALL GROUP misfit Excludes the group misfit from using any IDL feature.	Implicitly allows all except “misfits” to access all features of IDL.
GROUP	GROUP <i>group user_list</i> GROUP visitor sam kate Defines users “kate” and “sam” as comprising the group “visitor”.	Defines a list of users as a group to be used with other keywords such as INCLUDE or EXCLUDE.
HOST_GROUP	HOST_GROUP <i>group host_list</i> HOST_GROUP main hal sam Defines hosts “hal” and “sam” as the group “main”.	Defines a list of hosts as a group to be used with other keywords such as INCLUDE or EXCLUDE.
INCLUDE	INCLUDE <i>feature type type_name</i> INCLUDE idl GROUP visitor Allows only users in the group “visitor” to use IDL.	Includes only specifically identified users or groups. All others are implicitly outside of this group, and denied access.
INCLUDEALL	INCLUDEALL <i>type type_name</i> INLCUDEALL GROUP research Allows all users listed in the group research to use all features of IDL.	Specifies users or groups allowed use of all IDL features.

Table 2-1: Options File Keywords

Keyword	Example	Description
LINGER	LINGER <i>feature seconds</i> LINGER idl 20 The license manager holds on to a license for an additional 20 seconds after it is checked in.	Causes licenses to be held by the license manager for a specific amount of time after a user exits IDL. Rarely used.
MAX	MAX <i>#lic feature type type_name</i> MAX 6 compile GROUP research Allows only a single user in the Research group to use the compile feature at one time.	Limits usage of a feature among users or groups.
NOLOG	NOLOG <i>event_type</i> NOLOG DENIED NOLOG QUEUED	A separate NOLOG line is needed to turn off logging of events including IN, OUT, DENIED, and QUEUED.
REPORTLOG	REPORTLOG report_log _path REPORTLOG +RSI/license Specifies the reportlog file path.	The “+” indicates that the file is to be appended instead of being over-written each time the manager is started.
RESERVE	RESERVE <i>#lic feature type type_name</i> RESERVE 10 idl USER sam Reserves a single IDL license for the user “sam”.	Ensures that an IDL license will always be available to a specified user or group.

Table 2-1: Options File Keywords (Continued)

## Sample Options Files

### To Reserve Licenses for a Group

The following example shows how to define and reserve a number of licenses for a group of users, and tells the license manager not to log denied requests. Each copy of IDL requires 10 license units on a Workstation-class machine. Comment lines begin with #.

```
# reserve 5 IDL licenses for the research group
RESERVE 50 idl GROUP research
# define the users in the research group
```

```
GROUP research josh hal bob kate beth
# exclude anyone on a computer with the name main
EXCLUDE idl HOST main
# do not log license denials
NOLOG DENIED
```

---

**Note**

When using INCLUDE or EXCLUDE, anyone not specifically mentioned on a list is implicitly excluded or included. For example, in the above file, everyone who is **not** working on a computer named “main” would be allowed to access IDL. An EXCLUDE statement takes precedence over an INCLUDE statement. If the user “josh” was working on a computer named “main,” he would not be able to access IDL even though there is a license reserved for him.

---

**To Reserve Licenses for Individuals**

The following options file reserves licenses for individuals in the group defined above. If you have a group of 10 people, you can specify that a license or licenses will always be available to certain users by using the RESERVE keyword in an options file. The NOLOG line pertains to the IDL QUEUE command which allows a user to wait for an IDL license instead of entering demonstration mode when a counted license is unavailable. It tells the log file not to record any queue events.

```
# reserve one license for "kate"
RESERVE 10 idl USER kate
# reserve one license for "josh"
RESERVE 10 idl USER josh
# reserve 3 licenses for "hal"
RESERVE 30 idl USER hal
# do not log queue events
NOLOG QUEUED
```

# Working with the License Manager

We supply several license manager support utilities for controlling the operation of the license manager. These commands are all found in the `bin` subdirectory of the IDL distribution as shell scripts.

These scripts run the correct binary executable for your system by determining the type of system they are running on and then invoking the actual binary executable from the appropriate `bin` subdirectory. These scripts locate the software distribution by using the value of the `IDL_DIR` environment variable. Failing that, they look for a directory named `/usr/local/rsi/product_version`. If you are installing only IDL, the `product-version` directory is `idl_5.4`. If you are installing a product based on IDL, for example, ENVI, `product_version` denotes `envi_3.4/idl_5.4`.

Therefore, if the main IDL directory is not `/usr/local/rsi/product_version`, the `IDL_DIR` environment variable must be defined prior to using any license manager support utilities. See “[Setting the IDL\\_DIR Environment Variable](#)” on page 22 for instructions.

If your license file is not located in `RSI-Directory/license/license.dat`, you will need to define the `LM_LICENSE_FILE` environment variable to point at the actual license file before most of these support programs will work. For example, if you placed the license file in `/usr/local/licenses` you would use the following KORN shell statements:

```
LM_LICENSE_FILE=/usr/local/licenses/license.dat
export LM_LICENSE_FILE
```

Using the C-shell (`/bin/csh`), the equivalent command would be:

```
setenv LM_LICENSE_FILE /usr/local/licenses/license.dat
```

---

**Note**

To view a complete list of license manager utility commands, change to the `RSI-Directory/product_version/bin` directory and type `lmutil` at the UNIX prompt.

---

## Creating License Manager Log File

The license manager writes a log of its activities to its standard output. If you don't 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:

```
RSI-Directory/product_version/bin/lmgrd > /dev/null
```

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

```
RSI-Directory/product_version/bin/lmgrd > /dev/console
```

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

## Shutting Down The License Manager

The `lmdown` program initiates a shutdown of all license managers by sending a message to every license manager asking it to shut down. The license managers write out their last messages to the log file, close the file, and exit. All licenses which have been given out by those managers are rescinded, so that the next time an RSI software process goes to verify its license, it will not be valid. If you are installing only IDL, the `product-version` directory is `idl_5.4`. If you are installing a product based on IDL, for example, ENVI, `product_version` denotes `envi_3.4/idl_5.4`.

To run `lmdown`, change to your `RSI-Directory/product_version/bin` directory, for example `/usr/local/rsi/idl_5.4/bin`, 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 the `-q` switch is not specified, `lmdown` asks for confirmation before asking the license managers to shut down. If this switch is specified, `lmdown` does not ask for confirmation.

Security note: Unauthorized use of the `lmdown` command can be disruptive because when the license manager shuts down, all current RSI software product sessions are terminated. You should ensure that the file access modes on your system are sufficiently restrictive. We recommend setting the permissions for `lmdown` with the following UNIX command:

```
chmod 500 RSI-Directory/product_version/bin/lmdown
```

## Removing a Single License

If a licensed user is running IDL when the machine crashes, the license that was in use may fail to 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. To free a license, you need to first gather information using the `status`, `lmstat`, `command`.

### Note

---

*RSI-Directory* denotes the directory in which you have installed your RSI software. If you are installing only IDL, the *product-version* directory is `idl_5.4`. If you are installing a product based on IDL, for example, ENVI, *product\_version* denotes `envi_3.4/idl_5.4`.

---

To run `lmstat`, change to your *RSI-Directory/product\_version/bin* directory and type:

```
lmstat -A | more
```

This shows the status of license managers as well as checked out licenses. For example the following line shows user ‘robin’ has a license for IDL 5.4 checked out from the server ‘hal7’ which is being displayed on the host ‘josh’:

```
robin hal7 josh (v5.4) (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
```

If the license held by user ‘robin’ needs to be freed, make note of the user, host, and display values, and then remove the license with the following `lmremove` syntax:

```
>lmremove idl robin hal7 josh
```

where `idl` is the feature, `robin` is the user, `hal7` is the host, and `josh` is the display. Other feature values for Research Systems products appear in the table below. 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.

<b>RSI Software Product</b>	<b>lmremove Feature Value</b>
IDL	idl
IDL Runtime	idl_rt
IDL Academic Version	idl_student
IDL with the Wavelet Toolkit	idl_wavelet
IDL DataMiner	idl_dm
Unlimited Right to Distribute	devkit
ENVI	envi
ION Script	ion_script
ION Java	ion_java
RiverTools	idl_rivertools
Noesys	noesys
Noesys Plus	noesysplus
VIP	vip
Windows Terminal Server	wts

*Table 2-2: Feature Values for lmremove*

## Checking the License Manager Status

The `lmstat` program provides information about the status of the server nodes, license managers, and currently checked out licenses. To run `lmstat`, change to your *RSI-Directory/product\_version/bin* directory, for example `/usr/local/rsi/idl_5.4/bin`, and type:

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

Optional flags for `lmstat` are:

Optional Flags for <code>lmstat</code>	
<b>-a</b>	This option displays all available information about the license manager status. If this argument is not present, only a brief summary of the manager's state is given.
<b>-A</b>	This option displays a list of all active licenses.
<b>-c license_file</b>	This option defines the license file path. If this switch is not specified, <code>lmstat</code> looks for the <code>LM_LICENSE_FILE</code> environment variable. If that environment variable is not set, <code>lmstat</code> looks for the file <code>RSI-Directory/license/license.dat</code> .
<b>-l [regular_expression]</b>	This option lists all users of the features matching the given regular expression.
<b>-s [server]</b>	This option displays the status of the specified server node(s).

Table 2-3: Optional Flags for `lmstat`

## Obtaining a Host ID

The `lmhostid` program calls the license manager version of `gethostid` and displays the results. To run `lmhostid`, change to the directory, `RSI-Directory/product_version/bin`, and type `lmhostid` at the UNIX prompt. The output of `lmhostid` looks like this:

```
lmhostid - Copyright (C) 1989-1999 Globetrotter Software, Inc.
The FLEXlm host ID of this machine is "8002add0"
```

## If You Encounter Errors

If the license manager gives an error message when starting, see [“License Manager Startup Troubleshooting”](#) on page 45.

# The License File

The license file controls:

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

The FEATURE lines of the license file determine which products are available. 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.

## Sample License Files

The following is an example of what a license file look like.

### An IDL License File

The following example license file is built for the license server “hal”, which has the LMHostid “0000c09a23f0,” and the designated port number “1700”. This license has 5 floating licenses for UNIX machines.

The last line in the license file is the FEATURESET line, which ties all the FEATURE and INCREMENT lines together:

```
SERVER hal 0000c09a23f0 1700
DAEMON idl_lmgrd usr/local/rsi/idl_5.4/bin/idl_lmgrd
FEATURE idl idl_lmgrd 5.400 1-jan-0000 50 5BC6A081FA3009FA5673 \
        VENDOR_STRING="1234-1Acme Datawack Corp" ck=16
FEATURESET idl_lmgrd 96C31B1FB71BCAE9
```

### Note

The FEATURE line for the IDL floating license shows 50 license units. This is not an error. Each counted IDL license requires 10 license units on the FEATURE or INCREMENT line. If this field is set to zero, the line indicates an unlimited number of node-locked licenses. The number of license units is a platform-dependent scale factor times the number of licenses you own. For example, if you have 3 UNIX floating licenses, this field is set to 30.

## Viewing or Modifying the License File

To access the text of your license file through the license wizard, complete the following steps:

### Locating the License File

1. After installing IDL, open the licensing wizard by changing to your *RSI-Directory/product\_version/bin* directory and typing `rsilicense` at the UNIX prompt.
2. Select **Permanent** and **License** to display the license text file window. If you have a file saved in the default location, *RSI-Directory/license/license.dat*, it will appear in the text window. If you have saved the file in another location, click **Browse** to find it.

### Altering the License File

Only four data items in the license file can be modified by the user:

- hostnames (but not host IDs) on SERVER lines
- port numbers on SERVER lines
- pathnames on DAEMON lines
- options file pathnames on DAEMON lines (Note that it is not necessary to specify option file path names with FLEXlm v6 or later. IDL 5.4 for UNIX uses FLEXlm v6).

### Warning

---

Changing license file lines other than those discussed below will invalidate your license file, causing your IDL installation to run only in Demonstration mode. Individually altering any FEATURE or INCREMENT lines with DAEMON name `idl_lmgrd` destroys the file.

---

If you have multiple vendors using FLEXlm license management software, see [“Multiple Applications That Use The Same License Manager”](#) on page 37 for more detailed information on customizing your license file.

# Multiple Applications That Use The Same License Manager

IDL's network license management facility is provided by Globetrotter's FLEXible License Manager (FLEXlm). Since this license manager is not unique to IDL, the possibility exists that you will need to run software from two or more software vendors that use FLEXlm. In this case, the potential for license server conflict exists. There are two cases to be considered:

- All products and product license managers are installed on the same server.
- The products and product license managers use different servers.

## All Products Use the Same Set of Server Nodes

If a Research Systems product and other vendor product(s) using FLEXlm license management software are all installed on the same server machine, the solution is simple. Combine the license files as described below.

### Note

---

Note that you must shut down the license server before editing the license file.

---

## Combining License Files

After shutting down the license server, use a text editor to alter 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.

After saving the license files in the appropriate locations, restart the license manager with the *most recent* version of *lmgrd* that you have installed. (IDL 5.4 uses FLEXlm v6). If an older version of *lmgrd* is used, the license manager from the product with a more recent *lmgrd* will not operate correctly.

## The Products Use Different Servers

If the products use different servers, a local or shared network installation of the product license file is required on each client machine. This copy of the license file

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.

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

For C Shell:

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

To add a Research Systems software product license file, add it 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:

```
setenv LM_LICENSE_FILE /home/otherapp/license.dat:RSI-  
Directory/product_version/license/license.dat
```

*RSI-Directory* is the installation directory of your software product, for example `/usr/local/rsi` and *product\_version* is the software you are installing, for example, `idl_5.4`.

---

**Tip**

Restart the license manager with the most recent version of `lmgrd` that you have installed. The version number of `lmgrd` is displayed when it is started. If an older version of `lmgrd` is used, the license manager daemon from the product with a more recent `lmgrd` will not operate correctly.

---

# Running Older Versions of IDL Concurrently with IDL 5.4

In many cases, it is possible to run older versions of IDL concurrently with the most recent version. If a FEATURE line has the version number 5.400, for example, it will allow IDL 5.4 and all earlier versions of IDL to run. In some cases, new license manager capabilities such as the INCREMENT line may prevent an older versions of IDL from working with the latest version of the license manager.

## Start the Latest Version of the License Manager

In general, it is important to start the license manager from the latest IDL distribution and use the same license file for the older IDL distribution. The license manager should only be started once, from the new distribution. It should not be started from an old IDL distribution.

## Using IDL Version 5.x with the IDL Version 5.4 License Manager

The license manager from IDL version 5.4 will support IDL 4.0, 5.0, 5.1, 5.2, and 5.3 clients. No modifications to the IDL 5.4 license file are necessary to run IDL 4.0 and IDL 5.x concurrently with IDL 5.4

# Troubleshooting

If a Research Systems software product runs in demonstration mode after you have attempted to license the product, follow the appropriate suggestions below and try running the software again. If you see errors from the license manager itself, turn to “[License Manager Startup Troubleshooting](#)” on page 45.

Note that in these instructions *RSI-Directory* and *product\_version* denote the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example <code>/usr/local/rsi</code> .
<i>product_version</i>	The product you are installing, for example <code>idl_5.4</code> .

---

## Note

If you are installing IDL, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/idl_5.4`.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/envi_3.4/idl_5.4`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

## 1. Is the proper executable file (idl) in your command search path?

The UNIX command:

```
which idl
```

will tell you if it is in your command search path and where it is. You can verify that the search path is the problem by executing IDL directly. If the command:

```
RSI-Directory/product_version/bin/idl
```

runs IDL, you know that the search path is to blame.



## 2. Are the file permissions correct?

If you receive the error message “Permission denied” when you try to run IDL, check the permissions set on all the executables. They should have execute permission set for all categories. Set execute permissions for IDL by entering:

```
chmod ugo+x RSI-Directory/product_version/bin/*/*
```

## 3. Does IDL know the location of the main IDL directory?

The environment variable `IDL_DIR` must be defined to the path of the IDL directory. Enter the following UNIX command:

```
echo $IDL_DIR
```

`IDL_DIR` should be set to *RSI-Directory/product\_version*. If not, you probably have not run the `idl_setup` or `idl_setup.ksh` file. To set the variable for `IDL_DIR`, enter the following:

For C shell:

```
setenv IDL_DIR RSI-Directory/product_version
```

For IDL 5.4, this would be `setenv IDL_DIR RSI-Directory/idl_5.4`.

For a product based on IDL, such as ENVI, this would be

```
setenv IDL_DIR RSI-Directory/envi_3.4/idl_5.4
```

For Korn shell:

```
export IDL_DIR='/RSI-Directory/product_version'
```

For IDL 5.4, this would be `export IDL_DIR='/RSI-Directory/idl_5.4'`.

For a product based on IDL, such as ENVI, this would be

```
export IDL_DIR='/RSI-Directory/envi_3.4/idl_5.4'
```

## 4. Is the license manager running?

The `lmstat` license manager utility provides information on the status of the license manager. Enter:

```
RSI-Directory/product_version/bin/lmstat
```

If you receive the following message:

```
License server status:  
name: cannot connect to license server (Connection refused)  
Vendor daemon status (on name):  
idl_lmgrd : cannot connect to license server (Connection refused)
```

the server is not running correctly.

## 5. Stop and restart the license manager.

Exit IDL and stop the license manager, then restart it, directing the output of the license manager to a file. Enter:

```
RSI-Directory/product_version/bin/lmdown
```

Check to make sure that all the license manager processes have shut down with a command like:

```
ps -ef | grep lm
```

or

```
ps -aux | grep lm
```

If there are any license manager processes still running, use the kill command to stop them (do not use the -9 option for kill). Restart the license manager with the following command:

```
RSI-Directory/product_version/bin/lmgrd > logfile
```

Examine the resulting file *logfile* for error messages and refer to [“License Manager Startup Troubleshooting”](#) on page 45.

## 6. Is the LM\_LICENSE\_FILE environment variable set to the license file of another application?

Enter the command:

```
echo $LM_LICENSE_FILE
```

to see the current definition of the environment variable. If this environment variable points to some other license file, you will need to unset it prior to starting IDL by entering:

```
unsetenv LM_LICENSE_FILE
```

For Korn shell:

```
unset LM_LICENSE_FILE
```

If you have used a different path than the default location, make sure that LM\_LICENSE\_FILE points to that location.

## 7. Is the license manager available from your machine?

If IDL displays the following error message at startup:

```
LICENSE MANAGER: cannot connect to license server.
```

make sure that you can telnet to the server machine. If you can remotely log in to the server machine, make sure that the license manager is running on that machine.

## 8. Has your license file been copied correctly?

If IDL displays the following error message at startup:

```
% LICENSE MANAGER: encryption code in license file is
inconsistent.
```

some of the encrypted information in the license file is not correct. This can involve the SERVER hostid, the DAEMON name, and any character on the FEATURE line.

Examine your license file and correct the FEATURE line so that it exactly matches the one sent to you by Research Systems. Check for capitalization and spaces. Shut down the license manager by entering:

```
RSI-Directory/product_version/bin/lmdown
```

and restart by entering:

```
RSI-Directory/product_version/bin/lmgrd
```

## 9. Is the license manager using the correct license file?

If IDL displays the following error message at startup:

```
LICENSE MANAGER: no such feature exists.
LICENSE MANAGER: license file does not support this feature.
```

the license manager may be using the wrong license file. Reset the LM\_LICENSE\_FILE environment variable to point to IDL's license file using the command:

```
setenv LM_LICENSE_FILE RSI-Directory/license/license.dat
```

See Defining the LM\_LICENSE\_FILE environment variable on page 19 for more information.

## 10. Does the license file contain the correct hostname?

If IDL displays the following error message at startup:

```
% LICENSE MANAGER: cannot find SERVER hostname in network
database.
```

the hostname in the license file does not agree with the actual hostname for the server, or cannot be accessed from the client node. Edit the license file and correct the hostname. The hostname can be found in the /etc/hosts file located on the network server.

## 11. Are network permissions set properly?

If IDL displays the following message at startup, *except when run from the root account*:

```
% LICENSE MANAGER: invalid host.
```

make sure that the ethernet device (usually `/dev/lan0`) has `rw` permission for owner, group and other. It probably just has `rw` permission for owner (`root`). Also, make sure that the `/var/tmp` directory has `rw` permissions.

This error occurs most often on HP-UX systems. You can use `/etc/lanscan` to check for the name of the ethernet device. It's the item under the heading "NameUnit".

## 12. Is the license file in the correct location and are its permissions set correctly?

If you receive one of the following three error messages, IDL is unable to access the `license.dat` file:

```
% Trial version expired.
% Machine not licensed for IDL. Entering 7 minute Demo mode. This
Demo mode is for short-term product evaluation purposes only.

% Machine not licensed for IDL. Entering 7 minute Demo mode. This
Demo mode is for short-term product evaluation purposes only.

% Unexpected validation error.
% Machine not licensed for IDL. Entering 7 minute Demo mode. This
Demo mode is for short-term product evaluation purposes only.
```

Check the permissions on the `license.dat` file. All users need read permission. Also make sure the `license.dat` filename is spelled correctly. If you are using the environment variable `LM_LICENSE_FILE`, make sure that the full path and filename of the `license.dat` file are set correctly. See "Defining the `LM_LICENSE_FILE` environment variable" on page 19 for more information.

## 13. Contact Research Systems technical support.

If the above suggestions do not clear up the problem, contact Research Systems technical support at (303) 413-3920 or by e-mail at [support@ResearchSystems.com](mailto:support@ResearchSystems.com). International customers should contact their local RSI office or distributor for technical support.

It is often helpful to submit a copy of your license file as well as a copy of any error messages produced by IDL or the license manager program.

## License Manager Startup Troubleshooting

If the license manager gives an error message when starting, find the error message below and follow the instructions to eliminate the error. Note that in these instructions *RSI-Directory* and *product\_version* denote the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example <code>/usr/local/rsi</code> .
<i>product_version</i>	The product you are installing, for example <code>idl_5.4</code> .

---

### Note

If you are installing IDL, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/idl_5.4`.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory/product\_version* directory would be `/usr/local/rsi/envi_3.4/idl_5.4`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

### 1. Invalid Server Hostname

```
date time (lmgrd) "Hostname1": Not a valid server hostname,
exiting.
date time (lmgrd) Valid server hosts are: "Hostname2"
```

In spite of the error message, *Hostname1* is the hostname of the server that probably *should* be in the license file, while *Hostname2* is the incorrect hostname currently in the license file. Edit your license file to contain the correct hostname.

### 2. Inconsistent Encryption Code

```
date time (idl_lmgrd) Inconsistent encryption code for idl
```

There is a problem with the information on the FEATURE or INCREMENT line of the license file. It has not been copied correctly from the fax or e-mail message. Make sure that the usage of capitalization and spaces is exactly as in the message. Finally, check to make sure that long lines in the license file have not been inadvertently wrapped to a new line. (Refer to [“The License File”](#) on page 35 for examples of the correct license file format.)

### 3. No Features to Serve

```
date time (idl_lmgrd) No features to serve!
```

There are no valid FEATURE or INCREMENT lines. This is most commonly due to the “inconsistent encryption code” error described above.

### 4. Retrying Socket Bind and Cannot Establish Lock

```
date time (lmgrd) Retrying socket bind (address in use: port 1700)
```

An attempt has been made to start the license manager when it was already running. This often happens when the license file contains a mistake, the mistake is corrected, and the license manager is started again before the first attempt has been shut down or killed. Only one instance of the license manager can be running on a machine with reference to any RSI product license file at any one time. There may also be some other software product using the default port number, 1700.

If this is the case, the problem may be resolved by issuing the `lmdown` command multiple times and then restarting the license manager again. To shut down the license manager, you can issue the following commands (from a C shell):

```
RSI-Directory/product_version/bin/lmdown -c RSI- $
Directory/license/license.dat
```

The `lmdown` command should be repeated until the utility indicates that the license manager is not running. Then restart the license manager. See [“Starting the License Manager”](#) on page 21.

### 5. No Such File or Directory

```
license daemon: execl failed: ../idl -T host 2.40 3 -c
license daemon: system error code: No such file or directory
```

The path on the DAEMON line of the license file is incorrect. It should point to the bin subdirectory of the IDL distribution. Edit the license file and correct the DAEMON line.

### 6. No “License” Server Found

```
date time (lmgrd) No "license" service found.
```

This error means that no TCP/IP service port number is specified or no TCP/IP service is available.

Check for the existence of the `/etc/services` file. Make sure that the file contains the following line:

```
tcpmux          1/tcp
```

## 7. Cannot Find License File

```
license manager: can't initialize: cannot find license file
(No such file or directory)
date time (lmgrd) Using license file "filename"
```

The license manager cannot find the `license.dat` file. Either the `license.dat` file is not in the default location or the file specified in the environment variable `LM_LICENSE_FILE` is incorrect. See “Defining the `LM_LICENSE_FILE` environment variable” on page 19. Also, make sure that the filename `license.dat` is spelled correctly and that you have read permission for the `license.dat` file.

## 8. Cannot Read License File

```
license manager: can't initialize: cannot read license file
(Permission denied)
```

The permissions are set incorrectly on the `license.dat` file. Set the file to read permission for all users. For example, use the command:

```
chmod 444 license.dat
```

## 9. Wrong Hostid

```
date time (idl_lmgrd) Wrong hostid, exiting (expected xxxx, got
xxxx)
date time (lmgrd) Please correct problem and restart daemons
```

The permissions are set incorrectly on the ethernet device. This is a common problem on HP/UX systems. Set read-write permission on the ethernet device (`/dev/lan0`) with the command:

```
chmod 666 /dev/lan0
```

Shutdown the license manager if it is still running and then restart it.

## 10. Path Not Found

```
lmgrd: PATH/bin.platform/lmgrd: not found.
```

This error indicates that the IDL directory is not in a standard location and that the environment variable `IDL_DIR` is not set to the actual IDL directory. There are several solutions to the problem:

- Change directories to the IDL directory and issue the following command:  

```
bin/lmgrd
```
- Set the environment variable `IDL_DIR` to point to the main IDL directory and then execute the `lmgrd` startup command.

Change directories to *RSI-Directory/product\_version/bin*. Make a copy of the `lmgrd` script:

```
cp lmgrd lmgrd.bak
```

Open the `lmgrd` script with an editor. Go to the loop after the comment about finding the main IDL directory and add your IDL directory to the for loop. Change the following line (shown below as 2 lines):

```
for DIR in /usr/local/rsi/product_version /usr/local/idl
  /usr/local/bin/idl . ./idl
```

to:

```
for DIR in RSI-Directory/product_version /usr/local/idl
  /usr/local/bin/idl . ./idl
```

Again, this line is shown as 2 lines, but should be a single line in the `lmgrd` script.

## 11. Check out the Globetrotter Web Site.

The Globetrotter Web site contains on-line documentation and an excellent FLEXlm FAQ. This information can be helpful when trying to combine licenses from different vendors. See the following Web pages:

Globetrotter home page: <http://www.globetrotter.com>

FLEXlm FAQ: <http://www.globetrotter.com/flmfaq.htm>

If you continue to have problems, see “[Contacting Research Systems](#)” on page 50 for technical support.



# Licensing for Alpha Linux

Licensing for Alpha Linux requires Research Systems to interactively create a license file for your IDL installation. You will need to contact RSI Technical Support during business hours to license IDL.

---

**Note**

To reach Technical Support, dial (303) 413-3920 from 8 a.m. to 5 p.m. mountain time.

---

After installing IDL, complete the following steps:

1. Change to your *RSI-Directory*/idl\_5.4/bin directory where *RSI-Directory* is the directory where you have installed IDL.
2. Source the IDL environment variables by typing:  

```
source idl_setup
```
3. Begin the licensing process by typing the following command:  

```
genver
```

The *genver* program reports that it is creating a trial validation file and outputs a value for “Your number for today is:” that RSI requires to generate your license file.
4. *Keep the genver program running* and call Research Systems Technical Support. You will receive values for both the trial length period and for the RSI supplied installation key.

IDL is now licensed. When your trial period expires, you will need to repeat this process to maintain IDL in licensed mode.

# Contacting Research Systems

If you have problems with your installation, contact Research Systems technical support for assistance:

- E-mail: [support@ResearchSystems.com](mailto:support@ResearchSystems.com)
- Phone: (303) 413-3920
- Fax: (303) 786-9909
- Web page: <http://www.ResearchSystems.com> — Visit the Tech Tips section on our Web page for Frequently Asked Questions.

International customers should contact their local Research Systems office or distributor for technical support.

It is often helpful to submit a copy of your license file as well as a copy of any error messages produced by IDL or the license manager program.



## Chapter 3:

# Windows License Management

If you are installing a single permanent license or an evaluation license, the information contained in the Installation Guide should be adequate to license IDL. This chapter covers the following floating and HASP licensing topics:

---

<a href="#">Introduction</a> .....	52	<a href="#">The License File</a> .....	77
<a href="#">Requesting a License</a> .....	53	<a href="#">Multiple Applications Using The Same License Manager</a> .....	79
<a href="#">Installing a License File</a> .....	58	<a href="#">Troubleshooting</a> .....	82
<a href="#">Configuring Your Client Environments for License Access</a> .....	67	<a href="#">HASP Licensing</a> .....	86
<a href="#">Starting the License Manager</a> .....	63	<a href="#">Contacting Research Systems</a> .....	89
<a href="#">Managing Access to Licenses</a> .....	70		

# Introduction

## The Default RSI Directory

When you install a product from Research Systems, the installation program asks you to choose a directory in which the product will be installed. In these instructions, as in your installation guide, we refer to this directory as the *RSI-Directory*.

## Research Systems Products Based on IDL

Research Systems distributes several products based on IDL and written in the IDL language. License management for these products is essentially the same as for IDL itself; the differences generally consist of added products listed on the FEATURE or INCREMENT lines in the license file. In these instructions

*RSI-Directory\product\_version* denotes the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example C:\RSI.
<i>product_version</i>	The product you are installing, for example IDL54.

---

### Note

If you are installing IDL, the default *RSI-Directory\product\_version* directory would be *RSI\IDL54*.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory\product\_version* directory would be *C:\RSI\ENVI34\IDL54*. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

# Requesting a License

If you have purchased either a software-based node-locked license or a floating license, you need a permanent license file from Research Systems or your distributor. The license file is created using information from the machine on which you have installed your RSI software. A built-in licensing program has been created to simplify the request and installation of your license file.

---

**Note**

The electronic request program will not be able to retrieve the correct information if you do not have a configured network interface card and do not meet one or more of the following network protocols:

Windows NT — Requires that either the NETBEUI Transport Protocol, the NW Link (IPX/SPX) Transport Protocol or the SNMP service be installed on your system.

Windows 95/98 — Requires that either the NETBEUI Transport Protocol, or the NW Link (IPX/SPX) Transport Protocol be installed on your system.

---

## Preparing a License Request

The licensing wizard allows you to easily generate and send a license request file. The request file contains information necessary for RSI to generate your license file. If you have exited the installation program, access the licensing wizard by selecting **Start** → **Programs** → **Research Systems *product\_version*** → **License**.

---

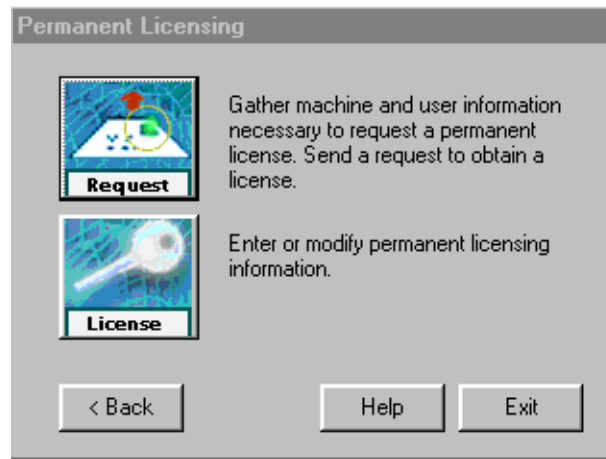
**Note**

If you have purchased a floating license, the licensing wizard must be run from the designated license server machine on which you have installed IDL. This ensures proper generation of the server LMHostid and Hostname for your license file.

---

1. **Begin the license request process.** Click **Permanent** from the Product Licensing dialog.
2. **Prepare a Request file.** Click **Request** to prepare a license request file to submit to Research Systems. The licensing wizard guides you through the creation of a license request file that will contain all the information necessary

for Research Systems to create a valid license file for your software installation.



*Figure 3-1: Permanent Licensing Dialog*

3. **Enter your information.** Fill in the following text fields in the Permanent Licensing dialog:
  - Contact Person — Enter the name of the person to whom the license file should be sent.
  - E-mail Address — Enter the e-mail address of the contact person.
  - Installation Number — Enter the installation number found on the Research Systems Product Registration Form. You should have already received this form by electronic mail or fax. If you have not received the form, contact Research Systems technical support. See [“Contacting Research Systems”](#) on page 89 for more information.
  - Site Notice — Enter the name that you want to appear when you launch the software. The name you select will replace <your site notice> in the following statement: “licensed for use by <your site notice>.” This is typically your company’s name, department, or project.



The image shows a dialog box titled "Permanent Licensing - Enter Request". It contains several input fields and radio buttons. The fields are: Contact Person (Anthony Rodgers), Email Address (arodgers@acmedata.com), Installation Number (GJ983D9044F), Site Notice (Acme Data Corporation), Node Hostname (empty), Node LMHostid (empty), Server Hostname (HAL), and Server LMHostid (00012001a). There are two radio buttons: "Node Locked" (unselected) and "Floating" (selected). Below the fields is a "Comments" text area. At the bottom are four buttons: "< Back", "Next >", "Help", and "Exit".

Figure 3-2: License Request Dialog

4. **Select the license type.** Select either **Node Locked** or **Floating**. The license wizard automatically generates the correct name and LMHostid as follows.
  - **Node Hostname** — This value is automatically generated by the registration program. Do not modify this value.
  - **Node LMHostid** — This value is automatically generated by the registration program. Do not modify this value.
  - **Server Hostname** — This value is automatically generated by the registration program. Do not modify this value.
  - **Server LMHostid** — This value is automatically generated by the registration program. Do not modify this value.
  - **Comments** — Enter any comments you may have.

Click **Next** to continue.

5. **Review your license request.** If the information is correct, click **Next** to save the license request file and proceed. If the information is incorrect, edit it in the text window or click **Back** to make any corrections.

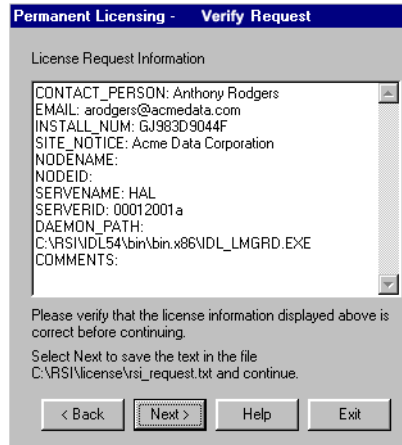


Figure 3-3: Your License Request Information

6. **Send the license request file.** Click **Next** to send the license request file to Research Systems. If you did not purchase your software directly from Research Systems, modify the e-mail address and send the file to your local distributor.

### Note

If you can't send e-mail from your machine or if you receive a message stating that an attempt to send the e-mail was unsuccessful, see [“Manually Sending a License Request”](#) on page 57. A license file will be generated and sent to you at the e-mail address or fax number you supply.

7. **Exit the license wizard.** Click **Finish** to exit the license request program.

When you receive your license file from Research Systems, run the license wizard again to install your license file. See [“Installing a License File”](#) on page 58 for instructions.

If you do not receive a license file or any confirmation that the request was received, see the section below to manually re-send the request. To contact Research Systems, see [“Contacting Research Systems”](#) on page 89.



## Manually Sending a License Request

To manually send a license request, select the appropriate step below and e-mail your request to [register@ResearchSystems.com](mailto:register@ResearchSystems.com) or fax the request file text to Research Systems at (303) 786-9909. If you did not purchase IDL directly from Research Systems, send the file to your local distributor.

- **From the license wizard** — Select **Back** to display the request file. Copy all of the request information into an e-mail message or fax this text to Research Systems.
- **Outside of the license wizard** — Copy the request file, located in `RSI-Directory\product_version\license\rsi_request.txt`, where `RSI-Directory` is the directory where you have installed your software, and `product_version` is, for example, IDL54 or EVNI34\IDL54, and send it by fax or e-mail.

# Installing a License File

After completing and sending your license request file, described in “[Requesting a License](#)” on page 53, your license file will be sent to you via electronic mail or fax. If your file is sent via e-mail, you can save the e-mail message as a file named *license.dat*, removing any header lines before the beginning of the actual license information.

For floating licenses, the license file must be installed on the designated license server machine where you have installed your Research Systems software and the license manager. Carefully consider the machine you have chosen as your server machine before installing your license file and starting the license manager. Since “client” machines will be sending requests for licenses to the “server” machine, the ability of client machines to access the license manager software depends on the reliability of the server machine. Therefore, the machine chosen as the server must be one that has a history of reliable operation and one that is running most of the time.

## Locate the License File

Once you have obtained your floating license file, you need to install it on your Windows NT server machine. Node-locked licenses need to be installed on the machine where you have installed your RSI software. In these instructions, we use *RSI-Directory* to signify the directory where you installed IDL. Usually, this is `C:\RSI`, but you may have chosen a different directory for your installation. The Research Systems software, for example IDL 5.4, is signified by *product\_version*.

1. **Start the IDL Licensing Wizard.** Click the Windows **Start** button, and select **Programs** → **Research Systems** *product\_version* → **License**.
2. **Display the Permanent Licensing dialog.** Select **Permanent** and then **License** from the licensing wizard dialogs
3. **Enter your license file.** Paste the text of the license file into the dialog, or select **Browse** to select the license file which you have named `license.dat`. If you paste in your license file, remove any header lines that are included in the file but keep the comment lines that begin with the “#” character. If you

have received your license file via fax or other hardcopy method, enter the information directly into the text window.

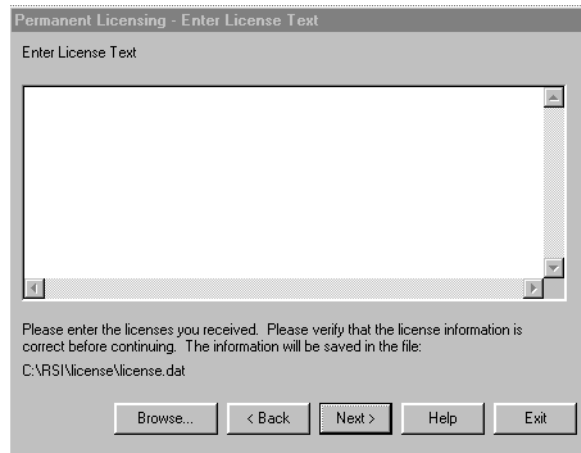


Figure 3-4: License Text Window

---

**Note**

Be sure that the DAEMON line of the license file points to the `idl_lmgrd.exe` program in the `RSI-Directory\product_version\bin\bin.x86\` directory where `RSI-directory` is the directory where you have installed your RSI software. If this is not the case, be sure to correct this path before proceeding.

---

4. **Save the license file.** Click **Next** to save the license file in the directory where you have installed the software. The licensing wizard recognizes where you have installed the software and generates an appropriate path, for example, `RSI-Directory\license\license.dat`

If you have installed the license file in a directory other than the default `RSI-Directory\license\license.dat`, you must set an environment variable pointing to the `license.dat` file before starting the software or the license manager. See [“Saving the License File in an Alternative Location”](#) on page 60 for instructions.

---

**Note**

If you receive a message that there is an existing license file, save the existing file under a different name before proceeding. While the new license usually contains

information for all currently licensed products, save the old file as a safeguard against destroying license information. Run the license wizard again to save the new license file in the default location.

---

5. **Exit the licensing wizard.** Click **Finish**. The license file is now installed. If you are installing a floating license, you must start the license manager before IDL will run in licensed mode. See [“Starting the License Manager”](#) on page 63 for instructions.

---

### Note

If you have other software that is using the Globetrotter Software FLEXIm license manager, you may want to combine the Research Systems license file with the existing ones. See [“Multiple Applications Using The Same License Manager”](#) on page 79 for options and instructions.

---

## Default Location of the License File

We recommend saving your license file with the path and filename *RSI-Directory\license\license.dat*, for example, where *RSI-DIRECTORY* is *C:\RSI*. If you put your license file in this directory, you do not have to redefine any environment variables.

## Saving the License File in an Alternative Location

If you choose a location other than *RSI-Directory\license* for the license file, it must be accessible from all server and client machines that run Research Systems software products.

Therefore, you must define the environment variable `LM_LICENSE_FILE` to point to the actual path of the license file prior to using RSI software or the license manager. For example, if you save your license file as *C:\RSI\mylicensefiles\license.dat*, Research Systems products will not run properly until you define the `LM_LICENSE_FILE` variable as follows:

### For Windows NT systems

1. Click **Start** → **Settings** → **Control Panel** and double-click on the **System** icon.
2. Click on the **Environment** tab. (For Windows 2000, click the **Advanced** tab, and then click **Environment**). Scroll down the **System Variables** scroll box and click in the white area. No variables should be highlighted.
3. Type, in uppercase letters, `LM_LICENSE_FILE` in the **Variable** field.

4. Type the path to the license file in the **Value** field, in this example, `C:\RSI\mylicensefiles\license.dat`. Replace this value with the actual path to your license file.
5. Click **Set**, **Apply**, and **OK**.

Your dialog should look something like this after you have finished.

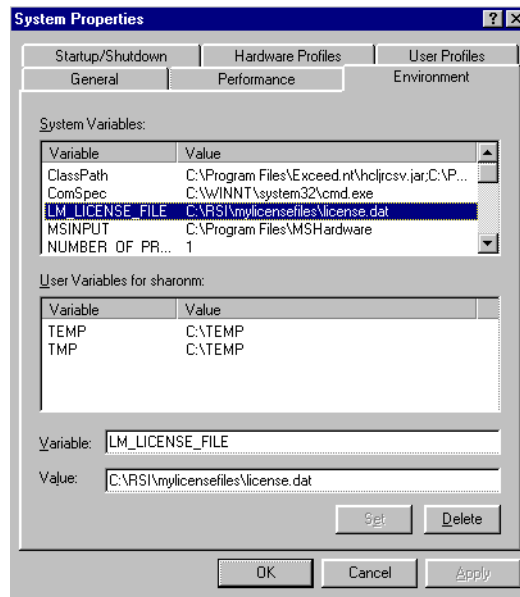


Figure 3-5: Windows NT System Environment Properties

### For Windows 95/98 Systems

Using the previous example, add the setting for the environment variable to the `autoexec.bat` file as follows:

```
SET LM_LICENSE_FILE = C:\RSI\mylicensefiles\license.dat
```

The system must be restarted in order for this setting to take effect.

### Note

If the directory name in the path to your license file contains any spaces, put double quotation marks around the entire path. This is also necessary in the `DAEMON` line of the license file, and when managing the license server in the DOS command prompt window. For example, if you save your license file in the Program Files

directory, the DAEMON line would read:

```
DAEMON idl_lmgrd "C:\Program Files\rsi\IDL54\bin\bin.x86\idl_
lmgrd.exe"
```

---

# Starting the License Manager

If you are running only single user, node-locked licenses, you do not need to start the license manager. (If your license file does not contain `SERVER` or `DAEMON` lines then it contains only no-server node-locked licenses and the license manager does not need to be started.)

With a floating license, you will need to start the license manager before Research Systems products can access a network license and run in licensed mode. You must also set up your system so that the license manager is automatically started when your system is booted.

The license manager needs to be started only on the server machine, not on client machines accessing the IDL product from the network. However, client machines do need to be set up to access the Research Systems software and the license file. After installing the license manager, see [“Configuring Your Client Environments for License Access”](#) on page 67 for instructions.

## Installing the License Manager

The Client/Server license manager is a custom install option in the software product installation for Windows. You must install the license manager on the Windows NT machine that will be the license server.

### Note

---

The license manager runs as a Windows NT service, so the license server must be a machine running NT. It is not necessary to install the server option on NT machines that will be license clients.)

---

Access to the license manager utilities requires installation of the Network License Server option during your software installation. This option installs the following files in the `RSI-Directory\product_version\bin\bin.x86` directory:

- `install_lm_server.exe`
- `lmgrd.exe`
- `idl_lmgrd.exe`
- `lmutil.exe`
- `lmtools.exe`

*RSI-Directory* is the directory in which you have installed your RSI software and *product\_version* denotes the software you have installed.

### Note

If you are installing IDL, the default *RSI-Directory\product\_version* directory would be C:\RSI\IDL54.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory\product\_version* directory would be C:\RSI\ENVI34\IDL54. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

## Configuring the License Manager

After installing the license file, you must start the license manager on your server machine. Included with your installation is a graphical interface for configuring the license manager, the FLEXlm License Manager Control Panel. With this utility, you can set environment paths, start, stop, and monitor the license manager.

1. **Open the license manager control panel.** Open the FLEXlm License Manager Control Panel by selecting **Start** → **Settings** → **Control Panel** and double-clicking on the FLEXlm License Manager icon.

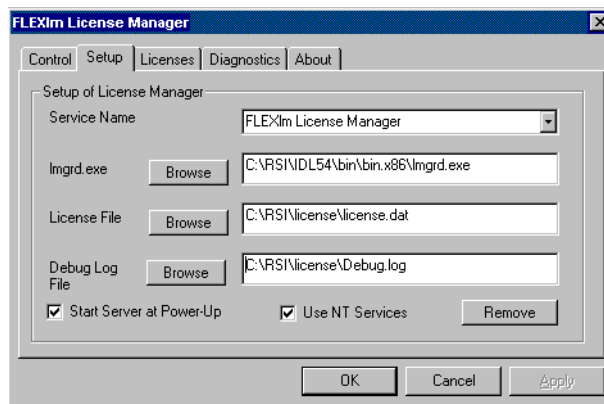


Figure 3-6: FLEXlm License Manager Control Panel

2. **Check for existing license managers.** Click the **Setup** tab. In the **Service Name** list, click the arrow to display installed license managers. If there is



more than one service listed, the potential for conflict exists between the license manager services. See “[Multiple Applications Using The Same License Manager](#)” on page 79 for options and instructions.

3. **Setup the License paths.** Click the **Setup** tab and enter paths for:
  - **The license manager** — **Browse** to select `lmgrd.exe`, located in the `RSI-Directory\product_version\bin\bin.x86` directory. `RSI-Directory` is the directory in which you have installed your RSI software and `product_version` denotes the software you have installed.

---

**Note**

If you are installing IDL, the default `RSI-Directory\product_version` directory would be `C:\RSI\IDL54`.

If you are installing a software product based on IDL, for example, ENVI, the default `RSI-Directory\product_version` directory would be `C:\RSI\ENVI34\IDL54`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

- 
- **The license file** — **Browse** to select `license.dat`, located in the `RSI-Directory\license` directory.
  - **The debug log file** — Choose a location to save the license manager log reports. A typical choice is creating a `lmgrd_log.txt` file in the `RSI-Directory\license` directory.
4. **Start the license manager at boot time.** Check the boxes **Use NT Services** and **Start Server at Power-Up** to automatically start the license manager when the server is started.
  5. **Accept the changes.** Click **Apply** to save your license manager configurations.

---

**Note**

After selecting **Start Server at Power-up**, note that the license manager will not be started automatically until the next time the machine is rebooted. Once you have started the service manually and it is operating as desired, you may want to restart your machine to verify that automatic startup is operating correctly.

---

## Starting and Stopping the License Manager

In the FLEXlm Control Panel, you can easily start, stop and see the status of the license manager.

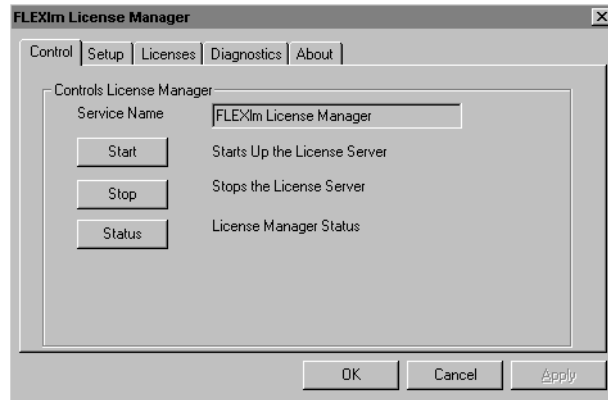


Figure 3-7: FLEXlm Control Panel - Control tab

**Starting the license manager** — Select the **Control** tab and click **Start** to start the license manager.

**Monitoring the license manager** — Click **Status** to see the current operational status of the license manager.

**Stopping the license manager** — Click **Stop** to disable the license manager. Your software will run only in timed demonstration mode without an available license.

For more information on license manager utilities, see [“Working with the License Manager”](#) on page 74.

# Configuring Your Client Environments for License Access

To allow network access to Research Systems software installed on a server, the client machines must have access to both the RSI software and the license file used by the license manager. You can enable client access to the license file in one of two ways:

- Access the license file stored on the server machine. This is the recommended method. See the following section, “[Accessing the License File on the Server](#)”.
- Install a copy of the license file on each client machine. See “[Installing License File Copies on Client Machines](#)” on page 68.

## Accessing the License File on the Server

Research Systems recommends having a local installation of your RSI product on each client machine and referencing the `license.dat` file stored on the server machine. Set the each client machine’s System Environment variables to point to the `license.dat` file stored on the server to easily keep each installation updated with a current license. See the instructions for your platform, either the following section covering Windows NT/2000 or “[Windows 95 /98 Systems](#)” on page 68.

### Windows NT / 2000

Complete the following steps for each client machine:

1. **Access the System Control Panel.** Click **Start** → **Settings** → **Control Panel**. Double-click on the **System** icon.
2. **Select the Environment tab.** (For Windows 2000, select the **Advanced** tab and then select **Environment**.) In the upper System Variables list, scroll down to the bottom and click in the white area. None of the currently listed variables should be highlighted.
3. **Enter a new System variable.** In the **Variable** field, enter `LM_LICENSE_FILE`. In the **Value** field, enter your server’s `port@host` value, for example `1700@hal`. This information is on your license file. The port number is the last number on the `SERVER` line. The host name immediately follows `SERVER`.

**Save the Settings.** Click **Set**, **Apply** and **OK**. Your Environment dialog box should be similar to the following picture when completed.

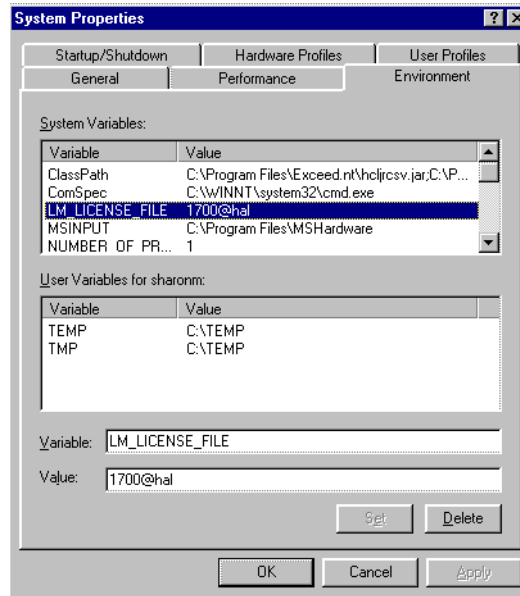


Figure 3-8: Setting Client Environment Variables

## Windows 95 /98 Systems

Using the previous example, add the setting for the environment variable to the *autoexec.bat* file as follows:

```
SET LM_LICENSE_FILE = 1700@hal
```

The system must be restarted in order for this setting to take effect.

## Installing License File Copies on Client Machines

You can copy the *license.dat* file to a Windows 95, 98, NT or 2000 client machine's local *RST-Directory\license* directory. Using this method, however, each license file will need to be updated on all client machines whenever the license file is changed on the server machine. All license files installed on the client machines must be an exact duplicate of the file on the server machine.

1. **Start the IDL Licensing Wizard.** Click the Windows **Start** button, and select **Programs → Research Systems *product\_version* → License** or continue

with the licensing process from the installation wizard. When you reach the installation dialog asking if you want to continue with licensing, select **Yes**.

2. **Display the “Permanent Licensing” dialog.** Click **Permanent** and **License** in the license wizard to display this dialog.
3. **Enter your licensing information.** Paste the text of the license file into the dialog, or select **Browse** to select the `license.dat` file. Note that the Hostname and LMHostid on the SERVER line of the `license.dat` file must identify the server machine running the license manager.
4. **Save the license file.** Click **Next** to save the license file in the client machine’s default directory where you have installed your RSI software,  
`RSI-Directory\license\license.dat`

---

**Note**

If you have installed the license file in a path other than the default, you must set the client’s environment variables to the path of the license file. See [“Saving the License File in an Alternative Location”](#) on page 60 for more information.

---

# Managing Access to Licenses

The license manager is a program that runs as a Windows NT service. It provides access for floating licenses to machines on the network. The license manager writes a log of its activities to the location specified when installing the service. Using an options file, an administrator can control access to Research System products and control what is written to the log file.

## The Options File

You can customize IDL license management by creating a license manager options file. This file allows you to:

- Reserve licenses for specified users or groups of users.
- Allows or disallows the use of IDL by certain users.
- Control what events are recorded in the log file.

To customize the license manager, create an options file in a text editor as described below. See “[Sample Options Files](#)” on page 72 for examples.

Each option is specified on a separate line of the file, and each line starts with one of the keywords described below: Lines can be up to 2047 characters long. For longer lines, use “\” as a line continuation character. All elements of the options file are case sensitive so users and groups must be correctly and consistently identified. Lines beginning with the pound sign (#) are ignored and can be used as comments.

### Note

---

Options files for RSI products **must** be named `idl_lmgrd.opt` and saved in the same directory as the `license.dat` file. The default location is the `RSI-Directory\license` directory. Any time the options file is modified, the license manager must be stopped and restarted before the changes will take effect.

---

## Creating an Options File

Use a text editor to create a options file. For Research Systems products, the options file must be named `idl_lmgrd.opt` and saved in the same directory as `license.dat`. The default location in which to save the options file is the `RSI-Directory\license` directory. Each option file feature is specified on a separate line, and each line starts with one of the following keywords:

## Option File Keywords

Keyword	Example	Description
EXCLUDE	EXCLUDE <i>feature type type_name</i> EXCLUDE idl USER bob Excludes user “bob” from using IDL.	Can exclude user, group, host, or host_group from using IDL. EXCLUDE takes precedence over INCLUDE statements.
EXCLUDEALL	EXCLUDEALL <i>type type_name</i> EXCLUDEALL GROUP misfit Excludes the group misfit from using any IDL feature.	Implicitly allows all except “misfits” to access all features of IDL.
GROUP	GROUP <i>group user_list</i> GROUP visitor sam kate Defines users “kate” and “sam” as comprising the group “visitor”.	Defines a list of users as a group to be used with other keywords such as INCLUDE or EXCLUDE.
HOST_GROUP	HOST_GROUP <i>group host_list</i> HOST_GROUP main hal sam Defines hosts “hal” and “sam” as the group “main”.	Defines a list of hosts as a group to be used with other keywords such as INCLUDE or EXCLUDE.
INCLUDE	INCLUDE <i>feature type type_name</i> INCLUDE idl GROUP visitor Allows only users in the group “visitor” to use IDL.	Includes only specifically identified users or groups. All others are implicitly outside of this group, and denied access.
INCLUDEALL	INCLUDEALL <i>type type_name</i> INLCUDEALL GROUP research Allows all users listed in the group research to use all features of IDL.	Specifies users or groups allowed use of all IDL features.

Table 3-1: Options File Keywords

Keyword	Example	Description
LINGER	LINGER <i>feature seconds</i> LINGER idl 20 The license manager holds on to a license for an additional 20 seconds after it is checked in.	Causes licenses to be held by the license manager for a specific amount of time after a user exits IDL. Rarely used.
MAX	MAX <i>#lic feature type type_name</i> MAX 6 compile GROUP research Allows only a single user in the Research group to use the compile feature at one time.	Limits usage of a feature among users or groups.
NOLOG	NOLOG <i>event_type</i> NOLOG DENIED NOLOG QUEUED	A separate NOLOG line is needed to turn off logging of events including IN, OUT, DENIED, and QUEUED.
REPORTLOG	REPORTLOG report_log _path REPORTLOG +RSI\license Specifies the reportlog file path.	The “+” indicates that the file is to be appended instead of being over-written each time the manager is started.
RESERVE	RESERVE <i>#lic feature type type_name</i> RESERVE 6 idl USER sam Reserves a single IDL license for the user “sam”.	Ensures that an IDL license will always be available to a specified user or group.

Table 3-1: Options File Keywords (Continued)

## Sample Options Files

### To Reserve Licenses for a Group

The following example shows how to define and reserve a number of licenses for a group of users, and tells the license manager not to log denied requests. Each copy of IDL requires 6 license units. Comment lines begin with #.

```
# reserve 5 IDL licenses for the research group
RESERVE 30 idl GROUP research
# define the users in the research group
GROUP research josh hal bob kate beth
```



```
# exclude anyone on a computer with the name main
EXCLUDE idl HOST main
# do not log license denials
NOLOG DENIED
```

---

**Note**

When using INCLUDE or EXCLUDE, anyone not specifically mentioned on a list is implicitly excluded or included. For example, in the above file, everyone who is **not** working on a computer named “main” would be allowed to access IDL. An EXCLUDE statement takes precedence over an INCLUDE statement. If the user “josh” was working on a computer named “main,” he would not be able to access IDL even though there is a license reserved for him.

---

**To Reserve Licenses for Individuals**

The following options file reserves licenses for individuals in the group defined above. If you have a group of 10 people, you can specify that a license or licenses will always be available to certain users by using the RESERVE keyword in an options file. The NOLOG line pertains to the IDL QUEUED command which allows a user to wait for an IDL license instead of entering demonstration mode when a counted license is unavailable. It tells the log file not to record any queue events.

```
# reserve one license for "kate"
RESERVE 6 idl USER kate
# reserve one license for "josh"
RESERVE 6 idl USER josh
# reserve 3 licenses for "hal"
RESERVE 18 idl USER hal
# do not log queue events
NOLOG QUEUED
```

# Working with the License Manager

A license manager support utility is provided to control the operation of the license server manager. To access the FLEXlm License Manager Control Panel, select **Start** → **Settings** → **Control Panel** and double-click on the FLEXlm License Manager icon. For information on setting up the license manager, see [“Configuring the License Manager”](#) on page 64. For instructions on basic operations including starting and stopping the license manager, see [“Starting and Stopping the License Manager”](#) on page 66.

## Removing the License Manager Service

To remove the license manager service, open the FLEXlm Control Panel utility by selecting **Start** → **Settings** → **Control Panel** and double-clicking on the FLEXlm License Manager icon. Select the **Setup** tab and click **Remove**.

### Note

---

This command removes the license manager service, and should not be used to simply stop the service. To stop the service, see [“Starting and Stopping the License Manager”](#) on page 66.

---

## License Manager Diagnostics

Open the FLEXlm Control Panel utility by selecting **Start** → **Settings** → **Control Panel** and double-clicking on the FLEXlm License Manager icon. Select the **Diagnostics** tab. In this dialog, you can view the following:

- **Hostid** — displays the identifying information of the machine running the license manager.
- **Version** — displays version of the license manager application
- **Environment** — displays the setting of LM\_LICENSE\_FILE. If you did not save your license file in the default location, see [“Saving the License File in an Alternative Location”](#) on page 60 for information on setting this environment variable.
- **Connection** — displays the status of your connection to the server.

## Removing a Single License

If a licensed user is running IDL when the machine crashes, that user’s license may fail to return 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 return the license to the pool of available licenses.

To free the license, complete the following steps:

1. Open a DOS based Command Prompt window from the server machine and change the directory to access the license manager utility by typing the following at the prompt:

```
cd RSI-directory\product_version\bin\bin.x86
```

and hit Enter.

---

**Note**

*RSI-Directory* is the directory in which you have installed your RSI software and *product\_version* denotes the software you have installed.

If you are installing IDL, the default *RSI-Directory\product\_version* directory would be `C:\RSI\IDL54`.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory\product\_version* directory would be `C:\RSI\ENVI34\IDL54`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

2. Enter `lmutil` at the prompt to access the utility program. A list of possible commands is displayed.

To gather the information necessary for removing the license, you must check the license manager status.

3. Enter `lmutil lmstat -a` at the command prompt. This command displays available licenses and which users have licenses checked out. An example output of `lmstat -a` follows:

```
robin hal7 josh (v5.4) (hal7/1700/395), start Mon 10/12  
4:34, # licenses
```

The format of this line is:

```
user host display (version) (host/post/license handle),  
start date, available licenses
```

4. Note the user, host, and display values.

5. Remove the license by using the following `lmremove` syntax:

```
>lmutil lmremove idl robin hal7 josh
```

where `idl` is the feature, `robin` is the user, `hal7` is the host, and `josh` is the display. Other feature values for Research System products appear in the table below. You can check to make sure the license was freed by typing the following at the DOS command prompt:

```
lmutil lmstat -a
```

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

<b>RSI Software Product</b>	<b>lmremove Feature Value</b>
IDL	idl
IDL Runtime	idl_rt
IDL Academic Version	idl_student
IDL with the Wavelet Toolkit	idl_wavelet
IDL DataMiner	idl_dm
Unlimited Right to Distribute	devkit
ENVI	envi
ION Script	ion_script
ION Java	ion_java
RiverTools	idl_rivertools
Noesys	noesys
Noesys Plus	noesysplus
VIP	vip
Windows Terminal Server	wts

*Table 3-2: Feature Values for `lmremove`*

## If You Encounter Errors

If the license manager gives an error message when starting, see [“License Manager Startup Troubleshooting”](#) on page 84.

# The License File

The license file controls:

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

The FEATURE line of the license file determines which products are available. The SERVER lines define the machines on which the products run. 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.

## Sample License File

The following is an example of what a license file look like.

### An IDL License File

The following example license file is built for the license server “hal”, which has the LMHostid 0000c09a23f0. This license has 6 floating licenses for Windows machines.

The last line in the license file is the FEATURESET line, which ties all the FEATURE and INCREMENT lines together:

```
SERVER hal 0000c09a23f0 1700
DAEMON idl_lmgrd C:\RSI\IDL54\bin\bin.x86\idl_lmgrd.exe
IFEATURE idl idl_lmgrd 5.400 1-jan-0000 36 5BC6A081FA3009FA5673 \
    VENDOR_STRING="1234-1Acme Datawack Corp" ck=16
FEATURESET idl_lmgrd 96C31B1FB71BCAE9
```

---

### Note

The FEATURE line for the IDL floating license shows 36 license units. This is not an error. Each counted IDL license requires 6 license units on the FEATURE or INCREMENT line. If non-zero, the number of license units allowed. Otherwise, the line is for an unlimited number of node-locked licenses, and this field is set to zero. 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.

---

## Viewing or Modifying the License File

To access the text of your license file through the license wizard, complete the following steps:

### Locating the License File

1. Click Start → Programs → Research Systems *product\_version* → License.
2. Select **Permanent** and **License** to display the license text file window. If you have a file saved in the default location, *RSI-Directory\license\license.dat*, it will appear in the text window. If you have saved the file in another location, click Browse to find it.

### Altering the License File

Only four data items in the license file can be modified by the user:

- hostnames (but not host IDs) on SERVER lines
- port numbers on SERVER lines
- pathnames on DAEMON lines
- options file pathnames on DAEMON lines

#### Warning

---

Changing license file lines other than those discussed below will invalidate your license file, causing your IDL installation to run only in demonstration mode. Adding or removing any FEATURE, FEATURESET, or INCREMENT lines destroys the file.

---

See [“Multiple Applications Using The Same License Manager”](#) on page 79 for more detailed information on customizing your license file.

# Multiple Applications Using The Same License Manager

IDL's network license management facility is provided by the FLEXible License Manager (FLEXlm), a product of Globetrotter Software. Since this license manager is not unique to IDL, the possibility exists that you will need to run software from two or more software vendors that all use FLEXlm. In this case, the potential for license server conflict exists. You have the following options if all products using FLEXlm are installed on the same license server.

## All Products Using FLEXlm are Installed on the Same Server

If a Research Systems product and other vendor product(s) using FLEXlm license management software are all installed on the same server machine, there are two options:

- Combine all license files into a single license file.
- Create unique license manager services for each product.

## Combining License Files

If separate vendor applications using FLEXlm software are installed on the same server machine, and each vendor's license file contains a SERVER line with an identical LMhostid, the solution is simple. 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.

Multiple copies of this combined license file can be placed 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.

When you have finished editing the license file, and saved it in the appropriate locations, restart the license manager with the *most recent* version of `lmgrd` that you have installed. From Windows Explorer, right click on each instance of `lmgrd.exe` and select the **Version** tab in the **Properties** menu. If an older version of `lmgrd` is used, the license manager from the product with a more recent `lmgrd` will not operate correctly.

## Configuring Unique FLEXlm License Manager Services on the Same Server

As an alternative to combining the license information from multiple vendors licenses and running a single instance of the FLEXlm license manager service, a separate instance of the FLEXlm license manager service (with a unique name) can be installed and started for each separate vendor's license file.

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

### Warning

---

Be certain that only one instance of the FLEXlm license manager will start on the server machine with respect to any RSI product license file. If an instance of FLEXlm license manager service is already running for an RSI product on this same license server machine, then installing a second instance of the FLEXlm service for an RSI product under a different name can cause a conflict when Windows NT is loaded. (To resolve such a conflict, quickly stop all but one of the conflicting FLEXlm services immediately after logging on to that Windows NT license server machine.)

---

After verifying that there is not already an RSI product-configured license manager service running on your server machine, you can configure an uniquely named instance of the license manager service for RSI products to avoid conflict with other vendors' license managers. To install a unique instance of the FLEXlm license manager for an RSI product license file, complete the following steps:

1. Confirm that your updated RSI product license is already properly installed on the license server machine.
2. Open the FLEXlm License Manager control panel from your machine's control panel interface.
3. Select the **Setup** tab and enter a new (unique) FLEXlm service name in the **Service Name** field. By default, the FLEXlm license manager service is called "FLEXlm License Manager". If the name "FLEXlm License Manager" is configured and already being used for another vendor's product license file, we recommend using the name "RSI FLEXlm License Manager" instead.



4. Enter the paths to the RSI product's `lmgrd.exe` and `license.dat` files. If not already created, the Debug Log File, typically saved in the license directory, will be created when the license manager is started. The **Browse** buttons can help to insure that the file path entered is valid.
5. Select the **Use NT Services** and the **Start Server at Power-Up** check boxes.
6. Click **Apply** and then click **OK** when you are prompted to save changes to the new FLEXlm service that you are adding.

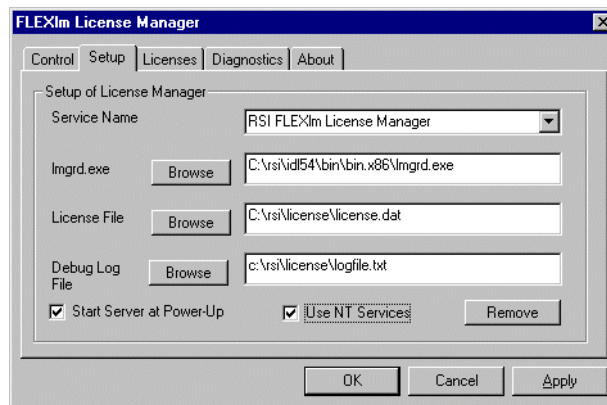


Figure 3-9: Uniquely Naming a FLEXlm License Manager

7. Go to the **Licenses** tab and click **Show License file**. If necessary, modify the DAEMON line such that the `idl_lmgrd.exe` path points to the most recent version of the `idl_lmgrd.exe` file on the license server machine. Additionally, if another vendor's license file references the same communication port number as that in the SERVER line of the RSI license file, change this to an unused port number. The default port number for RSI product licenses is 1700. Save changes to the RSI product license file and close the license file editor window.
8. Start the newly named license manager. Select the **Control** tab and start the updated service by hitting the **Start** button.
9. Verify that the license manager service has been started by clicking the **Status** button.

# Troubleshooting

If your Research Systems product runs in seven minute demonstration mode after you have attempted to license the product, follow the appropriate suggestions below and try starting IDL again. If you see errors from the license manager itself, turn to [“License Manager Startup Troubleshooting”](#) on page 84.

---

## Note

Useful messages may be logged in the license manager output log file that is designated at the time the FLEXlm service is installed.

---

### 1. Check that the server daemon is running.

Open the FLEXlm License Manager Control Panel by select **Start** → **Settings** → **Control Panel** and selecting the FLEXlm icon. Click the **Status** button on the **Control** tab. If you receive a message that states the license manager cannot connect to the license server, proceed to step 5.

### 2. Stop and restart the license manager.

Exit IDL. Stop and then restart the license manager.

### 3. Is the LM\_LICENSE\_FILE environment variable set to the license file of another application?

See [“Saving the License File in an Alternative Location”](#) on page 60 to check the setting of the LM\_LICENSE\_FILE environment variable. If LM\_LICENSE\_FILE points to a license file other than the RSI product’s license file, stored in the *RSI-Directory\license* directory, you will need to correct this prior to starting IDL.

### 4. Is the license server reachable from your machine?

If IDL displays the following error message at startup:

```
LICENSE MANAGER: cannot connect to license server.
```

make sure that you can use the network utility “ping” to contact the server machine. Open your system’s MS-DOS command prompt, enter:

```
ping <server name>
```

If you can ping the server machine, ensure that the license manager is running on that machine.

## 5. Has your license file been copied correctly?

If IDL displays the following error message at startup:

```
% LICENSE MANAGER: encryption code in license file is
inconsistent.
```

some of the encrypted information in the license file is not correct. This can involve the server hostid, the daemon name, and any character on the FEATURE lines.

Examine your license file and correct the INCREMENT or FEATURE line so that it exactly matches the one sent to you by Research Systems. See “[Altering the License File](#)” on page 78 for instructions on accessing and checking your license file. Check for proper capitalization and spacing. Shut down the license manager service, make any corrections necessary, and restart the service with the corrected license file.

## 6. Is the license manager using the correct license file?

If IDL displays the following error message at startup:

```
LICENSE MANAGER: no such feature exists.
LICENSE MANAGER: license file does not support this feature.
```

the license manager may be using the wrong license file. See the section, “[Configuring the License Manager](#)” on page 64 for details.

## 7. Does the license file contain the correct hostname?

If IDL displays the following error message at startup:

```
% LICENSE MANAGER: cannot find SERVER hostname in network
database.
```

the hostname in the license file does not agree with the actual hostname for the server, or cannot be accessed from the client node. Edit the license file and correct the hostname.

## 8. Check out the Globetrotter Web Site.

The Globetrotter Web site contains on-line documentation and an excellent FLEXlm FAQ. This information can be helpful when trying to combine licenses from different vendors. See the following Web pages:

Globetrotter home page: <http://www.globetrotter.com>

FLEXlm FAQ: <http://www.globetrotter.com/flmfaq.htm>

For additional assistance, see “[Contacting Research Systems](#)” on page 89.

## License Manager Startup Troubleshooting

If the license manager gives an error message when starting, find the error message below and follow the instructions to eliminate the error.

### 1. Invalid Server Hostname

```
date time (lmgrd) "Hostname1": Not a valid server hostname,
exiting.
date time (lmgrd) Valid server hosts are: "Hostname2"
```

In spite of the error message, *Hostname1* is the hostname of the server that probably *should* be in the license file, while *Hostname2* is the incorrect hostname currently in the license file. Edit your license file to contain the correct hostname.

### 2. Inconsistent Encryption Code

```
date time (idl_lmgrd) Inconsistent encryption code for idl
```

There is a problem with the information on the FEATURE or INCREMENT line of the license file. See [“Viewing or Modifying the License File”](#) on page 78 to make sure that the license file has been copied correctly from the fax or e-mail message. Check capitalization and spacing, making sure it is exactly the same as in the license file sent to you. Finally, check to make sure that long lines in the license file have not been inadvertently wrapped to a new line. (Refer to [“The License File”](#) on page 77 for examples of the correct license file format.)

### 3. No Features to Serve

```
date time (idl_lmgrd) No features to serve!
```

There are no valid FEATURE or INCREMENT lines. This is most commonly due to the “inconsistent encryption code” error described above.

### 4. Retrying Socket Bind

```
date time (lmgrd) Retrying socket bind (address in use: port 1700)
```

An attempt has been made to start the license manager when it was already running. This often happens when the license file contains a mistake, the mistake is corrected, and the license manager is started again before the first attempt has been shut down or killed. There may also be some other software product using the default port number, 1700. Stop the service using the Services dialog in the Control Panel and restart the service. See [“Starting and Stopping the License Manager”](#) on page 66 for more details.

## 5. No Such File or Directory

```
license daemon: execl failed: ../idl -T host 2.40 3 -c
license daemon: system error code: No such file or directory
```

The path on the DAEMON line of the license file is incorrect. It should point to the IDL directory. Edit the license file and correct the DAEMON line.

## 6. Cannot Find License File

```
license manager: can't initialize: cannot find license file
(No such file or directory)
date time (lmgrd) Using license file "filename"
```

The license manager cannot find the *license.dat* file. Either the *license.dat* file is not in the default location or the file specified in the environment variable `LM_LICENSE_FILE` is incorrect. Also, make sure that the filename *license.dat* is spelled correctly and that you have read permission for the *license.dat* file.

## 7. Cannot Read License File

```
license manager: can't initialize: cannot read license file
(Permission denied)
```

The permissions are set incorrectly on the *license.dat* file. Set the file to allow read permission for all users.

## 8. Wrong Hostid for Server

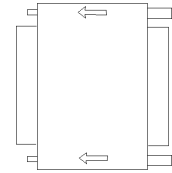
```
Wrong hostid on Server line for license file:
C:\RSI\LICENSE\LICENSE.DAT.
SERVER line says 000c0123454, hostid is 000c0abcde
Invalid host on SERVER line.
```

The hostid in the license file does not match the hostid of the machine. Verify that you are using the correct machine. You may need to request a corrected license file. Make sure that the license file has been correctly copied from the original information sent to you by Research Systems.

For additional assistance, see [“Contacting Research Systems”](#) on page 89.

# HASP Licensing

Hardware-Based Node-Locked Licenses — Use a copy-protection device to tie the license to a specific computer. The device will not interfere with the normal functioning of your system or other software packages. The hardware key, or HASP, is a small plastic and metal device labeled “HASP” that plugs into your computer’s parallel port. If you have a hardware key from a previous version, you may not have received a new key with your upgrade. Your current HASP will continue to function.



DB-25 Hardware Key

In these instructions *RSI-Directory\product\_version* denotes the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example C:\RSI.
<i>product_version</i>	The product you are installing, for example IDL54.

## Note

If you are installing IDL, the default *RSI-Directory\product\_version* directory would be C:\RSI\IDL54.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory\product\_version* directory would be C:\RSI\ENVI34\IDL54. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

## HASP Licensing Instructions

To license RSI software using a hardware-based node-locked license, complete the following steps:

1. **Install Your Software Product.** Follow the instructions in the Installation Guide. When you reach the dialog asking if you want to enter a license, click **No** to exit the installation program.
2. **Install the latest HASP driver.** Open a MS-DOS window. Type the following statement to access the directory containing the HASP device driver installation application, `hinstall.exe`:

```
cd RSI-Directory\product_version\bin\bin.x86
```

---

**Note**

If you are installing IDL, the default *RSI-Directory\product\_version* directory would be `C:\RSI\IDL54`.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory\product\_version* directory would be `C:\RSI\envi_3.4\idl_5.4`. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

To install the latest HASP driver, type:

```
hinstall.exe -i
```

This command launches the installation utility which automatically installs the driver on your system. Click **Okay** when the dialog appears stating that the installation has been completed.

---

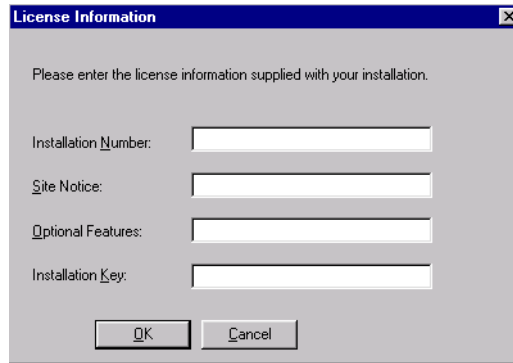
**Note**

To view a complete list of options available for customizing the device driver, type: `hinstall.exe -?` at the DOS command prompt.

---

3. **Locate your RSI Registration form.** If you haven't received your RSI Registration form, contact Research Systems. See "[Contacting Research Systems](#)" on page 89 for assistance.
4. **Shut down your computer.** Always shut down your computer before installing or removing a HASP.
5. **Insert the HASP into any parallel port.** Parallel ports are 25 pin ports also known as printer ports. The arrows on the HASP should point toward the back of the computer.
6. **Restart your computer.**
7. **Locate the HASP license installation wizard.** Double-click on the `hwrl.exe` program, located in the *RSI-Directory\product\_version\bin\bin.x86* directory, where *RSI-Directory* is the directory in which you have installed your Research

Systems software and *product\_version* is the name of the software you are installing, for example IDL54 or ENVI34\IDL54.

The image shows a Windows-style dialog box titled "License Information". The dialog has a blue title bar with a close button (X) in the top right corner. The main area is light gray and contains the text "Please enter the license information supplied with your installation." Below this text are four input fields, each with a label to its left: "Installation Number:", "Site Notice:", "Optional Features:", and "Installation Key:". Each label has a small underlined letter (N, S, O, K) indicating the first letter of the label. At the bottom of the dialog are two buttons: "OK" and "Cancel".

*Figure 3-10: HASP License Dialog*

8. **Enter your license information.** Enter the installation number, the site notice, any optional features and the installation key exactly as they appear on your RSI Registration form. Click **OK**.
9. **Restart your software.** Your software is now licensed.

## Important Note About Your Hardware Key

If the hardware key is removed during an RSI software session or if you start your software without the hardware key attached, the software enters demonstration mode and you will not be able to save your work.



# Contacting Research Systems


If you have problems with your installation, contact Research Systems technical support for assistance:

- E-mail: [support@ResearchSystems.com](mailto:support@ResearchSystems.com)
- Phone: (303) 413-3920
- Fax: (303) 786-9909
- Web page: <http://www.ResearchSystems.com> — Visit the Tech Tips section on our Web page for Frequently Asked Questions.

International customers should contact their local Research Systems office or distributor for technical support.

It is often helpful to submit a copy of your license file as well as a copy of any error messages produced by IDL or the license manager program.





# Chapter 4: Macintosh License Management

This chapter contains HASP licensing techniques and suggestions for HASP troubleshooting.

---

<a href="#">Introduction</a> .....	92	<a href="#">Troubleshooting HASP Licensing</a> .....	99
<a href="#">Hasp Licensing</a> .....	93	<a href="#">Contacting Research Systems</a> .....	101
<a href="#">Using the IDL License Utility</a> .....	98		

# Introduction

## The Default RSI Directory

When you install a product from Research Systems, the installation program asks you to choose a directory in which to install the software. In these instructions, as in your installation guide, we refer to this directory as the *RSI-Directory*. We recommend that you install Research Systems products in the default *RSI-Directory*, *install\_dir:RSI*.

## Research Systems Products Based on IDL

Research Systems distributes several products based on IDL and written in the IDL language. License management for these products is essentially the same as for IDL itself; the differences generally consist of added products listed on the FEATURE line in the license file. In these instructions *RSI-Directory:product\_version* denotes the following:

<i>RSI-Directory</i>	The directory where you have installed the Research Systems product, for example <i>install_dir:RSI</i> .
<i>product_version</i>	The product you are installing, for example IDL 5.4.

### Note

---

If you are installing IDL, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:IDL 5.4*.

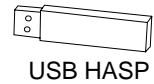
If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:ENVI3.4:IDL 5.4*. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

# Hasp Licensing

Research Systems software uses a hardware copy-protection device. You must attach this device, the HASP, before you can license your software. The device will not interfere with any of the other devices (e.g., printer, modem, mouse, etc.) or any other software on your computer. There are two types of devices:

- Universal Serial Bus (USB) HASP is a short length of blue plastic labeled “MacHASP USB” with a USB connector at one end. It can be used with an iMac or Power Macintosh with a USB port. See [“Licensing with a USB HASP”](#) on page 94 for instructions.
- Apple Desktop Bus (ADB) HASP is a short length of white plastic, labeled “MacHASP” with Macintosh ADB connectors at each end. It can be used with any Power Macintosh with an ADB port. See [“Licensing with an ADB HASP”](#) on page 96 for instructions.



---

## Note

If you have a HASP from a previous version, you may receive a new one with your upgrade. If you have not received a new HASP, the old one will continue to function. You should have only one Research Systems HASP attached at any time.

---

---

## Note

If you have received the incorrect type of HASP, contact Research Systems Technical Support. See [“Contacting Research Systems”](#) on page 101.

---

## Licensing with a USB HASP

To license your RSI software using a USB HASP, complete the following steps:

---

### Note

To license your software with a USB HASP, you must have either installed the USB HASP Device Driver during installation or have installed it by double-clicking the Install USB Mac Hasp DD icon located in the Extras folder on your RSI software CD-ROM.

---

1. **Locate your Registration form.** If you haven't received your licensing information by electronic mail or fax, contact Research Systems Technical Support. See [“Contacting Research Systems”](#) on page 101.
2. **Insert the USB HASP in any unused USB port.** USB ports are typically located on your keyboard, on the side (iMac), or on the back (G3) of your Macintosh. Unlike the ADB HASP, you do not need to shut down your Macintosh before attaching a USB HASP.

---

### Note

If you are replacing an evaluation license with a permanent license, you need to enter your license information using the IDL License Utility instead of completing the following steps. See [“Using the IDL License Utility”](#) on page 98 for instructions.

---

3. **Start your software product.** Double-click the *product\_version* icon located in the *install\_dir:RSI:product\_version* folder. Until licensed, the licensing dialog appears. Click **License**.

---

### Note

If you are installing IDL, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:IDL 5.4*.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:ENVI3.4:IDL 5.4*. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

4. **Enter your licensing information.** Enter the installation number, the site notice, any optional features and the installation key exactly as they appear on your RSI Installation form. Click **OK**.

Your Research Systems software is now licensed.

## Licensing with an ADB HASP

To license IDL using an ADB HASP, complete the following steps:

1. **Locate your licensing information.** If you haven't received your licensing information by electronic mail or fax, contact Research Systems Technical Support. See [“Contacting Research Systems”](#) on page 101.
2. **Shut down your Macintosh.** Always shut down your Macintosh before installing or removing an ADB HASP.
3. **Insert the ADB HASP anywhere in your ADB chain.** You can insert it between the keyboard and the ADB bus cord or into an unused ADB port.
4. **Restart your Macintosh.**

---

### Note

If you are replacing an evaluation license with a permanent license, you need to enter your license information using the IDL License Utility instead of completing the following steps. See [“Using the IDL License Utility”](#) on page 98 for instructions.

---

5. **Start your software product.** Double-click the *product\_version* icon located in the *install\_dir:RSI:product\_version* folder. Until licensed the licensing dialog appears. Click **License**.

---

### Note

If you are installing IDL, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:IDL 5.4*.

If you are installing a software product based on IDL, for example, ENVI, the default *RSI-Directory:product\_version* directory would be *install\_dir:RSI:ENVI3.4:IDL 5.4*. In such cases, the main IDL directory is a subdirectory of the software product you are installing.

---

6. **Enter your licensing information.** Enter your licensing information. Enter the installation number, the site notice, any optional features and the installation key exactly as they appear on your Installation form. Click **OK**.

Your Research Systems software is now licensed.



## Important Information about Your ADB HASP

The following information is important to know about your ADB HASP:

- **Never remove the ADB HASP while your Macintosh is running, as serious damage to the computer may result from disconnecting the ADB chain.** Always shut down your Macintosh before removing the ADB HASP.
- If the ADB HASP is removed during an IDL session, IDL enters demonstration mode and you will not be able to save your work.
- If a new session is started without the ADB HASP installed, IDL may prompt you to license your installation or default to demonstration mode. You will not be able to run your Research Systems software in licensed mode without the ADB HASP installed. You can, however, run in timed demonstration mode without the ADB HASP installed.

## Using the IDL License Utility

Use the IDL License Utility if you need to install a permanent license after having installed an evaluation license.

1. Open your RSI software product folder.
2. Drag a copy of the *product\_version* application onto the IDL License Utility application. The IDL License Utility exists in the `IDLx.x:bin` directory, where *x.x* indicates the version of IDL, for example 5.4.
3. In the IDL License Utility dialog, fill in the following fields with the information provided by your RSI licensing form:
  - **Installation number** — enter the installation number exactly as it appears on your license information form.
  - **Site Notice** — enter your site notice exactly as it appears on your license information form.
  - **Optional Features** — enter any optional features shown on your license information form.
  - **Installation Key** — enter the key *exactly* as it appears on your license information form and click **Next**.
4. Exit the license dialog. Click **Finish**.

Your software is now licensed.

# Troubleshooting HASP Licensing

## Note

---

When entering your Installation Number, Site Notice, Optional Features and Installation Key into the HASP licensing wizard dialog, make sure they appear exactly as shown on your Installation form. Accurately reproduce all capitalization and spacing as shown on your form.

---

If your Research Systems software installation continues to run in demonstration mode after attempting HASP licensing, you can try troubleshooting the hardware and software.

## Hardware Troubleshooting

- Make sure that there is no other RSI product hasp attached to your ADB chain (such as an ENVI HASP or an IDL Runtime (rt) hasp). Only one RSI product hasp can be used on a MAC at any one time.
- Shut off the machine and examine the HASP. Examine the HASP to make sure none of the connectors are bent. Re-attach the HASP firmly to a different location in the ADB chain, preferably directly to the ADB port directly on your machine. Restart the machine and attempt to license your Research Systems software using the HASP licensing wizard described in [“Licensing with an ADB HASP”](#) on page 96.
- Shut down the machine and remove any external SCSI devices. Restart and attempt to license the Research Systems software. If this seems to correct the problem, there may be a conflict between the HASP software and the device driver. To resolve the conflict, you can update the device driver software.
- If there are any unusual ADB devices, try removing them temporarily or replacing them with a standard drive. For example, replace a trackball mouse with a standard mouse. Restart the machine and try licensing the RSI software.
- If there is another MAC machine with the RSI software properly running in licensed mode, place the HASP on that machine. If the software does not run in licensed mode on that machine, contact Research Systems technical support. See [“Contacting Research Systems”](#) on page 101.

## Software Troubleshooting

From the RSI software CD-ROM, go to the `RSI:product_version:bin` folder and copy the `product_version` executable file, for example IDL 5.4, (not as an alias) to the `RSI:product_version` folder onto your hard drive. This will overwrite the existing `product_version` executable in that location. Try licensing the software again.

# Contacting Research Systems

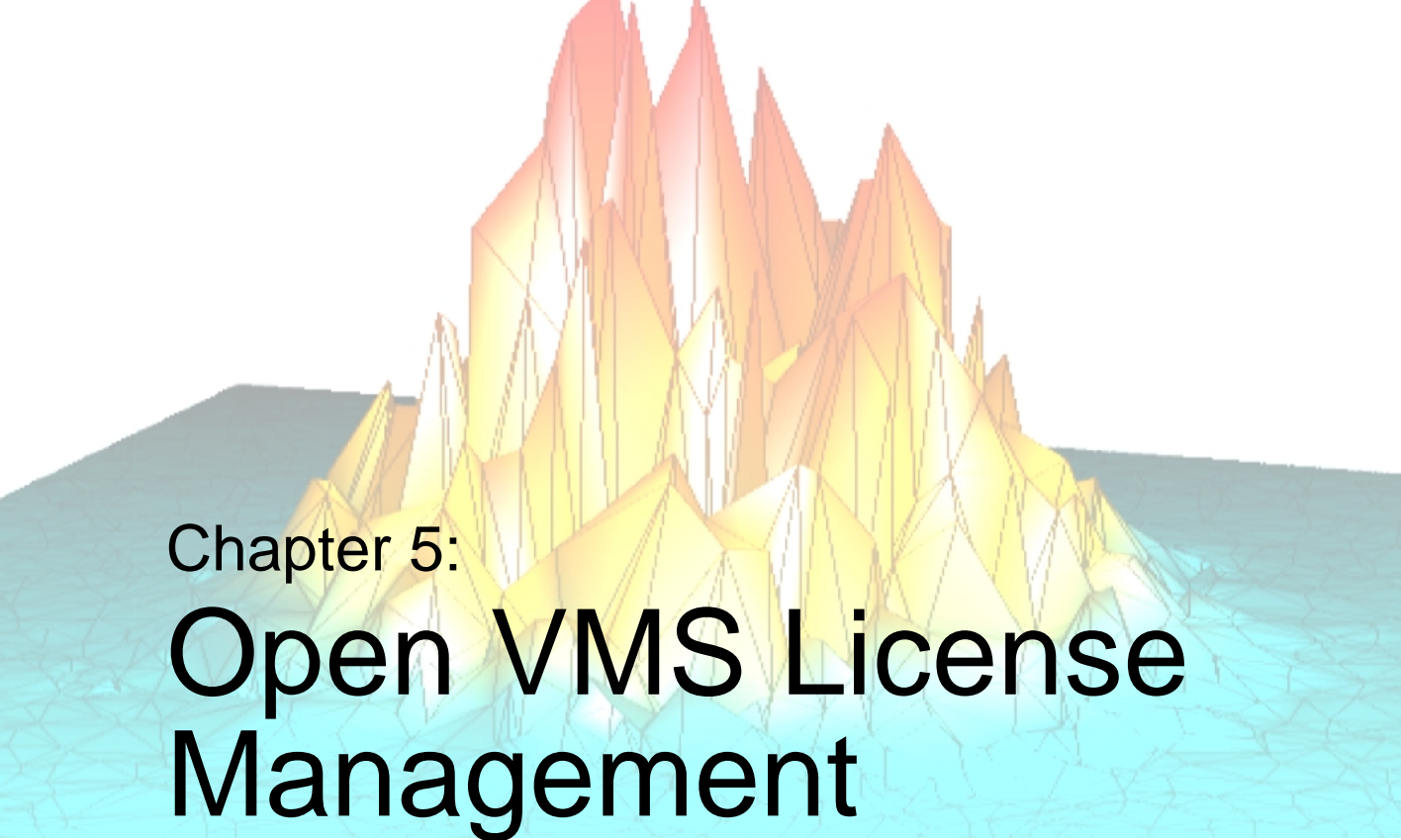
If you have problems with your installation, contact Research Systems technical support for assistance:

- E-mail: [support@ResearchSystems.com](mailto:support@ResearchSystems.com)
- Phone: (303) 413-3920
- Fax: (303) 786-9909
- Web page: <http://www.ResearchSystems.com> — Visit the Tech Tips section on our Web page for Frequently Asked Questions.

International customers should contact their local Research Systems office or distributor for technical support.

It is often helpful to submit a copy of your license file as well as a copy of any error messages produced by IDL or the license manager program.





## Chapter 5:

# Open VMS License Management

Basic instructions on installing your license file and starting the license manager are contained in your installation booklet. This chapter covers the license manager and floating license management, including the following issues:

---

Installing Floating / Node-locked Licenses	104	Multiple Applications Using The Same License Manager	117
Starting the License Manager	105	Running Older Versions of IDL Concurrently with IDL 5.4	119
Managing Access to Licenses	107	Troubleshooting	120
Working with the License Manager	111		
The License File	113		

## The RSI Directory

When you install a product from Research Systems, the installation program asks you to choose a directory in which the product will be installed. We recommend that you install IDL in the directory `SYS$SYSDEVICE:[IDL]`. In these instructions, as in your installation guide, we refer to this directory as *IDL-Directory*.

## Installing Floating / Node-locked Licenses

Your license file will be sent to you via electronic mail or fax. If your file is sent via e-mail, simply save the e-mail message as a file named `LICENSE.DAT` and remove any header lines before the beginning of the actual license information. (Keep the comment lines that begin with the “#” character.) If you receive your license information via fax or other hardcopy method, you will need to create the file on your system and enter the information using any text editor.

### Location of the License File

The license file must be located in the main IDL directory. Save your license file with the following path and filename:

```
IDL-directory:[000000]license.dat
```

---

#### Tip

If you have an existing `license.dat` file in this location, make a backup copy of this before saving your new licensing information into this file until your new license is working.

---

### Sample License File

An example license file, along with more information on the meanings of the individual lines in the license file is provided in the [“The License File”](#) on page 113.



# Starting the License Manager

The license manager (or managers in the case of multiple servers) must be running before IDL can use network licensing. The license manager is a detached VMS process that handles the task of checking IDL license units in and out.

You must start the license manager so that IDL can run properly. You must also set up your system so that the license manager daemon is automatically started when your system is booted.

If you are running only unlimited usage licenses, as indicated by an “MU” on the FEATURE or INCREMENT line, you do not need to start the license manager daemon.

## Configuring the License Manager

Once you have the license file in place on your system, the license manager server daemon can be started by entering the following command:

```
@IDL-Directory:[BIN]START_LMGRD LOGFILE UIC
```

where:

*LOGFILE* is the filename to be used for log and error files. If this argument is supplied, the daemon writes any errors to an error file and all daemon activity is written to a log file (usually, the daemon writes a log of its activities to its standard output). The error file is saved with the filename *LOGFILE. ERR*. The log file is saved with the filename *LOGFILE. LOG*.

*UIC* is the User Identification Code under which the license daemon should be run. The default is [SYSTEM]. The files *LOGFILE. ERR* and *LOGFILE. LOG* will be written to the login directory of the specified UIC. By default, this is the SYS\$MANAGER directory. The *START\_LMGRD* command file can only be invoked by a privileged user such as SYSTEM.

## Automatically Starting the License Manager at Boot Time

To have the license server daemon automatically start every time your servers are booted, you should add the license manager startup command (described above) to the system startup command procedure.

You must modify the system startup procedure to start the daemon. Such changes may be lost when you update the operating system. Keep notes on the changes made, so that you can properly customize new operating system releases.

## Edit the System Startup File

The call to START\_LMGRD.COM should be placed in the system startup file after the call to IDL\_SETUP.COM and after DECnet is started (the license manager requires the use of DECnet). The lines in the system startup file will appear similar to:

```
$ @SYS$SYSDEVICE:[IDL.BIN]IDL_SETUP SYSLOG
$ @IDL_DIR:[BIN]START_LMGRD
```

For operating system versions 6.x and later, this file is named:

```
SYS$MANAGER:SYSTARTUP_VMS.COM
```

## Create DECnet Logical Links

Each IDL invocation requires a pair of DECnet logical links. A typical default for the maximum number of logical links is 32. Therefore, you should increase this parameter on your server node. Setting the number of links to 100 should allow for 30 IDL sessions with a sufficient number of links available for other uses.

To increase the number of available logical links, execute the following series of NCP commands:

```
$ MCR NCP
```

Run the Network Control Program.

```
NCP> SHOW EXEC CHAR
```

Examine the current network characteristics. Look for the line starting with “Maximum Links” to determine the current number of allowed logical links. Set the current number of allowed logical links to 100.

```
NCP> SET EXEC MAX LINKS 100
```

The effect of the SET command lasts only until the next system reboot. Execute the following command to make the changes permanent, setting the number of links to the same number as in the SET command.

```
NCP> DEFINE EXEC MAX LINKS 100
```

## Running Older Versions of IDL Concurrently with IDL 5.4

It is sometimes possible to run older versions of IDL using the IDL 5.4 license manager. If you have both IDL 5.4 and older versions of IDL installed on the same network, refer to [“Running Older Versions of IDL Concurrently with IDL 5.4”](#) on page 119.

# Managing Access to Licenses

Administrators can customize license management by creating an options file. This file allows administrators to:

- Allow or deny access to a product or product features.
- Reserve licenses for users or groups.
- Control what is logged in the report log file.

## The Options File

To customize the license manager, create an options file in a text editor as described below. See “[Sample Options Files](#)” on page 110 for examples.

### Note

---

Any time the options file is modified, the license manager must be stopped and restarted before the changes will take effect.

---

To easily create an options file, follow these guidelines:

1. Use an text editor to create your options file.
2. Save the options file for Research Systems products in the same directory as `license.dat`. The default directory is `RSI-Directory/license`. The options file **must** be named `idl_lmgrd.opt` for any RSI product.
3. Specify each option file feature on a separate line, beginning each line with one of the keywords listed in the table below.
4. Limit the each line to 2048 characters. If the line extends beyond this length, use “\” as a line continuation character.
5. Add comment lines by using # at the beginning of the line.

All items in an options file are case sensitive so be sure user names and group names are defined and entered consistently.

## Altering the License File

Only five data items in the license file can be modified by the user:

- hostnames (but not host IDs) on SERVER lines

- port numbers on SERVER lines
- pathnames on DAEMON lines
- object names on DAEMON lines
- options file pathnames on DAEMON lines

### Warning

Changing any other field other than those mentioned above will render your license file unusable. Individually altering any FEATURE or INCREMENT lines with the feature name `idl` renders the license file unusable.

## Option File Keywords

Keyword	Example	Description
EXCLUDE	<pre>EXCLUDE <i>feature type type_name</i> EXCLUDE idl USER bob</pre> Excludes user “bob” from using IDL.	Can exclude user, group, host, or host_group from using IDL. EXCLUDE takes precedence over INCLUDE statements.
EXCLUDEALL	<pre>EXCLUDEALL <i>type type_name</i> EXCLUDEALL GROUP misfit</pre> Excludes the group misfit from using any IDL feature.	Implicitly allows all except “misfits” to access all features of IDL.
GROUP	<pre>GROUP <i>group user_list</i> GROUP visitor sam kate</pre> Defines users “kate” and “sam” as comprising the group “visitor”.	Defines a list of users as a group to be used with other keywords such as INCLUDE or EXCLUDE.
HOST_GROUP	<pre>HOST_GROUP <i>group host_list</i> HOST_GROUP main hal sam</pre> Defines hosts “hal” and “sam” as the group “main”.	Defines a list of hosts as a group to be used with other keywords such as INCLUDE or EXCLUDE.

Table 5-1: Options File Keywords

Keyword	Example	Description
INCLUDE	INCLUDE <i>feature type type_name</i> INCLUDE idl GROUP visitor Allows only users in the group “visitor” to use IDL.	Includes only specifically identified users or groups. All others are implicitly outside of this group, and denied access.
INCLUDEALL	INCLUDEALL <i>type type_name</i> INLCUDEALL GROUP research Allows all users listed in the group research to use all features of IDL.	Specifies users or groups allowed use of all IDL features.
LINGER	LINGER <i>feature seconds</i> LINGER idl 20 The license manager holds on to a license for an additional 20 seconds after it is checked in.	Causes licenses to be held by the license manager for a specific amount of time after a user exits IDL. Rarely used.
MAX	MAX #lic <i>feature type type_name</i> MAX 6 compile GROUP research Allows only a single user in the Research group to use the compile feature at one time.	Limits usage of a feature among users or groups.
NOLOG	NOLOG <i>event_type</i> NOLOG DENIED NOLOG QUEUED	A separate NOLOG line is needed to turn off logging of events including IN, OUT, DENIED, and QUEUED.
REPORTLOG	REPORTLOG report_log _path REPORTLOG +RSI\license Specifies the reportlog file path.	The “+” indicates that the file is to be appended instead of being over-written each time the manager is started.
RESERVE	RESERVE #lic <i>feature type type_name</i> RESERVE 10 idl USER sam Reserves a single IDL license for the user “sam”.	Ensures that an IDL license will always be available to a specified user or group.

Table 5-1: Options File Keywords (Continued)

## Sample Options Files

### To Reserve Licenses for a Group

The following example shows how to define and reserve a number of licenses for a group of users, and tells the license manager not to log denied requests. Each copy of IDL requires 10 license units on a Workstation-class machine. Comment lines begin with #.

```
# reserve 5 IDL licenses for the research group
RESERVE 50 idl GROUP research
# define the users in the research group
GROUP research josh hal bob kate beth
# exclude anyone on a computer with the name main
EXCLUDE idl HOST main
# do not log license denials
NOLOG DENIED
```

### Note

---

When using INCLUDE or EXCLUDE, anyone not specifically mentioned on a list is implicitly excluded or included. For example, in the above file, everyone who is **not** working on a computer named “main” would be allowed to access IDL. An EXCLUDE statement takes precedence over an INCLUDE statement. If the user “josh” was working on a computer named “main,” he would not be able to access IDL even though there is a license reserved for him.

---

### To Reserve Licenses for Individuals

The following options file reserves licenses for individuals in the group defined above. If you have a group of 10 people, you can specify that a license or licenses will always be available to certain users by using the RESERVE keyword in an options file. The NOLOG line pertains to the IDL QUEUED command which allows a user to wait for an IDL license instead of entering Demonstration mode when a counted license is unavailable. It tells the log file not to record any queue events.

```
# reserve one license for "kate"
RESERVE 10 idl USER kate
# reserve one license for "josh"
RESERVE 10 idl USER josh
# reserve 3 licenses for "hal"
RESERVE 30 idl USER hal
# do not log queue events
NOLOG QUEUED
```

# Working with the License Manager

We supply several license manager support utilities for controlling the operation of the license server daemon. These commands are all found in the BIN subdirectory of the IDL distribution. To define the symbols to run these commands, execute the following DCL command:

```
$ @IDL_Directory:[BIN]SETUP_LMGR_SYMBOLS
```

## Shutting Down The License Manager

To stop the license manager process, enter the following command at the server machine:

```
$ LMDOWN
```

## Obtaining a Host ID

The LMHOSTID program calls the license manager version of gethostid and displays the results. The output of LMHOSTID looks like this:

```
lmhostid-Copyright(C) 1989 - 1994 Globetrotter Software, Inc.  
The FLEXlm host ID of this machine is "08002b1127ce"
```

## Removing a License

If a licensed user is running IDL when the machine crashes, the license that was in use may fail to 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 allow the license to return to the pool of available licenses. The syntax for the LMREMOVE command is:

```
$ LMREMOVE USER HOST DISPLAY
```

The three required arguments correspond to the username, hostname, and terminal device associated with the checked-out license. The LMSTAT command, described below, can be used to obtain this information prior to using LMREMOVE.

**Security Note:** Unauthorized use of the LMREMOVE command can be disruptive because when an IDL session has its license removed, that session will be terminated. You should ensure that the file access modes on your system are sufficiently restrictive. In general, no GROUP or WORLD access is necessary. This is the default protection we apply to LMREMOVE in the IDL distribution.

## License Manager Status

The LMSTAT program provides information about the status of the server nodes, license daemons, and currently checked out licenses. The syntax for the LMSTAT command is:

```
$ LMSTAT [ALL]
```

Options for LMSTAT are described below:

### **ALL**

Include this option to display all available information about the license manager status. If this argument is not present, only a brief summary of the daemon's state is given.



# The License File

The following example license file is built for the license server “HAL” which has the LMHostid 08002B123456. The machine HAL also has an unlimited usage node-locked license given by the FEATURE line. Note the LMHostid 08002B123456 at the end of the VENDOR\_STRING line which goes with the FEATURE line.

There is another system, with the LMHostid number 08002B345678, which has a six user node-locked license given by the first INCREMENT line. The last INCREMENT line allows four floating licenses on the network.

The last line in the license file is the FEATURESSET line which ties all the FEATURE and INCREMENT lines together:

```
SERVER HAL 08002B123456 1700
DAEMON idl_lmgrd IDL_DIR:[BIN]
FEATURE idl idl_lmgrd 5.400 1-jan-00 0 4B2CC001C30469E875D9 \
    VENDOR_STRING="1234-1ACME DATAWACK CORP - 1 MU ON HAL" \
    HOSTID=08002b123456 ck=6
INCREMENT idl idl_lmgrd 5.400 1-jan-00 60 0BFCD0D1CD1EFEC6B3D0 \
    VENDOR_STRING="1234-2ACME DATAWACK CORP - 1 M6 ON TOM" \
    HOSTID=08002b345678 ck=117
INCREMENT idl idl_lmgrd 5.400 1-jan-00 40 3B6CA00113B35B7A9562 \
    VENDOR_STRING="1234-3ACME DATAWACK CORP - 4 FL" ck=5
FEATURESET idl_lmgrd 5D45E884E779B1CB
```

## Note

The INCREMENT line for the six user node-locked license (the first INCREMENT line) shows 60 license units. This is not an error. Each IDL license requires 10 license units. Similarly, the second INCREMENT line for the four floating licenses shows 40 license units.

## The Individual Lines of the License File

The lines in a license file have the following meanings:

### SERVER

There is one SERVER line for each license server node on your network. This line is not present if you have only MU type licenses. The fields contained in this line are:

#### nodename

The name of the machine on which the server is running.

**id**

The string returned by the LMHOSTID command.

**port number**

The server's port number.

**DAEMON**

There is only one DAEMON line (per product) in a license file. This line is not present if you have only type MU licenses. The fields contained in this line are:

**daemon-name**

The name of the daemon that serves the IDL licenses. This daemon is always called `idl_lmgrd`.

**path**

The path to the directory containing the daemon. The daemon is always located in the BIN subdirectory of the IDL distribution.

**object**

The DECnet object number to use. For a full description of network objects, consult the *Guide to DECnet-VAX Networking or the OpenVMS System Manager's Manual: Tuning, Monitoring, and Complex Systems*. The daemon uses object 200 by default but this number can be changed if it conflicts with some other application running on your network. Use the following VMS commands to determine if such a conflict exists:

```
$ RUN SYS$SYSTEM:NCP
NCP> SHOW KNOWN OBJECTS
NCP> EXIT
```

**options**

The pathname of the end-user-specified options file. Such a file lets you customize the behavior of the license server. See [“Managing Access to Licenses”](#) on page 107 for more information.

**FEATURE**

There is one FEATURE line per node-locked host, and a single FEATURE line for floating licenses. The floating license line is always listed after any node-locked FEATURE lines. The fields in a FEATURE line are:

**name**

The name of the program whose license is being managed. This field is always `idl`.

**daemon**

The name of the daemon that controls access to IDL. This field is always `idl_lmgrd`.

**version**

The license version number.

**exp\_date**

Expiration date for this FEATURE.

**#license\_units**

For node-locked licenses, this number equals ten times the number of licenses you own. If this field is set to zero, it indicates an unlimited number of node-locked licenses.

For floating licenses, the number of license units is ten times the number of floating license you own. For example, if you have 3 floating licenses, this field is set to 30.

**code**

The hexadecimal encryption code for this license.

**VENDOR\_STRING**

The user's site number and site notice combined into a single string.

**HOSTID**

If present, the host ID of the machine to which this license is node-locked. This field is only used in node-locked license FEATURE lines. If this field is empty, this license is for floating network licenses.

**ck**

The checksum number can be used to check the validity of the FEATURE or INCREMENT line.

## **INCREMENT**

Some license files may use INCREMENT lines in addition to (or instead of) FEATURE lines. INCREMENT lines contain the same fields as FEATURE lines.

# Multiple Applications Using The Same License Manager

IDL's network license management facility is provided by the Globetrotter's FLEXible License Manager (FLEXlm). Since this license manager is not unique to IDL, the possibility exists that you will need to run software from two or more software vendors that use FLEXlm. In this case, the potential for license server conflict exists. There are two cases to be considered:

- All products and product license managers are installed on the same server.
- The products and product license managers use different servers.

## All Products Use the Same Set of Server Nodes

If a Research Systems product and other vendor product(s) using FLEXlm license management software are all installed on the same server machine, the solution is simple. Combine the license files as described below.

### Note

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Note that you must shut down the license server before editing the license file.

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## Combining License Files

After shutting down the license server, use a text editor to alter 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. Note that IDL requires that a license file be present in the main IDL directory. Other products could refer to the LICENSE.DAT file in the IDL directory via the logical name LM\_LICENSE\_FILE.

After saving the license files in the appropriate locations, restart the license manager with the *most recent* version of `lmgrd` that you have installed. If an older version of `lmgrd` is used, the license manager from the product with a more recent `lmgrd` will not operate correctly.

## The Products Use Different Server

If the products use different license servers, separate license files are required— one for each distinct set of license servers. The resulting license files can then be located

at the locations required by the various software vendors. Note that IDL requires that a license file be present in the main IDL directory.

# Running Older Versions of IDL Concurrently with IDL 5.4

In many cases, it is possible to run older versions of IDL concurrently with the most recent version. If a FEATURE line has the version number 5.400, for example, it will allow IDL 5.4 and all earlier versions of IDL to run. In some cases, new license manager capabilities such as the INCREMENT line may prevent an older versions of IDL from working with the latest version of the license manager. In addition, versions 3.6.x and earlier of IDL need a reformatted version of an IDL 5.4 or later file (see below). No change is required for use with IDL 4.0, 5.0, 5.1, 5.2, 5.3 and 5.4.

## Start the Latest Version of the License Manager

In general, it is important to start the license manager from the latest IDL distribution and use the same license file for the older IDL distribution. The license manager should only be started once, from the new distribution. It should not be started from the old IDL distribution.

# Troubleshooting

If IDL runs in demo mode after you have attempted to license the product, follow the appropriate suggestions below and try running IDL again.

## 1. Is the IDL symbol properly defined?

The VMS command:

```
$ SHOW SYMBOL IDL
```

will tell you the full pathname for IDL. You can verify if the search path is the problem by executing IDL directly. If the command:

```
$ RUN [IDL-directory].BIN.BIN_ALPHA]IDL
```

(where *IDL-directory* is the main IDL directory) works, you know that the logical definition is to blame.

## 2. Check that the server daemon is running.

The LMSTAT license manager utility provides information on the status of the license manager. Enter:

```
$ @IDL-directory:[BIN]SETUP_LMGR_SYMBOLS  
$ LMSTAT
```

## 3. Stop and restart the license manager.

Stop the license manager, then restart it, directing the output of the daemon to a file. Enter the following commands at the server machine:

```
$ @IDL-directory:[BIN]SETUP_LMGR_SYMBOLS  
$ LMDOWN
```

Restart the license manager, directing the output to a log file:

```
$ @IDL_DIR:[BIN]START_LMGRD LOGFILE
```

Examine the resulting file LOGFILE.ERR for error messages.



#### **4. If you receive the error message: %LICENSE MANAGER: encryption code in license file is inconsistent.**

If you receive the error message shown above, there is an error in the FEATURE or INCREMENT line in your license file. Check the contents of the license file to confirm that they are the same as the file Research Systems sent you.

#### **5. If you receive the error message: %Unexpected validation error.**

If you receive the error message shown above, IDL is unable to access the LICENSE.DAT file and an invalid evaluation license file is located in the main IDL directory. Check that the correct license file is located in the main IDL directory, that it has the name LICENSE.DAT, and that its file protections include read permission (use the command DIR/FULL LICENSE.DAT).

#### **6. If you receive the error message: %LICENSE MANAGER: cannot connect to license server.**

If you receive the error message shown above, the license server is not running or your network is not working properly. Check that the network is operating (e.g., set the host to another machine). If you can remotely log into another machine, ensure that the license manager is running by entering:

```
$ @IDL-directory:[BIN]SETUP_LMGR_SYMBOLS
$ LMSTAT
```

#### **7. Check out the Globetrotter Web Site.**

The Globetrotter Web site contains on-line documentation and an excellent FLEXlm FAQ. This information can be helpful when trying to combine licenses from different vendors. See the following Web pages:

Globetrotter home page: <http://www.globetrotter.com>

FLEXlm FAQ: <http://www.globetrotter.com/flmfaq.htm>

#### **8. Contact Research Systems Technical Support.**

If the above suggestions do not clear up the problem, contact Research Systems technical support at (303) 413-3920 or by e-mail at [support@ResearchSystems.com](mailto:support@ResearchSystems.com). International customers should contact their local RSI office or distributor for technical support.

It is often helpful to submit a copy of your license file as well as a copy of any error messages produced by IDL or the license manager program.

