

Installation and Licensing Guide

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Chapter 1

System Requirements

This section describes supported platforms and software requirements.

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IDL and ENVI

Hardware and Operating System Requirements

A network interface card (NIC or Ethernet) is required for software-based node-locked and floating licenses.

The following table describes the supported platforms and operating systems for IDL and ENVI. ENVI Zoom is not supported on AIX and IRIX platforms.

Platform	Vendor	Hardware	Operating System	Supported Versions
Windows	Microsoft	Intel/AMD x86 32-bit	Windows	2000 ^a , XP, Vista
		Intel/AMD x86_64 64-bit	Windows	XP, Vista
Macintosh ^b	Apple	PowerMac G4, G5 32-bit	OS X	10.4
	Apple	Intel Core Duo 32-bit	OS X	10.4 ^c
UNIX ^b	IBM	RS/6000 32-bit	AIX	5.1
	IBM	RS/6000 64-bit	AIX	5.1
	SGI	Mips 32-bit	IRIX	6.5.1
	SGI	Mips 64-bit	IRIX	6.5.1
	SUN	SPARC 32-bit	Solaris	9, 10
	SUN	SPARC 64-bit	Solaris	9, 10
	various	Intel/AMD x86 32-bit	Linux ^d	Kernel version 2.4 Kernel version 2.6 glibc version 2.3
	various	Intel/AMD x86_64 64-bit	Linux ^d	Kernel version 2.4 Kernel version 2.6 glibc version 2.3

Table 1-1: Hardware Requirements for IDL and ENVI

^a Windows 2000 Service Pack 4 is required.

^b For UNIX and Mac OS X, the supported versions indicate that IDL and ENVI were either built on (the lowest version listed) or tested on that version. You can install and run IDL and ENVI on other versions that are binary compatible with those listed.

^c For Mac OS X on Intel-based computers, version 10.4.8 or later and the X11 Update version 1.1.2 (November 2006) are required.

^d If your version of Linux is compatible with the listed kernel and glibc versions, you should be able to install and run IDL and ENVI.

32-bit and 64-bit Versions

On UNIX platforms that provide 64-bit support, you can run IDL or ENVI as either a 32-bit or a 64-bit application. When both versions are installed, the 64-bit version is the default. You can run the 32-bit version by specifying the `-32` switch at the command line, as follows:

```
% idl -32
% envi -32
% envizoom -32
```

Under Microsoft Windows, the 32-bit and 64-bit versions are started via separate Start menu entries.

Graphics Hardware

Some IDL and ENVI Zoom features take advantage of graphics hardware that supports the OpenGL 2.0 interface to improve rendering performance, if such hardware is present. Your video card should support OpenGL 2.0 or higher to take advantage of the graphics features in IDL and ENVI Zoom.

Platform Support Questions and Answers

The ITT Visual Information Solutions Technical Support department maintains a list of common platform and operating system support questions and answers. Please see [Tech Tip 3635](#) on the ITT Visual Information Solutions Web site for additional information.

Software Requirements

The following table describes the software requirements for IDL and ENVI:

Platform	Software Requirements
Windows	Internet Explorer 5.0 or higher
Macintosh	Apple X11 X-Windows manager

Table 1-2: Software Requirements for IDL and ENVI

ION

ION (IDL On the Net) is a family of products that allows you to run IDL-driven applications in a networked environment, giving intranet or Internet users access to IDL visualization and analysis.

The ION family consists of two products:

- ION Script
- ION Java

Hardware and Operating System Requirements

ION Script and ION Java can be used separately or together to create interactive Web applications powered by IDL. These two products are available as options during installation of IDL or ENVI for Windows or UNIX.

ION 6.4 works with IDL 6.4 on the following platforms:

- Microsoft Windows (32-bit)
- SGI IRIX (32-bit)
- Sun Solaris (32-bit)
- Linux (32-bit)

Web Server Requirements for ION

In order to use ION, you must install an HTTP Web server. ION has been tested with the following Web server software:

- Apache Web Server version 2.0 for Windows, Linux, and Solaris
- Apache Web Server version 1.3.14 for IRIX (included with the IRIX operating system)

Web Browser Requirements for ION

ION supports the HTTP 1.0 protocol. The following are provided as examples of popular Web browsers that support HTTP 1.0:

- Mozilla Firefox version 1.0 and later
- Netscape Navigator — Versions 4.7 and later
- Microsoft Internet Explorer — Versions 5.5 and later

Browsers differ in their support of HTML features. As with any Web application, you should test your ION Script or Java application using Web browsers that anyone accessing your application is likely to be using.

Java Virtual Machine Requirements for ION

The following are provided as examples of popular Web browsers that are shipped with the required JVMs:

- Mozilla Firefox version 1.0 and later
- Netscape Navigator versions 4.7 and later
- Microsoft Internet Explorer versions 5.5 and later

Feature Support by Operating System

IDL Features

IDL technologies not listed in this table are assumed to work on all supported platforms.

Feature	Windows		OS X	Linux		Solaris		AIX		IRIX	
	32-bit	64-bit	32-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit
ActiveX: WIDGET_ACTIVEX (IDLcomActiveX object)	•										
COM Object –Export (via Export Bridge Assistant)	•										
COM Object –Import (IDLcomIDispatch object)	•										
DataMiner	•			• ^a		•		•		•	
DICOM Network Services	•		• ^d	•		•					
DICOM Read/Write (IDLffDicomEx object)	•		• ^d	•		•					
DXF file format (IDLffDXF object)	•			•		•		•		•	
GUIBuilder	•	•									
IDL_IDLBridge	•	•	•	•	•	•	•				
ION	•			•		•				•	
Java Object –Export (via Export Bridge Assistant)	•	•	• ^c	•	•	•	•				

Table 1-3: Feature Support: IDL 6.4

Feature	Windows		OS X	Linux		Solaris		AIX		IRIX	
	32-bit	64-bit	32-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit
Java Object –Import (IDLjavaObject) ^b	•		•	•		•	•			•	
Motion JPEG2000 (IDLffJPEG2000)	•	•	•	•	•	•	•				
MrSID (IDLffMrSID)	•										
Network access support: IDLnetURL IDLnetOGCWCS IDLnetOGCWMS	•	•	•	•	•	•	•				
Flexible single-user license	•	•	•	•	•						
Remote Procedure Calls (RPCs)			•	•	•	•	•	•	•	•	•
Semaphores	•	•	•	•	•	•	•			•	•
tty-based interface			•	•	•	•	•	•	•	•	•

Table 1-3: Feature Support: IDL 6.4 (Continued)

^a DataMiner is not supported on Red Hat Enterprise 4 or Fedora Core 3.

^b Java Virtual Machine Requirements for the IDL-Java Bridge — IDL supports version 1.3.1 and greater on all platforms except for Macintosh (the supported version is 1.3.x) and SUN SPARC 64-bit (the supported version is 1.4.x and greater).

^c Graphical Java objects cannot be exported under Macintosh OS X.

^d DICOM Network Services and DICOM Read/Write functionality are supported with the PowerPC Macintosh IDL binary version, but not with the Intel-based Macintosh binary version. The IDLffDICOM object is supported on all platforms except 64-bit Windows.

ENVI Features

The following ENVI features are provided in addition to the features listed above for IDL. ENVI technologies not listed in this table are assumed to work on all supported platforms.

Feature	Windows		OS X	Linux		Solaris		AIX		IRIX	
	32-bit	64-bit	32-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit	32-bit	64-bit
ENVI – FLAASH module ^e	•			•	•	•	•			•	
ENVI – tape utilities ^e	•		•	•	•	•	•	•	•	•	
ENVI – reading ECW files ^e	•										
ENVI – reading/writing ESRI GRID files ^e	•										
ENVI – GPS Link ^e	•										
ENVI – Reading MrSID files ^e	•										
ENVI – RemoteView link	•					•	•				
ENVI – Intelligent Digitizer	•	•	•	•	•	•	•				
ENVI Zoom	•	•	•	•	•	•	•				
ENVI Zoom – JPIP/IAS ^e	•		•	•			•				
ENVI Zoom – OGC	•	•	•	•	•	•	•				
ENVI Zoom – OGC/OGC in ENVI and ENVI Zoom	•	•				•	•				

Table 1-4: Feature Support: ENVI 4.4

^e Windows users: these ENVI functions only run in 32-bit mode. If you have a 64-bit Windows PC and you want to use these functions, run ENVI in 32-bit mode by selecting **Start** → **Program Files** → **ENVI x.x** → **32-bit** → **ENVI** or **ENVI + IDL**.

Chapter 2

Installing IDL or ENVI for Windows

This chapter covers the following topics:

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Introduction

You must have Administrator privileges or be a member of the Administrator group to install IDL or ENVI. If you do not have such privileges, the installation process cannot modify the system configuration of the machine, so it will fail. After you have installed IDL or ENVI, you *do not* need Administrator privileges to run it.

After you have installed IDL or ENVI (see “[Running the Installer](#)” on page 19), use the license wizard to retrieve and install a license. You can run the license wizard anytime by selecting **Programs** → **IDL x.x** → **License Wizard** or **Programs** → **ENVI x.x** → **License Wizard** from the Windows Start menu.

Warning

You must have Administrator privileges to install licenses or to start or stop the license manager.

Installing IDL or ENVI for Windows

This section describes how to install IDL or ENVI on Windows platforms.

Running the Installer

You may be required to restart your computer during the installation process. To avoid losing unsaved information, save all open files and close any open applications before installing IDL or ENVI.

If you are prompted to reboot after installation, you may need to run the license wizard by selecting one of the following:

- **Start** → **Programs** → **IDL x.x** → **License Wizard**
- **Start** → **Programs** → **ENVI x.x** → **License Wizard**

To install IDL or ENVI:

1. Insert the CD-ROM in your CD-ROM drive. After a short delay, the installer starts. If the installer does not start automatically, select **Start** → **Run**. In the **Run** dialog, type `x:\autorun.exe`, where *x* is the name of your CD-ROM drive, and click **OK**.
2. Click **Install 32-bit software** or **Install 64-bit software** (where *software* refers to IDL or ENVI) from the autorun program. The **InstallShield Wizard** dialog appears.
3. Click **Next**. The **License Agreement** dialog appears.
4. Read the license agreement, then click **Yes** if you agree. The **Choose Destination Location** dialog appears.
5. Select the installation directory. The default installation directory displays, which is `Program Files\ITT` on the local hard drive. To install in a different location, click **Browse**. In the **Choose Folder** dialog, select an alternate location and click **OK**.

The installation directory will be referred to as *ITT_DIR* for the remainder of the installation and licensing instructions.

If you are installing 64-bit IDL or ENVI, the installer installs all of the files for 32-bit and 64-bit versions. For information on running IDL or ENVI in either mode, see [“Running IDL or ENVI under Windows”](#) on page 23.

If you are installing ENVI, and IDL is already installed on your system, ENVI is automatically installed below the IDL distribution in the `\products` folder. The **Destination Folder** dialog will not appear, and you will not be able to choose a path for your ENVI installation. If you do not want ENVI installed in this path, you must uninstall IDL and reinstall it in the path where you want ENVI to be installed.

Click **Next** to accept the directory that is displayed. The **Select Features** dialog appears.

6. The typical installation features are pre-selected and indicated by check marks. Clicking a feature displays information about that option. To add a feature to your installation, click to enable the check box and install the feature on your hard drive. To not install a feature, click to clear the check box.

If you choose to install the DICOM Network Services module, you will be asked if you want to configure the network services to start automatically at boot time.

If you choose to install the IDL On the Net (ION) software, you will be prompted for ION configuration information.

Click **Next** to continue.

7. If you choose to install ION Java, you will be prompted to enter your Web server's default directory containing HTML files to automatically copy the necessary ION Java files to the Web server directory. This directory is often called `htdocs` (on the Apache Web server) or `wwwroot` (on the IIS Web server). For the Apache Web Server, the path to this directory might be similar to the following:

```
C:\Program Files\Apache Group\Apache2\htdocs
```

Enter the path and click **Next** to continue.

If you have installed a previous version of ION Java and have an existing `IONJava` directory within the `htdocs` directory, it will be renamed to `IONJava.backup`.

8. If you choose to install ION Script, the **Web Server Configuration** dialog will prompt you for the location of your Web server's CGI executables directory. Following is the default location if you did not select to install the ION Java component:

```
C:\Program Files\Apache Group\Apache2\cgi-bin
```

If you selected to install the ION Java component and previously entered a location for the Apache Web Server (the `htdocs` directory), the Web server field in the **Web Server Configuration** dialog contains this string with `cgi-bin` replacing `htdocs`; for example:

```
C:\Program Files\Apache Group\Apache2\cgi-bin
```

If you leave the Web server field blank because you have not yet installed a Web server, you will need to manually copy `ion-i.exe` and `ion-p.exe` from the `ITT_DIR\idlxx\products\ion_script\cgi-bin` directory to the CGI executables directory of your Web server after it has been installed.

9. In the second field of the **Web Server Configuration** dialog, specify the fully qualified domain name and path to the CGI executables directory for your Web server. For example:

```
myhost.mydomain.com/cgi-bin
```

Enter the domain name and path, and click **Next** to continue.

If you leave this field blank because you have not yet installed a Web server, the installer will use your Windows machine name, and the path to your CGI executables

directory will be assumed to be `\cgi-bin`. To access ION over the Internet once you have installed your Web server, you will need to update the Image Server and ION Script Parser URLs on the **URLs** tab of the ION Script Configuration utility (**Start** → **Programs** → **ION x.x** → **ION Script Configuration**) to use the fully qualified domain name and the proper path to your Web server's CGI executable directory. For more information, see “[Configuring ION Script for Windows](#)” (Chapter 1, *ION Script User's Guide*).

10. If you are installing ENVI, a dialog appears that asks if you want to register the JPIP URL file type with ENVI Zoom. Click **Yes** to register this file type.
11. The **Start Copying Files** dialog appears. Click **Next**. The **Setup Status** dialog appears and shows the installation progress.
12. When installation is complete, you are prompted to run the license wizard. See “[Using the License Wizard](#)” on page 49. If you choose not to run the license wizard as part of the installation process, you can click **No** and run it later by selecting **Programs** → **IDL x.x** → **License Wizard** or **Programs** → **ENVI x.x** → **License Wizard** from the Windows Start menu.

A dialog appears that indicates the installation was successful.

13. By default, the release notes appear once you click **Finish**. You can uncheck this option in the completion dialog if you wish.
14. Your installation is now complete.

To modify or repair your installation, insert the installation CD-ROM and click **Install 32-bit software** or **Install 64-bit software** (where *software* refers to IDL or ENVI) from the autorun program. From the **Program Maintenance** dialog, you can modify the installed components or repair your installation.

Installing IDL or ENVI Silently and Unattended

You can install IDL or ENVI unattended by creating an install script. Run this function using the `/s` and `/f1` parameters on the `setup32.exe` file (`setup64.exe` for 64-bit software) for the installation. Choose a syntax below to run the install script, depending on your platform (32-bit or 64-bit). The command is one line:

```
<CD-ROM>:setup32.exe /s
/f1 "<CD-ROM>:unattend32.iss"
```

Or,

```
<CD-ROM>:setup64.exe /s
/f1 "<CD-ROM>:unattend64.iss"
```

The `setupxx.exe` file and a sample `unattend.iss` response file are located on the installation CD. The sample `unattend.iss` is set up to install all features by default. Use this file as an example to create your own `.iss` file.

To record your own `unattend32.iss` or `unattend64.iss` response file, run the installer with the following command:

```
<CD-ROM>:setup32.exe /r /f1"C:\unattend.iss"
```

OR,

```
<CD-ROM>:setup64.exe /r /f1"C:\unattend.iss"
```

Note

If you are running the silent installer on Windows Vista, you must have elevated privileges to run the above commands.

Select the desired features and responses during this installation. The resulting response file can be used with future silent installations.

Prerequisites

For the silent installer to be successful, the target system must have the MSI Installer Engine version 3.1, which is available directly from Microsoft.

Running IDL or ENVI under Windows

To run IDL under Windows, select **Start** → **Programs** → **IDL x.x** → **IDL**.

Note

If you have 64-bit IDL installed, you can select either 32-bit or 64-bit IDL from the Windows **Start** menu. The command above starts 64-bit IDL if you are on a 64-bit platform. You can start 32-bit IDL by selecting **Start** → **Programs** → **IDL x.x** → **IDL (32-bit)** → **IDL**.

To run ENVI under Windows, select **Start** → **Programs** → **ENVI x.x** → **ENVI**.

To run ENVI + IDL under Windows, select **Start** → **Programs** → **ENVI x.x** → **ENVI + IDL**.

Running ENVI Zoom under Windows

Select one of the following options. The ENVI Zoom interface appears when the program is loaded and started.

- Select **Start** → **Programs** → **ENVI x.x** → **ENVI Zoom**.
- From the ENVI main menu bar, select **File** → **Launch ENVI Zoom**. You can open both ENVI and ENVI Zoom from the same IDL session.
- If you are running IDL or ENVI + IDL, type `envi zoom` at the IDL command line.

Running the IDL Virtual Machine under Windows

To run a `*.sav` file in the IDL Virtual Machine, you can launch the IDL Virtual Machine and open the `*.sav` file, or launch the `*.sav` file in the IDL Virtual Machine from the command line.

To open a `*.sav` file from the IDL Virtual Machine:

1. Select **Start** → **Programs** → **IDL x.x** → **IDL Virtual Machine** or **Start** → **Programs** → **ENVI x.x** → **IDL Virtual Machine** to launch the IDL Virtual Machine and to display the IDL Virtual Machine window.
2. Click anywhere in the window to dismiss the IDL Virtual Machine splash screen and to display the file selection menu.
3. Locate and select the `*.sav` file, and double-click or click **Open** to run it.

To run a `*.sav` file from the command-line prompt:

1. Open a command-line prompt. Select **Run** from the **Start** menu, and enter `cmd`.

2. Change directory (`cd`) to the `ITT_DIR\IDLxx\bin\bin.<platform>` directory where `<platform>` is `bin.x86` (32-bit machines) or `bin.x86_64` (64-bit machines).
3. Enter the following at the command-line prompt:

```
idlrt -vm=<path><filename>
```

where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file.

Note

If a license is available on the machine running the `*.sav` file, double-clicking the `*.sav` file will run it in the licensed runtime version of IDL. To force the `*.sav` file to run in the Virtual Machine, run it from the command line with the `-vm` argument.

Running IDL Runtime Programs under Windows

To run a `*.sav` file in the runtime version of IDL, do either of the following:

- Double-click the runtime application `*.sav` file to launch the application. If an IDL license is not available, the application will run in the IDL Virtual Machine.
- Open a command-line prompt. Select **Run** from the **Start** menu, and enter `cmd`. Change directory (`cd`) to the `ITT_DIR\bin\bin.<platform>` directory, where `<platform>` is `bin.x86` (32-bit machines) or `bin.x86_64` (64-bit machines). Enter the following at the command line prompt:

```
idlrt <path><filename>
```

where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file.

Chapter 3

Installing IDL or ENVI for UNIX

This chapter covers the following topics:

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Introduction

Check your OS version: make sure that you are running on one of the supported UNIX versions listed in [“System Requirements”](#) on page 7, or a UNIX version that is binary-compatible with one of these versions.

You must be running X Windows: the IDL or ENVI installation program has a Motif graphical user interface and requires you to be running X Windows. (IDL only: If you cannot install from a machine running X Windows, see the instructions in the `/install/no_gui` directory on your IDL CD-ROM.)

After you have installed IDL or ENVI (see [“Running the Installer”](#) on page 28), use the license wizard to retrieve and install a license. You can license IDL or ENVI later by typing `ittlicense` at the UNIX prompt after running the `source` commands described in [“Defining Environment Variables and Aliases”](#) on page 32.

Installing IDL or ENVI for UNIX

This section describes how to install IDL or ENVI on UNIX platforms.

Mounting the CD-ROM on Your System

IDL and ENVI for UNIX installation programs are distributed on two CD-ROMs:

- Solaris and Linux
(Mounts as `idl_xx` or `envi_xx`)
- AIX and IRIX
(Mounts as `idl_xx_ibm_sgi` or `envi_xx_ibm_sgi`)

Make sure you have the correct CD-ROM for the platform you are installing.

Some platforms automatically mount the CD-ROM when you insert it into your CD-ROM drive. In some cases, you might need to create a `/cdrom` directory. In most cases, the CD-ROM is mounted as described above.

The following instructions work in most cases for the platform listed. Consult your operating system documentation for instructions on mounting a CD-ROM on your system. Replace *CDROM-Dev* with the actual name of the CD-ROM drive on your system. Type mounting commands as a single line. On most systems, you must have root permissions to mount the CD-ROM.

Platform	CD Mounting Command	Typical CDROM-Device Name
IBM AIX	<code>mount -r -v cdrfs CDROM-Dev /cdrom</code>	<code>/dev/cd0</code>
Linux	<code>mount -o ro -t iso9660 CDROM-Dev /mnt/cdrom</code>	<code>/dev/cdrom</code>
SGI IRIX	(automatically mounted as <code>/CDROM/</code>)	
SUN Solaris	(automatically mounted by volume manager as <code>/cdrom</code>)	

Table 3-1: CD-ROM Mounting Commands

Remember how your CD-ROM has been mounted, and use this path in place of *CDROM-PATH* in the installation instructions.

Running the Installer

Follow the steps below to install IDL or ENVI. If you are installing in a public directory, make sure you have root or similar permissions before running the installation script.

1. Enter the following command at your UNIX prompt:

```
/bin/sh /CDROM-PATH/xinstall.sh
```

where *CDROM-PATH* is the path to your CD-ROM drive.

The **License Agreement** dialog appears.

2. To continue the installation, you must accept the terms of the license agreement by clicking **Yes**. The **Installation** dialog appears.
3. The directory listed next to the **Set Directory** button is the directory under which the `idlxx` or `enviyy` directory will be created (where *xx* is the software version). The default installation directory is `/usr/local/itt`. The installation directory will be referred to as *ITT_DIR* for the remainder of the installation and licensing instructions.
4. To change the default directory, click **Set Directory**. The **Select Installation Directory** dialog appears. If you do not have write permissions for the selected directory, it appears as gray text. The selected directory will be created for you if it does not already exist.

If you are installing ENVI, and IDL is already installed on your system, you can install ENVI below the IDL distribution. If you want to install ENVI in this location, click **Set Directory** and choose the directory that contains the `idlxx` directory (the default location for IDL is `/usr/local/itt`). If you do not select the same path, another IDL distribution is installed with ENVI.

When you have selected the installation directory and have made sure you have enough disk space, click **OK** in the **Select Installation Directory** dialog.

5. In the **Installation** dialog, the typical installation features are pre-selected. To add a feature to your installation, click the check box to install the feature on your hard drive. To remove a feature from your installation, click to clear the check box.
6. The installer defaults to the platform on which you are running the installation script. Select or deselect platforms by clicking on the check box next to the option in the **Installation** dialog. Select the appropriate platforms for any machines that will run IDL or ENVI on your network. When installing on a 64-bit machine, both the 32- and 64-bit check boxes will be checked by default.
7. If the options shown in the dialog are correct, click **OK**. The **Installation Summary** dialog appears.
8. The **Installation Summary** dialog displays the options and platforms you have chosen to install. If these selections are correct and you have the required disk space available, click **Install** to copy the IDL or ENVI files from the CD-ROM to the chosen directory. If these options are not correct, click **Cancel** to return to the **Installation** dialog.

If you choose to install the DICOM Network Services module, you will be asked if you want to configure the network services to start automatically at boot time.

9. **Set up symbolic links.** Once the installation script has finished copying files to the installation directory, the **Product Environment** dialog appears, prompting you whether or not to create symbolic links.

Symbolic links are shortcuts to the IDL or ENVI executables that you can create in your home directory or in any directory you specify that users can execute to start IDL or ENVI. If you want to create symbolic links, click **Create Links**. The **Product Links** dialog appears.

If you choose not to create symbolic links at this time, you can create them after installing IDL or ENVI by doing one of the following:

- Use the `ITT_DIR/idlxx/bin/install` (or `ITT_DIR/idlxx/products/envi1xx/bin/install`) executable to create the symbolic links for you. `ITT_DIR` denotes the installation directory. You must execute this script from `ITT_DIR`. Enter the following command to create the symbolic links:

```
ITT_DIR/idlxx/bin/install
```

Or,

```
ITT_DIR/idlxx/products/envi1xx/bin/install
```

- Note the commands you will need to execute to manually create symbolic links. These commands are displayed at the end of the installation process.

If you choose not to create symbolic links, skip the next step.

10. Choose the directory in which to create the symbolic links. This can be your home directory or any other directory from which you want to start IDL or ENVI. The default directory is `/usr/local/bin`, which is commonly already in your `PATH` system environment variable. To change from the default, click the **Set Directory** button. If you do not have write permissions for the selected directory, it will appear as gray text. The selected directory will be created for you if it does not already exist.
11. If you choose to install ION Script, a Script Web Server Configuration dialog prompts you for the location of your Web server's CGI executables directory. Enter these locations and click **OK**. Click **Cancel** if you want to skip this step. You can complete the ION Script configuration at a later time. See [“Manually Configuring Your UNIX Web Server”](#) (Chapter 1, *ION Script User's Guide*) for more information.
12. If you choose to install ION Java, a Java Web Server Configuration dialog prompts you for the location of the Web server's HTML files and the hostname. Enter this information and click **OK**. Click **Cancel** if you want to skip this step. You can complete the ION Java configuration at a later time. See [“Manually Configuring Your Web Server”](#) (Chapter 1, *ION Java User's Guide*) for more information.

13. To license IDL or ENVI now, click **Yes** in the **Licensing/Registration Program** dialog. See “[Using the License Wizard](#)” on page 49. You can license IDL or ENVI later by typing `ittlicense` at the UNIX prompt after running the source commands described in “[Defining Environment Variables and Aliases](#)” on page 32.) To license IDL or ENVI later, or to run IDL in seven-minute demonstration mode, click **No**.
14. The Installation Complete dialog appears. Click **Exit**.

Unmounting the CD-ROM from Your System

You can now unmount the CD-ROM using one of the following commands, where *CDROM-Device* is the name of your CD-ROM drive:

```
umount /CDROM-Device
```

Or,

```
eject /CDROM-Device
```

Permissions Error Message

Following is a common error message that may appear while installing IDL or ENVI from a CD-ROM on a Linux system:

```
sh /mnt/cdrom/xinstall.sh
/mnt/cdrom/xinstall.sh:
/mnt/cdrom/install/xinstall/xinstall.linux: Permission denied
/mnt/cdrom/xinstall.sh:
/mnt/cdrom/install/xinstall/xinstall.linux: Permission denied
```

This error message usually occurs when the `user` option (which allows normal users to mount CD-ROMs) is set on the CD-ROM device in `/etc/fstab`. By default, the `user` option prevents all users (including root) from executing programs on the CD-ROM, even if the file’s `execute` permission is set. The `xinstall` program tries to execute programs directly from the CD-ROM, which causes the installation to fail. Perform the following steps to prevent this error:

1. Unmount your CD-ROM:

```
umount /mnt/cdrom
```

2. Change your `/etc/fstab` entry to include the `exec` option, which allows you to execute programs directly from the CD-ROM. For example, the `/etc/fstab` entry for your CD-ROM drive may resemble the following:

```
/dev/cdrom /mnt/cdrom iso9660 user,ro,exec 0 0
```

(Root privileges are normally required to alter the `/etc/fstab` file.)

3. Remount the CD-ROM and proceed with the installation.

```
mount /mnt/cdrom  
sh /mnt/cdrom/xinstall.sh
```

The name of the CD-ROM device (in this case, `/dev/cdrom`) and its mount point (`/mnt/cdrom`) may be different on your system. Consult the manpage for the `mount` command for a more detailed description of the `/etc/fstab` file and the options used in this procedure.

Setting Up the Environment

Before you can run IDL or ENVI on a UNIX platform, you must set up each user's environment on the machine that will be running it. Each user will need to complete the following tasks:

- Defining the required environment variables and aliases
- Defining the required ION environment variables and aliases
- Defining the path to the license file or license server

Defining Environment Variables and Aliases

Three setup scripts (`idl_setup`, `idl_setup.ksh`, and `idl_setup.bash`) are provided for IDL, and three scripts (`envi_setup`, `envi_setup.ksh`, and `envi_setup.bash`) are provided for ENVI. These scripts set all required environment variables and aliases for IDL and ENVI. You should modify the `.cshrc`, `.profile`, or `.bashrc` file for each user who will be accessing IDL or ENVI, so that these settings are automatically executed whenever a user logs in.

To modify the `.cshrc`, `.profile`, or `.bashrc` files, complete the following steps:

1. Modify each user's `.cshrc`, `.profile`, or `.bashrc` file using any plain text editor.

For C shell users, add the following line to your `.cshrc` files:

```
source ITT_DIR/idlxx/bin/idl_setup
```

Or,

```
source ITT_DIR/idlxx/products/envixx/bin/envi_setup
```

For Korn shell users, add the following line to your `.profile` files:

```
. ITT_DIR/idlxx/bin/idl_setup.ksh
```

Or,

```
. ITT_DIR/idlxx/products/envixx/bin/envi_setup.ksh
```

For Bash shell users, add the following line to your `.bashrc` files:

```
. ITT_DIR/idlxx/bin/idl_setup.bash
```

Or,

```
. ITT_DIR/idlxx/products/envixx/bin/envi_setup.bash
```

where `ITT_DIR` is the main installation directory and `xx` is the software version.

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

For C shell: `source .cshrc`

For Korn shell: `. .profile`

For Bash shell: `. .bashrc`

Defining ION Environment Variables and Aliases

If you installed ION during your IDL installation, you will need access to ION Service utilities, as well as IDL-related environment variables and aliases, and you will need to define the `ION_DIR` environment variable to point to the main ION directory. A script called `ion_setup` (`ion_setup.ksh` for Korn shell or `ion_setup.bash` for Bash shell) is located in the `ITT_DIR/idlxx/products/ionxx/bin` directory. This script, along with `idl_setup` and `envi_setup`, lets you use the `ittlicense` command to start the license wizard and run the `ionman` command to launch the IDL Assistant help viewer. To automatically set up your environment upon login, do the following:

1. Modify your `.cshrc`, `.profile`, or `.bashrc` file using any plain text editor.

For C shell users, add the following line to your `.cshrc` files:

```
source ITT_DIR/idlxx/products/ionxx/bin/ion_setup
```

For Korn shell users, add the following line to your `.profile` files:

```
. ITT_DIR/idlxx/products/ionxx/bin/ion_setup.ksh
```

For Bash shell users, add the following line to your `.bashrc` files:

```
. ITT_DIR/idlxx/products/ionxx/bin/ion_setup.bash
```

where `ITT_DIR` is the main installation directory and `xx` is the software version.

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

For C shell: `source .cshrc`

For Korn shell: `. .profile`

For Bash shell: `. .bashrc`

Running IDL or ENVI under UNIX

You can start IDL, ENVI, or any of the following executables by entering one of the following commands:

Command	Description
<code>envi_rt</code>	Starts ENVI.
<code>envi</code>	Starts ENVI + IDL.
<code>envihelp</code>	Starts ENVI Help.
<code>envizoom</code>	Starts ENVI Zoom.
<code>idl</code>	Starts IDL in command line access mode.
<code>idlde</code>	Starts IDL Development Environment.
<code>idl -vm</code>	Starts IDL Virtual Machine.
<code>idl -rt</code>	Starts the runtime version of IDL.
<code>ittlicense</code>	Starts the license wizard.
<code>idldemo</code>	Starts the IDL Demo Applications. You can also type <code>demo</code> at the IDL prompt after you have started IDL.
<code>idlhelp</code>	Starts the IDL and ION online help.

Table 3-2: Startup Commands

For versions of UNIX that provide both 32- and 64-bit architectures, run the commands in [Table 3-2](#) in 32-bit mode by entering a `-32` flag after the command (e.g., `idl -32`). If these commands do not produce the expected results, you need to set environment aliases. See [“Setting Up the Environment”](#) on page 32.

Running the IDL Virtual Machine under UNIX

To run a `*.sav` file in the IDL Virtual Machine:

1. Enter `idl -vm=<path><filename>.sav` at the system command prompt, where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file. The IDL Virtual Machine window displays.
2. Click anywhere on the IDL Virtual Machine window to close the window and run the `*.sav` file.

To launch the IDL Virtual Machine and select a `*.sav` file to open:

1. Enter `idl -vm` at the system command prompt. The IDL Virtual Machine window is displayed.
2. Click anywhere on the IDL Virtual Machine window to display a file selection menu.
3. Open a `*.sav` file from the file selection menu.

Running IDL Runtime Applications under UNIX

To run a `*.sav` file in the runtime version of IDL:

1. Enter `idl -rt=<path><filename>.sav` at the system command prompt, where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file.
2. The application contained in the `*.sav` file is run in the runtime version of IDL.

Note

When a `*.sav` file is run with the `idl -rt` command on a machine without an IDL license, it will run in the IDL Virtual Machine.

Chapter 4

Installing IDL or ENVI for Macintosh

This chapter covers the following topics:

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Running IDL or ENVI under Macintosh . . .	40

Installing IDL or ENVI for Macintosh

Running the Installer

First, install Apple X11 from the Mac OS X CD-ROM. Then, install IDL or ENVI. The X11 window manager lets you display and manipulate UNIX X-Windows in a way similar to the native Mac OS X Aqua interface.

Installing Apple X11

Apple X11 is not installed by default with Mac OS X. If it is not installed, follow these instructions:

1. Insert the Apple Mac OS X CD-ROM in your CD-ROM drive.
2. Install X11 on your Macintosh via the optional package installer program.

Installing IDL or ENVI

1. Insert the IDL or ENVI CD-ROM in your CD-ROM drive. The software volume window appears. If the window does not appear, double-click the CD-ROM icon.
2. Double-click the **Install** icon. The **Introduction** dialog appears.
3. Click **Next** to begin installation. A warning message may appear that indicates you must have administrator privileges if you plan to install IDL or ENVI in a public directory. Click **Yes** to continue. The **License Agreement** dialog appears.
4. To continue the installation, you must accept the terms of the ITT Visual Information Solutions license agreement. Click **Next**. The **Choose Install Folder** dialog appears.
5. Select the installation folder. The default folder is `/Applications/itt`. To modify this location, click on **Choose**. The path must not contain any spaces in the folder names. Click on **Next** to begin the installation.

If the installation folder or any folder in the path to the installation folder contains spaces in its name, IDL and ENVI will not run. Rename the folder without spaces before you install, or use the default `/Applications/itt` installation path.

The installation directory contains the IDL or ENVI software. For example:

```
/Applications/itt/idlxx
```

Or,

```
/Applications/itt/idlxx/products/envixx
```

The installation directory will be referred to as `ITT_DIR` for the remainder of the installation and licensing instructions. The `xx` refers to the software version.

6. In the **Choose Install Set** dialog, choose your software installation options. The typical installation features are pre-selected and indicated by check marks. Clicking a

feature displays information about that option. To add a feature to your installation, click the check box to install the feature on your hard drive. To remove a feature from your installation, clear the check box. Click **Next** to proceed. The **Pre-Installation Summary** dialog appears.

7. Confirm the installation settings and options, and click **Install** to begin installation or click **Previous** to modify the installation options.

If you selected to install DICOM Network Services, you will be asked if you want to configure the network services to start automatically at boot time. You must have administrator privileges. If the operation is unsuccessful, a dialog appears that indicates you must manually execute the DICOM installation script (`ITT_DIR/idlxx/bin/dicomexstrscp_install`).

If you click **Install**, a dialog shows the progress of installation. The **License Wizard** dialog appears.

8. To run the license program, click **Next**. See [“Using the License Wizard”](#) on page 49. To run it at a later time, clear the selection and click **Next**.
9. When a message appears stating that your installation was successful, click **Done**.

Setting Up Your Environment

Installing your license and automatically configuring the license server with the LicenseWizard Applescript application does not require special setup of the Apple X11 shell environment.

However, if you need to issue any license-utility line commands or start an IDL or ENVI session from an Apple X11 shell prompt, you might need to set up your shell environment before issuing the commands. See [“Defining Environment Variables and Aliases”](#) on page 32 for details.

Running IDL or ENVI under Macintosh

You can run IDL or ENVI in one of two ways:

- From an Applescript application
- From a UNIX X-Windows prompt

You can also enable accelerators that use the **Alt** key to work with the Macintosh **Apple** key (also known as the **Command** key). For details, see the topic “Enabling Alt Key Accelerators on Macintosh” in IDL Help.

Running IDL or ENVI from Applescript

To run IDL or ENVI, click on one of the Applescript applications in the *ITT_DIR/idlxx* directory. [Table 4-1](#) describes the complete list of applications:

Icon Name	File Name	Description
envi+idl	envi+idl.app	Starts command-line ENVI + IDL.
envi	envi.app	Starts an ENVI session.
ENVIZoom	ENVIZoom.app	Starts ENVI Zoom.
ENVIHelp	ENVIHelp.app	Starts ENVI Help.
idl	idl.app	Starts command-line IDL.
idlde	idlde.app	Starts an IDL development environment session.
idlv	idlv.app	Starts an IDL Virtual Machine session.
IDLDemos	IDLDemos.app	Starts the IDL Demo application.
IDLHelp	IDLHelp.app	Starts IDL Help.
LicenseWizard	LicenseWizard.app	Starts the license wizard.
DICOMNetwork-Services	DICOMNetworkServices.app	Starts the DICOM Network Services.

Table 4-1: Applescript Applications

Manually Creating an Alias to an IDL or ENVI Applescript

To manually create a Macintosh alias to an IDL or ENVI Applescript, on your desktop or other convenient location:

1. Open a Finder window, and navigate to the `ITT_DIR/idlxx` directory of your IDL or ENVI installation.
2. Identify the Applescript icon for which you would like to create an alias, for example, `idlde`.
3. While holding the **Option** and **Command** keys on your keyboard, click and drag the target icon to your desktop. Copying or moving the Applescript to another location (rather than creating a Macintosh alias) will cause the Applescript to fail.

Running IDL or ENVI from the Command Line

This section covers how to run IDL or ENVI from the X-Windows prompt on Mac OS X.

1. Launch X11 from the `Applications/Utilities` folder. X11 displays a UNIX X-Windows command line in an OS X window.
2. Before you can run IDL or ENVI, you must set up each user's environment on the machine that will be running it. See "[Defining Environment Variables and Aliases](#)" on page 32.
3. You can now start IDL or ENVI or any of the following executables by entering one of the following commands at the command line:

All available commands are listed in [Table 4-2](#).

Command	Description
<code>envi</code>	Starts command-line ENVI+IDL in an Xterminal window.
<code>envi_rt</code>	Starts an ENVI session.
<code>envizoom</code>	Starts an ENVI Zoom session.
<code>envihelp</code>	Starts ENVI Help.
<code>idl</code>	Starts IDL in command-line access mode.
<code>idlde</code>	Starts IDL Development Environment.
<code>idl -vm</code>	Starts IDL Virtual Machine.
<code>idl -rt</code>	Starts the runtime version of IDL.
<code>iddemo</code>	Starts the IDL Demo Applications. You can also type <code>demo</code> at the IDL prompt after you have started IDL.
<code>idlhelp</code>	Starts IDL and ION Help.

Table 4-2: Startup Commands

Running the IDL Virtual Machine under Macintosh

You can run the IDL Virtual Machine from Applescript or from the command line.

Running from Applescript

To start the IDL Virtual Machine, double-click on `idlv.m.app` in the `ITT_DIR/idlxx` directory.

Running from the Command Line

To run a `*.sav` file in the IDL Virtual Machine:

1. Start X11.
2. Enter `idl -vm=<path><filename>.sav` at the X11 Terminal prompt, where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file. The IDL Virtual Machine window is displayed.
3. Click anywhere on the IDL Virtual Machine window to close the window and to run the `*.sav` file.

To launch the IDL Virtual Machine and select a `*.sav` file to open:

1. Start X11.
2. Enter `idl -vm` at the X11 Terminal prompt. The IDL Virtual Machine window is displayed.
3. Click anywhere on the IDL Virtual Machine window to display the file selection menu.
4. Open a `*.sav` file from the file selection menu.

Running IDL Runtime Applications under Macintosh

To run a `*.sav` file in the runtime version of IDL:

1. Start X11.
2. Enter `idl -rt=<path><filename>.sav` at the X11 Terminal prompt, where `<path>` is the path to the `*.sav` file, and `<filename>` is the name of the `*.sav` file.
3. The application contained in the `*.sav` file is run in the runtime version of IDL.

When a `*.sav` file is run with the `idl -rt` command on a machine without an IDL license, it will run in the IDL Virtual Machine.

Chapter 5

Licensing IDL and ENVI

This chapter covers the following topics:

Licensing Methods	44	Using the License Manager	50
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Licensing Methods

Access to IDL and ENVI is controlled by a software application that ensures a proper license is available. Licensing options include IDL Virtual Machine, demonstration (IDL), evaluation, flexible single-user, node-locked, and floating, which are all discussed in the following sections. If you are installing our software to run an application provided by a third-party developer, consult the licensing instructions that accompany the application.

You can retrieve product licenses from the ITT Visual Information Solutions Web site using the license wizard. In some cases, ITT may send you license information by e-mail or fax.

IDL Virtual Machine

The IDL Virtual Machine is a freely distributable version of IDL that can run IDL programs that are compiled as `*.sav` files. The IDL Virtual Machine runs without an IDL license, so it can be installed on any machine to make it possible for others to run the IDL applications you develop. (The IDL Virtual Machine is not related to the Java Virtual Machine. For more information on the IDL Virtual Machine, see “Building IDL Applications” in IDL Help.)

The IDL Virtual Machine is installed automatically as part of a full IDL or ENVI application installation.

Demonstration Mode (IDL)

Demonstration mode allows you to run a limited version of IDL in seven-minute demonstration mode. You do not need to request or enter a license file.

Evaluation License

Evaluation licenses are temporary trial licenses allowing access to certain IDL or ENVI 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 seven-minute demonstration mode (IDL only). Use the license wizard to generate an evaluation license through the ITT Visual Information Solutions Web site.

The following is a sample evaluation license key (using ENVI as an example):

Product:	ENVI X.X
Expiration:	1-Sep-20XX
Key:	ABC123DEF456GHI7-123

Flexible Single-User License

Flexible single-user licenses are permanent licenses tied to a single user. After you purchase a flexible single-user license from ITT Visual Information Solutions or your local distributor,

you will receive a license key via the Web, by e-mail, or by fax. Entering and saving the license key on a personal computer enables full IDL or ENVI functionality for the designated user.

You can install a flexible single-user license for up to three machines for the exclusive use of the designated user. You must run the license wizard (see [“Using the License Wizard”](#) on page 49) on each machine to retrieve a license via the ITT Visual Information Solutions Web site.

The host ID information is required for all machines tied to the flexible single-user license. The host ID field contains the physical addresses (in hexadecimal format) of your machines, separated by spaces. Once you have reached the three-machine limit and you replace any of your machines, you can regenerate the flexible single-user license key using the license wizard or by contacting ITT Visual Information Solutions Technical Support. You will need to know the host ID for the new machine. You can get this information through the license wizard.

The following are sample flexible single-user license keys:

IDL

```
# License Number(s): 000012
INCREMENT idl idl_lmgrd x.xxx 1-jan-0000 uncounted 1234567890abcdef \
  VENDOR_STRING="216033John Doe" HOSTID="000123456abc \
  000abcdef123" PLATFORMS="i86_n x64_n i86_re i86_r amd64_re \
  ppc_mac i86_mac" NOTICE=PERSONAL_USE ck=96
```

ENVI

```
# License Number(s): 000011-12
INCREMENT idl idl_lmgrd x.xxx 1-jan-0000 uncounted 1234567890abcdef \
  VENDOR_STRING="213785-12John Doe" HOSTID="000123456abc \
  000abcdef123" PLATFORMS="i86_n x64_n i86_re i86_r amd64_re \
  ppc_mac i86_mac" NOTICE=PERSONAL_USE ck=116
INCREMENT envi idl_lmgrd x.xxx 1-jan-0000 uncounted 1234567890abcdef \
  VENDOR_STRING="213785-12John Doe" HOSTID="000123456abc \
  000abcdef123" PLATFORMS="i86_n x64_n i86_re i86_r amd64_re \
  ppc_mac i86_mac" NOTICE=PERSONAL_USE ck=62
```

Node-Locked License

Node-locked licenses tie a single IDL or ENVI application to a single machine. This method of licensing requires a machine's unique host ID to be incorporated into a license file. After you purchase a node-locked license from ITT Visual Information Solutions or your local distributor, you will receive a license key via the Web, by e-mail, or by fax. Entering and saving the license file enables IDL or ENVI functionality on the machine for which you have sent the host ID. Server-based, node-locked licenses require you to run the license manager.

IDL

A Windows unserved, single-user, node-locked license looks like this:

```
# Installation Number(s): 000011-70-1
INCREMENT idl idl_lmgrd X.XXX 1-jan-0000 uncounted \
  ABC123DEF456GHI789JK  VENDOR_STRING="000011-70-1Node-Locked \
  Windows License"  HOSTID=00aabb11ccdd ck=28
INCREMENT wavelet idl_lmgrd X.XXX 1-jan-0000 uncounted \
  ABC123DEF456GHI789JK  VENDOR_STRING="000011-70-1Node-Locked \
  Windows License"  HOSTID=00aabb11ccdd ck=28
```

A UNIX/Macintosh/Linux single-user, server-based, node-locked license looks like this:

```
# License Number(s): 000111
SERVER ourserver 00aabb11ccdd 1700
USE_SERVER
DAEMON idl_lmgrd
INCREMENT idl idl_lmgrd x.000 0-jan-0000 10 0A0000A00A000AA0A \
  VENDOR_STRING="000111Single Node-Locked UNIX License" \
  HOSTID=0000aaaaa0aa0a ck=000
FEATURESET idl_lmgrd ABC123DEF456GHI7
```

ENVI

A Windows ENVI+IDL unserved, single-user, node-locked license key looks like this:

```
# Installation Number(s): 000011-70-1
INCREMENT envi idl_lmgrd X.XXX 1-jan-0000 uncounted \
  ABC123DEF456GHI789JK  VENDOR_STRING="000011-70-1Node-Locked \
  Windows License"  HOSTID=00aabb11ccdd ck=28
INCREMENT idl idl_lmgrd X.XXX 1-jan-0000 uncounted \
  ABC123DEF456GHI789JK  VENDOR_STRING="000011-70-1Node-Locked \
  Windows License"  HOSTID=00aabb11ccdd ck=28
```

A UNIX/Macintosh/Linux ENVI+IDL single-user, server-based, node-locked license looks like this:

```
# License Number(s): 000111
SERVER myserver 00aabb11ccdd 1700
USE_SERVER
DAEMON idl_lmgrd
INCREMENT idl idl_lmgrd X.XXX 0-jan-0000 10 0A0000A00A000AA0A \
  VENDOR_STRING="000111Single Node-Locked UNIX License" \
  HOSTID=0000aaaaa0aa0a ck=000
INCREMENT envi idl_lmgrd X.XXX 0-jan-0000 1 0B0000B00B000BB0B \
  VENDOR_STRING="000111Single Node-Locked UNIX License" \
  HOSTID=0000aaaaa0aa0a ck=000
FEATURESET idl_lmgrd ABC123DEF456GHI7
```

Floating License

Floating (or client/server) licenses let multiple users concurrently access IDL or ENVI. With the IDL or ENVI installed and licensed on the server machine, the license manager (installed on the server) handles license requests from remote client machines. As the server administrator, you can choose how users access the licenses. You can reserve licenses for individuals or groups, or you can allow all users to share access to the licenses. If you have a team of 20 people and you have purchased IDL or ENVI with 10 floating licenses, you can reserve licenses for certain individuals in the group, or let all team members share access to the 10 licenses throughout the day.

While both *node-locked* and *floating licenses* use a license file or key containing information based on a unique host ID from the machine serving licenses or being licensed, floating licenses (and server-based node-locked licenses) additionally require the installation of a license manager.

IDL and ENVI use the Macrovision FLEXlm license manager. The license manager runs continuously on your system, waiting for a request from IDL or ENVI. 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 IDL or ENVI. See [“Installing the License Manager”](#) on page 50 for more information.

Following are sample floating license keys:

IDL

```
# Installation Number(s): 000011-70-1
SERVER myserver 00aabb11ccdd 1700
USE_SERVER
DAEMON idl_lmgrd
INCREMENT idl idl_lmgrd X.XXX 1-jan-0000 6 ABC123DEF456GHI789JK \
  VENDOR_STRING="000011-70-1Floating Windows License" ck=205
FEATURESET idl_lmgrd ABC123DEF456GHI7
```

ENVI

```
# Installation Number(s): 000011-70-1
SERVER myserver 00aabb11ccdd 1700
USE_SERVER
DAEMON idl_lmgrd
INCREMENT envi idl_lmgrd X.XXX 1-jan-0000 1 ABC123DEF456GHI789JK \
  VENDOR_STRING="000011-70-1Floating Windows License" ck=205
INCREMENT idl idl_lmgrd X.XXX 1-jan-0000 6 ABC123DEF456GHI789JK \
  VENDOR_STRING="000011-70-1Floating Windows License" ck=205
FEATURESET idl_lmgrd ABC123DEF456GHI7
```

Floating licenses or server-based node-locked licenses request SERVER, DAEMON, and FEATURESET information. The license server should be installed and run on the server indicated in the SERVER line of the license key.

A path on the DAEMON line of a server-based license file is optional:

```
SERVER myserver 000012345678 1700
USE_SERVER
DAEMON idl_lmgrd
...
```

On Windows, a DAEMON line path is required only if the `lmgrd.exe` program used to start the license manager and the vendor daemon program (`idl_lmgrd.exe`) are not located in the same directory.

If you do use a DAEMON line path on a Windows license server, use a quoted path that extends to the vendor daemon program file (`idl_lmgrd.exe`). For example:

```
DAEMON idl_lmgrd "C:\Program Files\ITT\idlXX\bin\bin.x86\idl_lmgrd.exe"
```

On Unix, Linux, or MacOS X, specify a DAEMON line path to the `bin` subdirectory of the main IDL directory of the IDL or ENVI installation. For example, on Unix and Linux:

```
DAEMON idl_lmgrd /usr/local/itt/idl/bin
```

On Mac OS X:

```
DAEMON idl_lmgrd /Applications/itt/idl/bin
```


Using the License Wizard

The license wizard is launched during the final step of your IDL or ENVI installation. You can use the license wizard to generate a node-locked, floating, flexible single-user, or evaluation license from the ITT Visual Information Solutions Web site. If you already have a license but have not installed it, you can use the license wizard to install it in the correct directory.

Note

If your license requires a license server, the license wizard also allows you to install, start, and stop the license manager. In most cases, the license wizard provides the easiest way to configure your license manager.

Running the License Wizard after Installation

After your IDL or ENVI installation is complete, the **License Wizard** dialog appears. Click **Yes** to run the License Wizard, or **No** to run the license wizard later.

You can start the license wizard later by one of the following methods:

- Windows: **Start** → **Programs** → **IDL x.x** → **License Wizard** or **Start** → **Programs** → **ENVI x.x** → **License Wizard**.
- Unix: type `ittlicense` at the Unix command prompt from the `ITT_DIR/idlxx/bin` directory. You must first run the source commands described in “[Defining Environment Variables and Aliases](#)” on page 32.
- Macintosh: Launch the `LicenseWizard` applescript from the IDL or ENVI installation directory.

Using the License Manager

With a floating or server-based node-locked license, you need to start the license manager before IDL or ENVI can access a network license and run in licensed mode. You can also set up your system so that the license manager automatically starts when you boot your system.

You only need to start the license manager on the designated license server, not on separate license client machines accessing the licenses from the network. However, you do need to set up client machines to access IDL/ENVI and the license server machine.

Carefully consider the machine you have chosen as your license server before saving 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 and the network connection to that 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.

Jump to the following topics for more information:

- [“Installing the License Manager”](#) on page 50
- [“Configuring Client Access to the License Manager”](#) on page 51
- [“Working with the License Manager”](#) on page 54
- [“Using the Same License Manager for Different Applications”](#) on page 59
- [“Upgrading a Network License Manager”](#) on page 65
- [“Viewing License Files”](#) on page 67
- [“Modifying License Files”](#) on page 67
- [“Customizing Floating Licenses”](#) on page 69

Installing the License Manager

The license wizard installs the license manager if your license requires it. If your license type changes — for example if you change from an evaluation license to an activated license — you may need to install the license manager after you have already installed IDL or ENVI. To run the license wizard on a computer with an IDL or ENVI installation, but without running the IDL or ENVI installer, see [“Running the License Wizard after Installation”](#) on page 49.

You can install the license manager on a computer that does not have an IDL or ENVI installation. The license manager installer is located in the `flexlm` subdirectory of your IDL or ENVI CD-ROM. See the Readme file in that directory for instructions on running the stand-alone license manager installer.

Configuring Client Access to the License Manager

The license wizard provides an easy way to configure access to the license manager. In most cases, working through the license wizard will correctly configure IDL or ENVI to communicate with the license manager by placing a copy of the `license.dat` file in the correct location.

If your site uses the same license manager to license multiple products, or if IDL or ENVI is not properly licensed after using the license wizard, refer to the following sections.

Manually Copying the `license.dat` File

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

Windows:

```
C:\Program Files\ITT\License
```

UNIX:

```
/usr/local/itt/license
```

Macintosh:

```
/Applications/itt/license
```

Setting the `LM_LICENSE_FILE` Environment Variable

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

Windows

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

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

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

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

3. Save the settings.

UNIX and Macintosh OS X

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

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

```
port@host
```

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

For C shell: `setenv LM_LICENSE_FILE 1700@hal`

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

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

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

Or,

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

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

For C shell: `source .cshrc`

For Korn shell: `. .profile`

For Bash shell: `. .bashrc`

Configuring FLEXlm Licensing Through a Firewall

Some firewalls require the system administrator to specify which ports are available outside the firewall. If this is the case, the administrator should define the TCP port that both `lmgrd` and the vendor daemon `idl_lmgrd` will use. Explicitly specify the vendor daemon port as follows (using the server above). This is an example only; these are not absolute values:

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

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

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

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

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

Working with the License Manager

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

Starting the License Manager

Note

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

Windows

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

1. Select one of the following:
 - **Start** → **Programs** → **IDL x.x** → **LMTools**
 - **Start** → **Programs** → **ENVI x.x** → **LMTools**

The **LMTools** dialog appears.

2. Click the **Start/Stop/Reread** tab and select the name of the license manager service. The default name is ITT FLEXIm License Manager. If you would like the license manager to start automatically at boot time as a service, then check the **Use Services** and **Start Server at Power Up** check boxes. Click the **Save Services** button to save any configuration changes. Finally, click **Start Server** to start the license manager.

Unix and Macintosh

Starting the license manager requires no special privileges on Unix and Macintosh. Note the potential security ramifications of running the license manager from a privileged account such as `root` or `Administrator`, as it can be started by any user. However, special privileges *are* required to *shut down* the license manager. See [“Stopping the License Manager”](#) on page 56 for more information.

On UNIX and Macintosh platforms, start the license manager by entering the following:

```
ITT_DIR/idlxx/bin/lmgrd [-c license_path]
```

where `ITT_DIR` is the directory where you have installed IDL or ENVI, and `license_path` is the full pathname to the license file, including the license filename. The default license path is `ITT_DIR/license/license.dat`. If you have used this default location or have defined the `LM_LICENSE_FILE` environment variable (as described in

“Configuring Client Access to the License Manager” on page 51), you do not need to specify the `-c license_path` option, although it is recommended to avoid ambiguity.

Multiple License Managers

If you have more than a single FLEXlm license manager running on a server, conflicts might exist among the License Managers. Before starting the license manager, see “Using the Same License Manager for Different Applications” on page 59 for more detailed information on customizing your license file.

Configuring the License Manager to Start Automatically on UNIX and Macintosh

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

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

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

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

```
cd ITT_DIR/idlxx/bin
lmgrd_install
```

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

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

Checking the License Manager Status

To check the license manager status:

Windows

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

```
SERVER myserver 12345678 1700
```

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

2. Open a Windows Command prompt window, and change directories to the `idlxx\bin\bin.<platform>` directory of your IDL or ENVI installation. For example:

```
cd /d C:\Program Files\ITT\idlxx\bin\bin.x86
```

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

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

Where the TCP/IP value and server hostname are determined in Step 1.

UNIX and Macintosh

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 `ITT_DIR/idlxx/bin` directory, and enter a command using the following syntax:

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

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

Optional flags for `lmstat` are shown in [Table 5-1](#).

Optional Flags for <code>lmstat</code>	
<code>-a</code>	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.
<code>-A</code>	This option displays a list of all active licenses.
<code>-c license_file</code>	This option defines the license file path or the <code>port@host</code> setting. 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>ITT_DIR/license/license.dat</code> .
<code>-s [server]</code>	This option displays the status of the specified server node(s).

Table 5-1: Optional Flags for `lmstat`

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

Stopping the License Manager

To stop the license manager:

Windows

Administrative privileges may be required.

1. Select one of the following:
 - **Start** → **Programs** → **IDL x.x** → **LMTools**
 - **Start** → **Programs** → **ENVI x.x** → **LMTools**

The **LMTools** dialog appears.

2. Click **Stop Server** in the **Start/Stop/Reread** tab to disable the license manager. IDL will run in seven-minute demonstration mode without an available license.

UNIX and Macintosh

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 IDL or ENVI process verifies its license, it will not be valid.

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

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

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

Unauthorized use of the `lmdown` command can be disruptive; when the license manager shuts down, all current IDL or ENVI sessions are terminated. You should ensure that the file access modes on your system are sufficiently restrictive. It is recommended that you set the permissions for `lmdown` using the following UNIX command:

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

Logging (UNIX and Macintosh)

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

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

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

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

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

Reclaiming Unused Licenses (UNIX and Macintosh)

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

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

To free a license, first gather information using the `status` command, `lmstat`. To run `lmstat`, change to your `ITT_DIR/idlxx/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 checked out from the server "hal7," which is being displayed on the host "josh":

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

The format of this line is:

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

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

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

where `idl` (or `envi`) is the *feature*, `robin` is the *user*, `hal7` is the *host*, and `josh/:0` is the *display*. Other feature values 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.

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

Finding the Host ID (UNIX and Macintosh)

The `lmhostid` program obtains a unique FLEXlm host ID from your machine. To run `lmhostid`, change to the directory, `ITT_DIR/idlxx/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"
```

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

Running Old and New Versions of IDL or ENVI Concurrently

In many cases, you can run older versions of IDL or ENVI concurrently with the most recent version. If a FEATURE line has the version number 6.400, for example, it will allow IDL 6.4 and all earlier versions of IDL to run. In some cases, new license manager capabilities such as the INCREMENT line might prevent older versions of IDL or ENVI from working with the latest version of the license manager.

You should start the license manager from the latest IDL/ENVI distribution and use the same license file for the older IDL/ENVI distribution. The old IDL/ENVI license information should not be combined with the new license information. The license manager should only be started once from the new distribution. It should not be started from an old IDL/ENVI distribution.

Using the Same License Manager for Different Applications

Macrovision's FLEXible license manager (FLEXlm) is used as the network license management facility for IDL and ENVI. Since this license manager is not unique to ITT Visual Information Solutions software, you may need to run software from two or more software vendors that all use FLEXlm. In this case, the potential for license manager conflicts exists.

You have the following options if all products using FLEXlm are installed on the same license server:

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

Combining License Files

If IDL/ENVI and other vendor products also using FLEXlm will all be using the same license server to administer licenses, and if all of the vendor license files are compatible, you can combine the license files in a single license file.

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

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

and

```
SERVER server1 12345678 1800
```

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

Manually combining the information from multiple separated ITT Visual Information Solutions `license.dat` files that contain a SERVER line will invalidate the license and prevent the license manager from running. The newest version of our product license file will normally work with previous versions of the supported products.

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

Place copies of this combined license file in the locations required by the various software vendors. Alternatively, a single copy of the license file can be located in any convenient location, in which case each client machine must set the LM_LICENSE_FILE environment variable to point to it. For more information, see “[Configuring Client Access to the License Manager](#)” on page 51.

Windows

When you have edited 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. To determine the version of `lmgrd.exe`:

1. Launch a MS-DOS command prompt.
2. Change directory (use the `cd` command) to `ITT_DIR\idlxx\bin.<platform>`, where `ITT_DIR` is the main installation directory.
3. Enter the following command at the prompt:

```
lmgrd -version
```

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

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

Unix and Macintosh

IDL might use a license source different from LM_LICENSE_FILE if IDL_LMGRD_LICENSE_FILE is defined in a `.flexlmrc` file or as an environment variable. For more information, see “[License Sources](#)” on page 68.

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

After saving the license files in the appropriate locations, restart the license 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. To

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

```
/usr/local/itt/idlxx/bin/lmgrd -version
```

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

Creating Unique License Manager Services for Each Product

As an alternative to combining the license information from multiple vendors licenses and running a single instance of the FLEXlm license manager service, you can install and start a separate instance of the FLEXlm license manager service (with a unique name) 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 let the system administrator stop and start FLEXlm services freely for particular vendors without regard for other vendors' FLEXlm services running on that same system.

Note

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

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

Windows

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

1. Confirm that your updated license is already properly installed on the license server.
2. Select one of the following:

- **Start** → **Programs** → **IDL x.x** → **LMTools**
- **Start** → **Programs** → **ENVI x.x** → **LMTools**

The **LMTools** dialog appears.

3. Select the **Config Services** tab and enter a new (unique) FLEXlm service name in the **Service Name** field. By default, the FLEXlm license manager service is called “ITT FLEXlm License Manager.” If the name “ITT FLEXlm License Manager” is configured and already being used for another vendor's product license file, it is recommended that you use the name “ITT Visual Information Solutions FLEXlm License Manager” instead.
4. Enter the paths to the files `lmgrd.exe` (located in `ITT_DIR\idlxx\bin.<platform>`) and `license.dat` (located in `ITT_DIR\License`), where `ITT_DIR` is the main installation directory. 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 ensure that the file path entered is valid.
5. Select the **Use Services** and the **Start Server at Power Up** check boxes.
6. Start the newly named license manager. Select the **Start/Stop/Reread** tab, select the name of the updated service, and start the service by clicking the **Start Server** button.
7. Click the window's close button to exit the LMTools utility.

UNIX and Macintosh

IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see “[License Sources](#)” on page 68.

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

For C shell:

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

For Korn or Bash shell:

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

Add an IDL or ENVI license file to the existing `LM_LICENSE_FILE` variable by separating the new application's license path from the existing one with a colon as follows:

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

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

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

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

Where *ITT_DIR* is the installation directory.

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

For C shell

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

For Korn or Bash shell

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

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

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

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

Saving the License File in an Alternative Location

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

Windows:

```
ITT_DIR\License\license.dat
```

UNIX and Macintosh:

```
ITT_DIR/license/license.dat
```

Where *ITT_DIR* is the root installation directory.

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

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

```
C:\Program Files\ITT\mylicensefiles\license.dat
```

IDL and ENVI will not run properly until you define the `LM_LICENSE_FILE` variable. See [“Configuring Client Access to the License Manager”](#) on page 51 for more information on `LM_LICENSE_FILE`.

Windows

Use the following steps to save the license file to an alternative location:

1. Click **Start** → **Settings** → **Control Panel** (Windows 2000) or **Start** → **Control Panel** (Windows XP and Vista), and double-click the **System** icon.
2. Click the **Advanced** tab, then click the **Environment Variables** button. Click the **New** button below the System Variables box and enter the following in the **New System Variable** dialog:
 - A. Type, in uppercase letters, `LM_LICENSE_FILE` in the **Variable Name** field.
 - B. Type the path to the license file in the **Variable Value** field: in this example, `C:\Program Files\ITT\mylicensefiles\license.dat`. Replace this value with the actual path to your license file.
 - C. Click **OK**, **OK**, and **OK**.

UNIX and Macintosh

Use the following steps to save the license file to an alternative location:

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

```
port@host
```

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

For C shell: `setenv LM_LICENSE_FILE 1700@hal`

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

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

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

Or,

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

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

For C shell: `source .cshrc`

For Korn shell: `. .profile`

For Bash shell: `. .bashrc`

Upgrading a Network License Manager

Windows

When the license wizard installs the license manager, it also automatically configures a service named “ITT FLEXlm License Manager” using default file settings.

If a previously configured license manager with a different name (e.g., “ITT FLEXlm License Manager”) is running on the same server administering your IDL or ENVI license file, it is recommended that you stop, then disable or remove, the previously configured service to avoid a potential system conflict caused by simultaneously running two license managers on one machine.

To manually stop and remove the old license manager service:

1. Select one of the following:
 - **Start** → **Programs** → **IDL x.x** → **LMTools**
 - **Start** → **Programs** → **ENVI x.x** → **LMTools**

The **LMTools** dialog appears.

2. Select the **Config Services** tab.
3. From the **Service Name** drop-down list, select the older license manager name that you would like to remove (e.g., “ITT FLEXlm License Manager”).

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

If the machine is serving licenses for other products that use the FLEXlm license manager service, and you are unsure which is the unnecessary ITT Visual Information Solutions license manager service, contact your system or network administrator for assistance.

4. Select the **Stop/Start/Reread** tab. The selected license manager service is highlighted.
5. Click **Stop Server** to stop the service. If the selected service is not currently running, then clicking **Stop Server** displays a **Status** field message that verifies that LMTools is unable to stop the selected service (e.g., “Unable to Stop Server”).
6. After stopping the service, return to the **Config Services** tab and click **Remove Service** to complete the removal of the old license manager.

UNIX

If you are upgrading to a newer version of IDL or ENVI, you should use the version of the FLEXlm license manager that shipped with the latest version of IDL or ENVI. Newer versions of FLEXlm support applications that were built to work with older versions of FLEXlm. Using a newer version of IDL or ENVI with an older version of the license manager (`lmgrd`) might not allow IDL or ENVI to operate correctly.

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

```
/usr/local/itt/idlxx/bin/lmgrd -version
```

To upgrade the license manager, issue the following commands at the command line:

```
cd ITT_DIR/idlxx/bin  
lmgrd_install
```

Macintosh

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

The IDL or ENVI license manager installation script creates a `Library/StartupItems` item called `IDL_LMGRD`. If you have another item in this folder with a different name (e.g., `ITT_LICENSE`) that launches the license manager, remove the older, conflicting item.

Using License Files

The license file controls:

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

The following is an example of an IDL license file. This example is built for the license server “hal,” which has the LMHostid “0000c09a23f0” and the designated port number “1700.” This license has five floating licenses 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
USE_SERVER
DAEMON idl_lmgrd
INCREMENT idl idl_lmgrd x.x00 1-jan-0000 50 5BC6A081FA3009FA5673 \
    VENDOR_STRING="1234-1Acme Datawack Corp" ck=16
FEATURESET idl_lmgrd 96C31B1FB71BCAE9
```

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

The FEATURE or INCREMENT line for the floating license shows 50 license units. This is not an error. Each *idl* or *idl_rt* counted license requires 10 license units (6 for Windows, Linux, or Mac OS X) on the FEATURE or INCREMENT line. The number of license units is a platform-dependent scale factor times the number of licenses you own. For example, if you have 3 UNIX floating licenses, this field is set to 30.

Viewing License Files

To access the text of your license file through the license wizard, open the license wizard. See [“Using the License Wizard”](#) on page 49 for details. You must be logged in as root or have write permissions on the licensing directory, to modify the license file.

Modifying License Files

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

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

- Pathnames on DAEMON lines

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

Windows:

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

UNIX:

```
DAEMON idl_lmgrd /otherdir/itt/idlxx/bin
```

Macintosh:

```
DAEMON idl_lmgrd /otherdir/itt/idlxx/bin
```

Note

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

If you have multiple vendors using FLEXlm license management software, see [“Using the Same License Manager for Different Applications”](#) on page 59 for more detailed information on customizing your license file.

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

License Sources

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

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

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

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

A license source defined by `IDL_LMGRD_LICENSE_FILE` in your `.flexlmrc` file or as a system variable will always hold precedence over any `LM_LICENSE_FILE` environment variable's definition. Only if IDL cannot successfully access a license source defined by

IDL_LMGRD_LICENSE_FILE will attempt to access a license defined by LM_LICENSE_FILE. Here is the order of license source precedence:

1. The IDL_LMGRD_LICENSE_FILE environment variable (ITT Visual Information Solutions product-specific)
2. The IDL_LMGRD_LICENSE_FILE definition in `.flexlmrc` (ITT Visual Information Solutions product-specific)
3. The LM_LICENSE_FILE environment variable (seen by all products using FLEXlm)
4. The `license.dat` file in the default location (`ITT_DIR\license\license.dat`)
5. The evaluation license (`ITT_DIR\license*.lic`)

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

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

For a Korn or Bash shell:

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

Customizing Floating Licenses

You can customize license management by creating a license manager options file. This file lets you:

- Reserve licenses for specified users or groups of users
- Allow or disallow 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 in the following section. See [“Sample Options Files: Reserving Licenses for a Group”](#) on page 72 for examples.

Creating an Options File

Use a text editor to create an options file. For IDL and ENVI, the options file must be named `idl_lmgrd.opt` and must be saved in the same directory as `license.dat`. The default location in which to save the options file is the `ITT_DIR/license` directory.

Note

Whenever you modify the options file, you must stop and restart the license manager before the changes will take effect.

Use the following conventions when creating an options file:

- Specify each option on a separate line.
- Each line must begin with one of the keywords specified in the following table.
- Limit the length of each line to fewer than 2048 characters. You can use the backslash (\) as a line continuation character if you need more than 2048 characters.
- 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.

Options File Keywords

The following table describes the keywords available for creating an options file:

Keyword	Example	Description
EXCLUDE	<pre>EXCLUDE <i>feature type type_name</i> EXCLUDE idl USER bob EXCLUDE envi USER bob</pre> Excludes user “bob” from using IDL or ENVI.	Can exclude user, group, host, or host_group from using IDL or ENVI. EXCLUDE takes precedence over INCLUDE statements.
EXCLUDEALL	<pre>EXCLUDEALL <i>type type_name</i> EXCLUDEALL GROUP misfit</pre> Prevents the group “misfit” from using any of the features served by this vendor daemon.	Implicitly allows members of all groups except “misfit” to access all features served by this vendor daemon.
GROUP	<pre>GROUP <i>group user_list</i> GROUP visitor sam kate</pre> Defines users “sam” and “kate” as comprising the group “visitor”.	Defines a list of users to use as a group 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 to use as a group with other keywords such as INCLUDE or EXCLUDE.

Table 5-2: Options File Keywords

Keyword	Example	Description
INCLUDE	<pre>INCLUDE feature type type_name INCLUDE idl GROUP visitor INCLUDE envi GROUP visitor</pre> <p>Allows only users in the group “visitor” to use IDL or ENVI.</p>	Includes only specifically identified users or groups. All others are implicitly outside of this group, and denied access.
INCLUDEALL	<pre>INCLUDEALL type type_name INLCUDEALL GROUP research</pre> <p>Allows all users listed in the group “research” to use all features served by this vendor daemon.</p>	Specifies users or groups allowed use of all features served by this vendor daemon.
LINGER	<pre>LINGER feature seconds LINGER idl 20 LINGER envi 20</pre> <p>The license manager holds on to a license for an additional 20 seconds after it is checked in.</p>	Causes licenses to be held by the license manager for a specific amount of time after a user exits IDL or ENVI. Rarely used.
MAX	<pre>MAX #lic feature type type_name MAX 10 idl_rt GROUP research MAX 10 envi_rt GROUP research</pre> <p>Allows users in the “research” group to use at most 10 units of the “idl_rt” or “envi_rt” feature at one time.</p>	Limits usage of a feature among users or groups.
NOLOG	<pre>NOLOG event_type NOLOG DENIED NOLOG QUEUED</pre>	A separate NOLOG line is needed to turn off logging of events including IN, OUT, DENIED, and QUEUED.

Table 5-2: Options File Keywords (Continued)

Keyword	Example	Description
REPORTLOG	REPORTLOG <i>report_log_path</i> REPORTLOG +itt\license Specifies the reportlog file path.	The “+” indicates to append the file instead of overwriting it each time the manager is started.
RESERVE	RESERVE #lic <i>feature type type_name</i> RESERVE 10 idl USER sam RESERVE 10 envi USER sam Reserves a single license for the user “sam”.	Ensures that a license will always be available to a specified user or group.

Table 5-2: Options File Keywords (Continued)

Sample Options Files: Reserving 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 or ENVI requires 10 license units on a UNIX 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
```

Or,

```
# reserve 5 ENVI licenses for the research group
RESERVE 5 envi 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 envi HOST main
# do not log license denials
NOLOG DENIED
```

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 or ENVI. An EXCLUDE statement takes precedence over an INCLUDE statement. If the user “josh” were working on a computer named “main,” he will not be able to access IDL or ENVI even though there is a license reserved for him.

Sample Options Files: Reserving Licenses for Individuals

The following options file reserves licenses for individuals from the “research” 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 within that group 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
```

Or,

```
# reserve one license for "kate"
RESERVE 1 envi USER kate
# reserve one license for "josh"
RESERVE 1 envi USER josh
# reserve 3 licenses for "hal"
RESERVE 3 envi USER hal
# do not log queue events
NOLOG QUEUED
```




Appendix A

Troubleshooting Licensing

This appendix covers problems that you might encounter with licensing IDL and ENVI.

General Information	76	Licenses Requiring a License Server	82
Evaluation Licenses	77	License Manager Startup	87
Flexible Single-User and Windows Node-Locked Licenses	78		

General Information

This section provides a list of other sources of information and assistance with licensing IDL and ENVI.

Other Resources

Macrovision

The Macrovision Web site contains online documentation and a FLEXlm FAQ. This information can be helpful when trying to combine licenses from different vendors. See the following Web pages:

Macrovision home page: <http://www.macrovision.com>

FLEXlm FAQ:

http://www.macrovision.com/services/support/flexlm/enduser_faq.shtml

Technical Support Library

Go to www.ittvis.com/services/search.asp and select the following for more information on troubleshooting IDL and ENVI licensing:

Category: **LICENSING**

For Further Help

If you have problems installing or licensing IDL or ENVI, contact ITT Visual Information Solutions Technical Support for assistance:

- Email: support@ittvis.com
- Phone: (303) 413-3920
- Fax: (303) 786-9909
- Web site: <http://www.ittvis.com>. Visit the Technical Support section on our Web site for Tech Tips and Frequently Asked Questions

International customers should contact their local ITT Visual Information Solutions office or distributor for technical support.

Evaluation Licenses

If you receive an error message with an evaluation license on any platform, locate the error message below for suggestions on resolving the problem.

License Information Does Not Pass the Checksum Test

Carefully check to make sure you have entered your license information exactly as it appears in your IDL or ENVI license information. Exactly duplicate capitalization, spacing, and the date format as shown on your form.

The license information must not contain leading or trailing spaces. For an example of a correctly formatted evaluation license key, see [“Evaluation License”](#) on page 44.

File Already Exists

If you have an existing evaluation license for this product, you will be asked if you want to replace it. Select **Yes** to overwrite the old license with the new, extended evaluation license.

File Cannot Be Written

You might not have write permissions for the directory or the file to which you are attempting to write. Check the permissions to make sure neither the directory nor any files you are attempting to overwrite are designated as read-only. For more information, see [“Files Needed for Initialization of the Licensing Program Could Not Be Found”](#) on page 80.

Flexible Single-User and Windows Node-Locked Licenses

This section suggests possible courses of action if you encounter problems with a license that does not require a license server. Solutions described here apply if you have one of the following license types:

- A flexible single-user license (available on Windows, Macintosh, and Linux platforms)
- A node-locked license on a Windows platform

If you have a different type of license, see [“Licenses Requiring a License Server”](#) on page 82.

Note

The sample error messages and license text in this section refer to IDL. They are the same for ENVI, except that the FEATURE and INCREMENT lines refer to envi and the current version number of ENVI.

Check the License Format

After installing the permanent license information via the license wizard, one of the following error messages appears when attempting to start IDL:

```
% LICENSE MANAGER: Future license file format or misspelling in
license file
The file was issued for a later version of FLEXlm than this
program understands.
Feature:      idl
License path: C:\Program Files\ITT\License\license.dat;C:\Program
Files\ITT\License\*.lic
FLEXlm error: -90,313. System Error: 2 ""
```

```
% LICENSE MANAGER: Invalid license file syntax
Feature:      idl
License path: C:\Program Files\ITT\License\license.dat;C:\Program
Files\ITT\License\*.lic
FLEXlm error: -2,134. System Error: 2 ""
```

These errors might indicate that the license information has been corrupted.

Some email programs can corrupt license text, replacing original characters with invalid characters. For example, the string:

```
VENDOR_STRING="000011vendor" HOSTID=00b012345678 PLATFORMS=i86_r \
NOTICE=PERSONAL_USE ck=99
```

could be inadvertently changed to:

```
VENDOR_STRING="000011vendor" HOSTID?00b012345678 PLATFORMS?i86_r \
NOTICE?PERSONAL_USE ck?99
```

Another cause of license corruption is inadvertent line wrapping or concatenation introduced by the email program. For example, a line in the license might be changed from (2 lines).

Correct format:

```
INCREMENT idl idl_lmgrd x.xxx 1-jan-0000 0 1234567890abcdef \
VENDOR_STRING="000011ITT Visual Information Solutions" \
HOSTID=00b012345678 ck=123
```

Incorrect format:

```
INCRMENT idl idl_lmgrd x.xxx 1-jan-0000 0
1234567890abcdef \
VENDOR_STRING="000011ITT Visual Information Solutions" \
HOSTID=00b012345678 ck=123
```

(Where *x.xxx* represents the current software version.)

For an example of a correctly formatted flexible single-user file, see [“Flexible Single-User License”](#) on page 44.

If the license file appears to have been corrupted, try to restore the problem characters or line wrapping to its original state. Or, if a separate file attachment of the license information was provided, please use the license information in the file attachment to replace the corrupted license information. You can use the license wizard to edit the license file information that has already been installed. You can also install your license information by connecting to the ITT Visual Information Solutions Web site via the license wizard (see [“Flexible Single-User License”](#) on page 44).

Host ID of This System Does Not Match the Host ID

After installing the permanent license information via the license wizard, a form of the following error message appears when starting IDL or ENVI:

```
% LICENSE MANAGER: Invalid host
The hostid of this system does not match the hostid
specified in the license file
Feature:      idl
Hostid:      00b0d0911470
License path: C:\Program
Files\ITT\License\license.dat;C:\Program Files\ITT\License\*.lic
FLEXlm error: -9,57. System Error: 2 ""
```

Confirm that the node-locked host ID in the license matches the actual host ID of the machine that is running IDL or ENVI:

1. Start the license wizard by clicking one of the following:
 - **Start → Programs → IDL *x.x* → License Wizard**

- **Start** → **Programs** → **ENVI *x.x*** → **License Wizard**
2. Click **Request a license if you don't have internet access**.
 3. Compare the **Host ID** value shown in the license request file with the HOSTID value in your IDL license file.

For example, the following IDL license feature line:

```
INCREMENT idl idl_lmgrd x.xxx 1-jan-0000 0 EC3B7DA4CA19E85C0A71 \
  VENDOR_STRING=000011RSI HOSTID=00b012345678 ck=123
```

is built for the Host ID "00b012345678".

If the host ID information obtained from the license wizard is different from the information listed in the license file, then the license will not work with your machine. The license HOSTID value cannot be altered by a user without invalidating the license. If the host ID of the machine on which you are installing is different from the host ID in the license, you must request another license. See ["Using the License Wizard"](#) on page 49 for more information.

Files Needed for Initialization of the Licensing Program Could Not Be Found

You might encounter this error when running the license wizard if you do not have read permissions for the *ITT_DIR*/license directory, where *ITT_DIR* is the main installation directory. Possible ways to resolve this problem include the following actions:

- Obtain read permissions for the *ITT_DIR*/license directory
- Run IDL or ENVI as root, administrator, or the user who performed the original installation

If the error persists, the installation may be incomplete. Re-run the installation program to repair your IDL or ENVI installation.

License File Does Not Support This Version

After installing the permanent license information via the license wizard program, a form of the following error message appears when attempting to start IDL:

```
% LICENSE MANAGER: License file does not support this version
Feature:          idl
Application version > License version: x.x > x.xxx
License path:     C:\Program Files\ITT\License\license.dat;C:\Program
Files\ITT\License\*.lic
FLEXlm error:    -21,126. System Error: 2 ""
```

Where *x.x* is the more recent software version, and *x.xxx* is an older version.

Confirm that the license being referenced contains the correct version. Check the license(s) listed in the “license path” of the error message to verify the contents of the referenced license. Below is an example of an IDL license feature (2 lines):

```
INCREMENT idl idl_lmgrd x.xxx 1-jan-0000 0 EC3B7DA4CA19E85C0A71 \
  VENDOR_STRING=000011RSI HOSTID=00b012345678 ck=123
```

If the listed IDL version is less than the version you are trying to license, then an old version of the license is being referenced. Make sure that the correct version of the `license.dat` file is being referenced. See [“License Sources”](#) on page 68 for more information.

If you do not have a license with the correct version, you must request another license. See [“Using the License Wizard”](#) on page 49 for information on how to request a license.

Cannot Find License

After installing the license information via the license wizard, an error message appears that indicates that the `license.dat` file cannot be found. Following is an example for Windows:

```
% LICENSE MANAGER: Cannot find license file
The license files (or server network addresses) attempted are
listed below. Use LM_LICENSE_FILE to use a different license file,
or contact your software provider for a license file.
Feature:          idl
Filename:         C:\Program Files\ITT\License\license.dat
License path:    C:\Program Files\ITT\License\license.dat
FLEXlm error:    -1,359. System Error: 2 "No such file or directory"
```

Make sure that you have either installed the `license.dat` file in the default location:

Windows:

```
ITT_DIR\License\license.dat
```

Unix and Macintosh:

```
ITT_DIR/license/license.dat
```

or that you have defined your `LM_LICENSE_FILE` environment variable to the path where the `license.dat` file exists. See [“Saving the License File in an Alternative Location”](#) on page 63 for more information.

Note

IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see [“License Sources”](#) on page 68.

Additionally, be sure that you have read permissions for the `license.dat` file and for the default installation directory in which it resides.

Licenses Requiring a License Server

This section suggests possible courses of action if you encounter problems with a license that requires a license server. Solutions described here apply if you have one of the following license types:

- A floating license
- A node-locked license on a UNIX or Macintosh platform

If you have a different type of license, see [“Flexible Single-User and Windows Node-Locked Licenses”](#) on page 78.

If you see errors from the license manager itself, see [“Starting the License Manager”](#) on page 54.

Note

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

All Platforms

The following suggestions apply to problems with license-server licenses on any platform. Platform-specific solutions and commands are indicated where appropriate.

Verifying the License Manager Is Running

(Windows) - Open the LMTools utility:

- **Start** → **Programs** → **IDL *x.x*** → **LM Tools**
- **Start** → **Programs** → **ENVI *x.x*** → **LM Tools**

Click **Perform Status Enquiry** under the **Server Status** tab. If you receive a message that the license manager cannot connect to the license server, see [“Verifying You Have Correctly Copied Your License File”](#) on page 84.

(Unix or Macintosh) - The `lmstat` license manager utility provides information on the status of the license manager. Enter the following at the command line:

```
ITT_DIR/idlxx/bin/lmstat
```

If you receive the following message:

```
Error getting status: Cannot connect to license server
the server is not running correctly.
```

Verifying the License Manager is Available from Your Machine

If IDL or ENVI displays the following error message at startup:

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

make sure that you can either:

- **(Windows)** - Use the network utility “ping” (ping servername at the MS-DOS prompt) to contact the server machine
- **(UNIX and Macintosh)** - Telnet to the server machine

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

Stopping and Restarting the License Manager

(Windows) - Exit IDL or ENVI. Stop and then restart the license manager using LMTools.

(UNIX or Macintosh) - Exit IDL or ENVI. Stop the license manager, then restart it, directing the output of the license manager to a file. Enter:

```
ITT_DIR/idlxx/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:

```
ITT_DIR/idlxx/bin/lmgrd > logfile
```

Examine the resulting file *logfile* for error messages and refer to [“Starting the License Manager”](#) on page 54.

Correctly Setting the LM_LICENSE_FILE Environment

(Windows) - See [“Saving the License File in an Alternative Location”](#) on page 63 to check the setting of the LM_LICENSE_FILE environment variable. If LM_LICENSE_FILE points to a license file other than the ITT Visual Information Solutions product’s license file, stored in the *ITT_DIR*\License directory, you will need to correct this prior to starting IDL or ENVI.

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

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

(UNIX or Macintosh) - 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 or Bash 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. IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see [“License Sources”](#) on page 68.

Verifying You Have Correctly Copied Your License File

If IDL or ENVI displays any of the following error messages at startup:

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

Or,

```
% LICENSE MANAGER: Invalid (inconsistent) license key
The license-key and data for the feature do not match.
This usually happens when a license file has been altered
```

Or,

```
Incorrect FEATURESET line in license file
```

some of the encrypted information in the license file is not correct. This problem can involve the server host ID, 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 ITT Visual Information Solutions. Check for proper capitalization and spacing. Shut down the license manager service, make any necessary corrections, and restart the service with the corrected license file. For an example of a correctly formatted floating license key, see [“Floating License”](#) on page 47.

(UNIX and Macintosh) - Shut down the license manager by entering:

```
ITT_DIR/idlxx/bin/lmdown
```

and restart it by entering:

```
ITT_DIR/idlxx/bin/lmgrd
```

Verifying the License Manager is Using the Correct License File

If IDL or ENVI 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 might be using the wrong license file.

(Windows) See [“Configuring Client Access to the License Manager”](#) on page 51 for details.

(UNIX and Macintosh) Reset the `LM_LICENSE_FILE` environment variable to point to the license file using the command:

```
setenv LM_LICENSE_FILE ITT_DIR/license/license.dat
```

IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see “[License Sources](#)” on page 68.

Verifying the License File Contains the Correct Hostname

If IDL or ENVI 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.

UNIX and Macintosh

The following suggestions apply to problems with license-server licenses on UNIX and Macintosh platforms only.

Verifying the Proper Executable File is in Your Command Search Path

The UNIX or Macintosh command:

```
which idl
```

Or,

```
which envi
```

tells you if the executable file is in your command search path and where it is. You can verify that the search path is the problem by executing IDL or ENVI directly. If the command:

```
ITT_DIR/idlxx/bin/idl
```

Or,

```
ITT_DIR/idlxx/products/envixx/bin/envi
```

runs the software, you know to check the search path.

Tip

See “[Setting Up the Environment](#)” on page 32 for details on how to ensure that you are running the correct executable file.

Verifying the File Permissions are Correct

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

```
chmod ugo+x ITT_DIR/idlxx/bin*/*
```

Verifying that IDL or ENVI Knows 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 `ITT_DIR/idlxx`. If not, you probably have not run the `idl_setup`, `idl_setup.ksh`, `idl_setup.bash`, `envi_setup`, `envi_setup.ksh`, or `envi_setup.bash` file. See “[Setting Up the Environment](#)” on page 32 for instructions.

Verifying Network Permissions Are Set Properly

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

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

make sure that the ethernet device 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.

Verifying Correct License File Information

If you receive an error message indicating that the license feature was not found, 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 “[Configuring Client Access to the License Manager](#)” on page 51 for more information.

IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see “[License Sources](#)” on page 68.

License Manager Startup

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

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.

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. Verify that the license key was entered correctly. 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.

No Features to Serve

If you receive either of the following error messages:

```
No such feature exists.
```

Or,

```
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.

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. There might also be some other software product using the default port number, 1700.

(Windows) - Stop the service using the LMTools utility and restart the service. Be sure that only one ITT Visual Information Solutions network license manager has been configured to start automatically on that machine.

(UNIX or Macintosh) Issue the `lmdown` command multiple times, and restart the license manager again. To shut down the license manager, you can issue the following commands:

```
ITT_DIR/idlxx/bin/lmdown -c ITT_DIR/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.

If the problem occurs at boot time on UNIX or Macintosh, then it is possible that more than one instance of the boot time startup script or command was implemented on your system.

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.

No "License" Server Found

```
date time (lmgrd) No TCP "license" service exists.
```

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
```

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.

IDL might use a license source different from `LM_LICENSE_FILE` if `IDL_LMGRD_LICENSE_FILE` is defined in a `.flexlmrc` file or as an environment variable. For more information, see ["License Sources"](#) on page 68.

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.

Wrong Host ID for Server (Windows)

```
Wrong hostid on Server line for license file: C:\Program
Files\ITT\License\license.dat.
SERVER line says 000c0123454, hostid is 000c0abcde
Invalid host on SERVER line.
```

The host ID in the license file does not match the host ID of the machine. Verify that you are using the correct machine. Make sure that the license file has been correctly copied from the original information sent to you by ITT Visual Information Solutions.

If you need a corrected license file, use the license wizard and select **Activate a license using the internet**. After logging on to the licensing web site, you can request a corrected license.

For additional assistance, see [“Contacting ITT Visual Information Solutions”](#) on page 12.

Path Not Found (UNIX / Macintosh)

```
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 `ITT_DIR/idlxx/bin`. Make a copy of the `lmgrd` script:

```
cp lmgrd lmgrd.bak
```

Open the `lmgrd` script with an editor. Verify that the `INSTALL_DIR` environment variable is defined as `ITT_DIR`. For example, if you have installed in the default path, this should be defined as `/usr/local/itt` (UNIX) or `/Applications/itt` (Macintosh).

Invalid Server Hostname (UNIX / Macintosh)

```
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.

Alternatively, if you have installed IDL on a laptop connected to a network that dynamically assigns IP addresses, make the following change to your `/etc/hosts` file:

Copy the hostname (not the host ID) of your laptop from the `SERVER` line in your `license.dat` file and add it to the `localhost` line of the `etc/hosts` file. For example, if the `localhost` line in your `/etc/hosts` file reads:

```
127.0.0.1 localhost
```

and the hostname for your laptop in the `license.dat` file is `mylaptop`, change the `localhost` line to read:

```
127.0.0.1 localhost mylaptop
```

If the server hostname is dynamically assigned, the license is used only by the license server machine. Another approach is to edit the license file so that the hostname on the `SERVER` line is replaced with the loopback IP address `127.0.0.1`. For example, if the `SERVER` line in the license data file reads:

```
SERVER mylaptop 0000123abcd 1700
```

use a plain text editor to change the line to read:

```
SERVER 127.0.0.1 0000123abcd 1700
```

Note

Improper changes to the `/etc/hosts` file can create network configuration problems. Consult a network administrator if you have questions about changing this file.

Alternatively, you can alter the hostname on the `SERVER` line of the license file to replace the existing hostname with the string `this_host`. For example:

```
SERVER this_host 12345678 1700
```

Using `this_host` allows your license to adapt to the current hostname of the license server machine. This is particularly useful for machines that dynamically acquire a hostname through a DHCP connection.