

# Agilent 85190A IC-CAP 2008

## Installation and Customization Guide



Agilent Technologies

# Notices

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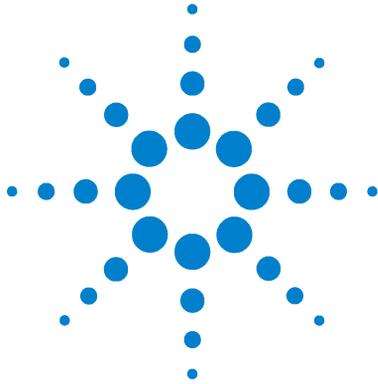
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This chapter describes how to install IC-CAP on Windows XP. For information on installing IC-CAP on Solaris or Linux see [Chapter 4](#), “Installing IC-CAP on UNIX Systems.”

### Before You Begin

Before you begin, please take the time to go over the guidelines for installing IC-CAP on a PC running Windows. For last-minute program and documentation information, refer to the *Release Notes* document on our website at:

<http://www.agilent.com/find/eesof-docs/>

Choose **IC-CAP 2008 > Release Notes**.

### Note the Changes in IC-CAP 2008

#### NOTE

If you have systems running older versions of IC-CAP, see the following table for a brief description of changes in the latest IC-CAP versions and their impact on systems with older versions installed.

**Table 1** Changes in IC-CAP 2008

| Description and Reference to Details   | Version Introduced and Impact  |
|--|--|
| Supported platforms changed.<br>See <a href="#">“Check the Windows System Requirements”</a> .        | IC-CAP 2008<br>Windows 2000 is no longer supported.                                |
| Required CPU changed.<br>See <a href="#">“Check the Windows System Requirements”</a> .               | IC-CAP 2008<br>Intel Pentium © 4 or better, or AMD XP 3000 or better now required. |
| Required RAM changed.<br>See <a href="#">“Check the Windows System Requirements”</a> .               | IC-CAP 2008<br>1 GB RAM is now the recommended minimum                             |
| Required hard disk space increased.<br>See <a href="#">“Check the Windows System Requirements”</a> . | IC-CAP 2008<br>800 MB is now required for installation.                            |
| Supported compilers changed.<br>See <a href="#">“Check the Windows System Requirements”</a> .        | IC-CAP 2008<br>Visual Studio .NET 2005 is now supported                            |

**Table 1** Changes in IC-CAP 2008

| Description and Reference to Details  | Version Introduced and Impact   |
|---|---|
| Support for downloading installation images added.<br>See <a href="#">"Installing IC-CAP"</a> .   | IC-CAP 2008<br>Installation images available for download.  |
| The version for the license server ( <i>Imgrd</i> ) has changed to FLEXnet 11.4.1 from FLEXnet 10.8.<br>See <a href="#">"Installing Licenses"</a> . | IC-CAP 2008<br>Impacts all systems, hardware keys, license servers, and license administration scripts. |
| The codeword version changed to 2.7 from 2.35.<br>See <a href="#">"Installing Licenses"</a> .   | IC-CAP 2008<br>You must obtain new FLEXnet license codewords from Agilent EEsof EDA.                    |

## Check the Windows System Requirements

Be sure your hardware and software configuration meets the following minimum hardware and system requirements to run IC-CAP, including RAM, disk space, operating systems, etc. Keep in mind that minimum requirements are just that, and they may not provide adequate performance and responsiveness.

| Requirement                       | Description  |
|-----------------------------------|--|
| Operating System and Service Pack | Microsoft Windows XP Professional SP2.   |
| CPU                               | Intel Pentium © 4 or better, or AMD XP 3000 or better. If linking to 3rd party Simulators, refer to Simulator requirements as well.  |
| Display                           | High-resolution color only (Super VGA, 1024x768, 15-inch monitor minimum) (at least 1280x1024 required for Extraction packages).   |
| RAM                               | 1 GB RAM recommended minimum. Additional RAM up to 2 GB will improve performance. Since IC-CAP is compiled on a 32-bit operating system, its processes cannot use more than 2 GB regardless of the maximum addressable memory available on your system. If linking to 3rd party Simulators, refer to Simulator requirements as well. |

## 1 Installing IC-CAP on Windows Systems

| Requirement  | Description  |
|--|--|
| Virtual Memory   | 300 MB recommended minimum. Increased virtual memory may be required.  |
| Web Browser  | <p>IC-CAP documentation is HTML-based and displayed via a web browser. Microsoft Internet Explorer version 5.5 or higher.</p> <p>Java Virtual Machine and JavaScript must be enabled on your browser for the documentation to appear correctly. You can use your browser's internal Java support or download and install a Java plug-in. If you install a Java plug-in, the minimum recommended version is Sun Java Plug-in 1.3.</p> |
| Hard Disk  | 800 MB required for installation. It is recommended that you install IC-CAP software on your local drive. Recommended file systems are FAT32 and NTFS. Novell file servers are not supported. <i>VFAT/FAT systems are not recommended.</i> For more information, refer to " <a href="#">Ensure Hard Disk Storage Efficiency</a> " on page 67.  |
| Security Device  | IC-CAP software codewords are locked to an external device (FLEXid hardware security key) attached to the PC's USB or parallel port or locked to a PC's LAN ethernet card. Licenses can also be secured to a network server using FLEXIm server software.  |
| Supported Media Type   | CD-ROM or high speed internet access required for program installation.  |
| Supported Printers   | Printers supported by the operating system used. (Note for HP LaserJet 3100 Only: There may be a conflict with the hardware key; if so, contact HP Printer Support by phone or on the web.)  |
| Supported Plotters   | Plotters supported by the operating system used.   |
| Compiler (only for user compiled code interface or open measurement interface) | C++ and C:<br>Microsoft Visual Studio .NET 2005 with SP1/Hotfix  |

### Checking the Operating System Version

To determine your operating system version, double-click the **My Computer** icon. Choose **Help > About Windows**.

### Check the Supported Instrument Interfaces

If you are using IC-CAP with an NI or Agilent GPIB interface, install the interface and its driver according to the instructions supplied with the interface.

| Description   | Part Number            |
|---|------------------------|
| Agilent GPIB PCI card and Agilent IO Libraries                        | 82350A <sup>1</sup> /B |
| Agilent LAN/GPIB Gateway Interface and Agilent IO Libraries           | E5810A <sup>2</sup>    |
| Agilent USB/GPIB converter and Agilent IO Libraries                   | 82357A <sup>1</sup> /B |
| National Instruments PCMCIA-GPIB card and NI-488.2M drivers           | 778034                 |
| National Instruments PCI-GPIB card and NI-488.2M drivers <sup>3</sup> | 778032                 |

1 This is a discontinued product.

2 Typically the LAN has some impact on speed; therefore, it will most likely be somewhat slower than a card.

3 Agilent IO Libraries can substitute for the NI-488.2M drivers.

#### NOTE

For the latest information refer to this manual on our website at:  
<http://www.agilent.com/find/eesof-docs>.

## Configuring the Driver for the GPIB Interface

Your GPIB interface includes the software necessary for an application to use the facilities the interface provides. The software typically has two components:

- A kernel driver (also known as a device driver)
- An application interface DLL, which interfaces with the kernel driver

For Windows, the most recent version of the SICL drivers can be downloaded from the Agilent IO Libraries website located at:

<http://www.agilent.com/find/iolib>

### NOTE

For National Instruments drivers, the most recent version can be downloaded from the National Instruments website located at:

<http://www.ni.com>

---

The downloaded file is executable. To install the Agilent IO Libraries, run this file and follow the supplied installation instructions.

After installation is complete, run the IO Config program by selecting **Start > Programs > Agilent IO Libraries > IO Config** from the Windows main screen.

To configure a GPIB card installed locally on the PC, select the relevant GPIB option (based on the Interface Description) from the Available Interface Types field, then click **Configure > OK**. The default settings are correct.

To configure a remote LAN/GPIB gateway, select **Lan Client (Lan Instruments)** from the Available Interface Types field, then click **Configure > OK**. The default settings are correct.

## Get Codewords for IC-CAP 2008

You must have new FLEXnet license codewords to run IC-CAP 2008. The codewords are tied to the FLEXid of your hardware key or the Ethernet MAC address of your PC's Ethernet LAN card.

You can request codewords via the Web at:

<http://www.agilent.com/find/eesof-support>

Choose **Codeword Request**.

The codewords are emailed to you in a license file named *license.lic*.

If you choose to tie your codewords to a hardware key (dongle), the hardware key was shipped with your installation media. If you do not have a hardware key, please contact Agilent EEsof Business Support at 1-800-507-6274.

See [Chapter 2](#), “Setting up Licenses on Windows Systems” for more details about codewords.

### Check Available Memory

Minimum recommended memory is 1 GB. More memory results in better overall system performance. To check the amount of memory on your system without rebooting, double-click the **My Computer** icon. Choose **Help > About Windows**.

#### Checking Virtual Memory

The recommended minimum virtual memory is 300 MB. IC-CAP model files that contain large amounts of data (such as projects with many devices or data values) may require more. To check the current amount of virtual memory:

Select **Start > Settings > Control Panel > System > Advanced > Performance Options**. Under *Virtual memory*, choose **Change**. You can choose to use the current setting or change it.

### Check Available Disk Space

To check the amount of disk space on your system without rebooting, double-click the **My Computer** icon. Select **View > Details**. Look in the Free Space column for each of your drives. (You might have to use the bottom scroll bar to see this column.)

### Defining an Install Folder

Be sure you have permissions to write to the disk drive on which you want to install IC-CAP. The installation also adds entries to your PC's Windows Registry. Make sure you have permissions to do so.

#### CAUTION

The installation path for IC-CAP software cannot contain any folder names that use a space. For example, do not install to *C:\Program Files\IC-CAP 2008*. If you include a space in a folder name, you will get an error such as **Could not invoke simulator** when you try to run a simulation. You will have to uninstall IC-CAP and then install it again.

---

### Installing IC-CAP

IC-CAP can be installed on a PC running Windows using either the IC-CAP installation CD or by downloading the IC-CAP installation image from the Agilent EEsof Knowledge Center website:

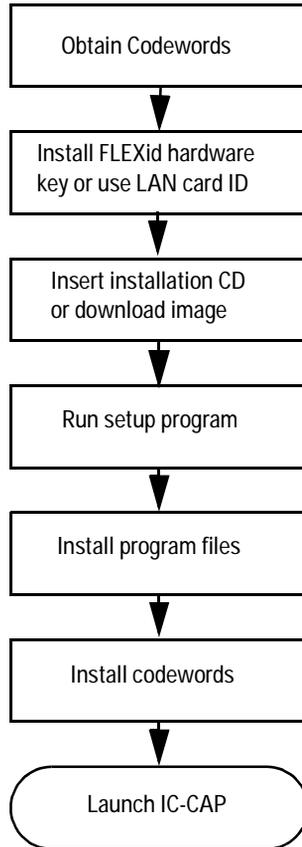
<http://www.agilent.com/find/eesof-knowledgecenter>

For last-minute program and documentation information, refer to the Release Notes document on our website at:

<http://www.agilent.com/find/eesof-docs/>

Choose **IC-CAP 2008 > Release Notes**.

## Installation Procedure Overview



## Installation Steps

Use the following steps to install IC-CAP on a PC running Windows. If you have not done so, please review [“Before You Begin”](#) on page 10. Also, if you installed a pre-release Beta version of IC-CAP, you should uninstall it before loading this release.

To Install IC-CAP on Windows:

- 1 Exit all Windows programs and insert IC-CAP installation CD into your CD-ROM drive or download the IC-CAP installation image from the Agilent EEsof Knowledge Center website:

<http://www.agilent.com/find/eesof-knowledgecenter>

- 2 If you downloaded the installation image, navigate to where you saved the file then double click the self-extracting file to unzip it.
- 3 If the Setup program does not start automatically, choose **Start > Run** and enter `D:\setup`, where D: is your CD-ROM drive or the path to the unzipped files, then click **OK**.
- 4 At the *Welcome* screen, choose **Next** to read the License Agreement. This is a usage agreement and is not related to the license codewords required to run the software. You must accept the agreement to continue with the installation. This appears only when you run Setup the first time or after uninstalling IC-CAP.
- 5 At the *License Agreement* screen, after reviewing the agreement, choose either:
  - *I accept the terms of the license agreement*
  - *I do not accept the terms of the license agreement*

then click **Next** to continue with the setup or **Cancel** to end the setup program.

- 6 At the *Installation Directory* screen, choose:
  - **Next** to install to the default destination.
  - **Browse** to specify a different destination folder. If you specify a folder that does not exist, the installation program will ask if you want to create it.

**NOTE**

Using network drives (disk space that physically resides somewhere other than inside the PC running IC-CAP) can degrade performance in a variety of ways. For best performance, install IC-CAP on the local PC with the HOME folder also on the local PC. Do not select a network drive using File > Change Directory. Ensure your temporary disk space is not on a network drive (see [Table 9](#), “System Environment Variables,” on page 154). Performance problems include, but are not limited to slow:

- Launch time
- File load time
- UI response when opening file browsers
- PEL execution
- Simulation time

7 At the *Home Directory Settings* screen, choose:

- **Next** to accept the default.
- **Browse** to specify a different folder.

The folder you specify will be the default startup folder for IC-CAP. It will also be used to store the configuration data in a subfolder called *hpeesof*. The path for the home directory cannot contain any folder names that use a space. For example, do not set the home directory to C:\My Home\IC-CAP 2008. If you are using more than one IC-CAP version, please choose a new Home folder for each version. For the best performance, choose a folder on your local, not network, drive.

8 At the *Folder Options* screen, choose either:

- *Create folder and shortcuts only for current user*

or

- *Create folder and shortcuts for all users* (default)

then type in a new folder name or click **Next** to accept the default folder name.

9 At the summary screen, review your choices then choose:

- **Back** to access previous screens to verify entries and make changes. This screen appears again if you go back to make other choices.

- **Install** to begin the installation.
- **Cancel** to exit the Setup without completing the installation.

Immediately after you click *Install*, the program starts copying files. The status screen displays the files being installed and shows the installation progress.

10 At the *FLEXid* screen, choose:

- **Yes** to install a FLEXid dongle (hardware key) for licensing.
- **No** to continue

11 After reading the information about how to obtain licenses or codewords to run IC-CAP, click **Finish**.

12 Install your codewords. For instructions, refer to “[Installing Your Licenses](#)” on page 30.

13 Install the Macrovision FLEXid software-security hardware key to your PC’s parallel port or use your PC LAN card’s ethernet ID. For instructions, refer to “[Installing Your Licenses](#)” on page 30.

14 To use the instrument control features in IC-CAP, install a GPIB interface as well as all required drivers supplied with the interface.

### Installing from a File Server

The contents of the IC-CAP CD or downloaded and unzipped installation image can be copied to a file server PC enabling you to install IC-CAP from this file server. This arrangement is useful for doing silent installations (see “[Silent Installations](#)” on page 23). The following steps explain how to set up the file server and run the installation on client PCs. Agilent EEsof recommends that you use Windows Explorer to create folders and copy files in this procedure.

- 1 On the file server PC, create an IC-CAP2008 folder with a cdrom subfolder on a sharable hard disk.

- 2 If installing from a CD, insert the IC-CAP PC installation CD into the file server's CD-ROM drive. If the Setup program starts automatically, cancel it at your first opportunity.
- 3 Either copy the contents of the CD into the folder C:\ICCAP2008\cdrom or unzip the installation image into the folder C:\ICCAP2008\cdrom.

To ensure copying all files, select the CD-ROM drive in Windows Explorer, and choose **Edit > Select All**, then **Edit > Copy**. Next, select the *cdrom* folder and choose **Edit > Paste**.

- 4 On the file server PC, share the folder C:\ICCAP2008.

In Windows Explorer, select the folder, then choose **File > Properties**. Select the *Sharing* tab, and complete the information. Click **OK**.

- 5 For each client PC on which you want to install IC-CAP, map the client to the folder ICCAP2008 on the file server PC. In Windows Explorer, choose **Tools > Map Network Drive** and complete the information.
- 6 On the client PCs, run *setup.exe* from the mapped network drive. You may run the normal installation described in “[Installation Steps](#)” on page 19, or the silent installation described in “[Silent Installations](#)” on page 23.

## Silent Installations

The InstallShield program provided with IC-CAP supports a silent installation. A normal (non-silent) installation receives the necessary input from the person installing the software in the form of responses to prompts in dialog boxes. However, a silent installation does not display prompts for inputs. Instead, a silent installation gets inputs from a response file.

### Silent Installation Overview

To set up and run a silent installation on a Windows PC for IC-CAP 2008:

- 1 On a server PC's sharable hard disk, copy the contents of the IC-CAP installation image (from CD or downloaded and

unzipped) to a folder. Details about setting up a file server are described in “Installing from a File Server” on page 22.

- 2 Share this folder and map the folder to a client machine.
- 3 On client PCs, run the *setup.exe* utility using arguments for a silent installation, including the path and file name of the response file.
- 4 If needed, run a silent uninstallation to remove IC-CAP from client PCs.

### Response File Contents

The response file provides the inputs automatically during silent installations. The command to execute a silent installation includes the path and file name of the response file. Using our example location for the installation contents, the sample *response.txt* file is located in the *ICCAP2008\cdrom\silent* folder.

The *response.txt* file supplies the following inputs requested by the installation program:

- Installs IC-CAP 2008 into the folder *C:\Agilent\ICCAP\_2008*.
- Places shortcut icons for the *Start* menu in a default location.
- Sets the home folder to *C:\users\default*.

If you want to change these settings, copy the sample *response.txt* file then edit the file being careful to change only the settings in question to avoid corrupting the file:

- To change the installation folder, change
  - *-P installLocation="C:\Agilent\ICCAP\_2008"* and
  - *-V IS\_DESTINATION="C:\Agilent\ICCAP\_2008"* to a new path.
- To change the home folder setting, change
  - *-V MY\_HOME="C:\users\default"* to a new path.

**NOTE**

Using network drives (disk space that physically resides somewhere other than inside the PC running IC-CAP) can degrade performance in a variety of ways. For best performance, install IC-CAP on the local PC with the HOME folder also on the local PC. Do not select a network drive using File > Change Directory. Ensure your temporary disk space is not on a network drive (see [Table 9](#), “System Environment Variables,” on page 154). Performance problems include, but are not limited to slow:

- Launch time
- File load time
- UI response when opening file browsers
- PEL execution
- Simulation time

---

## Running a Silent Installation

To run a silent installation on a client PC:

- 1 On the client PC, verify that IC-CAP 2008 has not already been installed. There should not be a *C:\Agilent\ICCAP\_2008* folder since the silent installation process is not expecting it to be there. If IC-CAP has been installed, uninstall it.
- 2 On the client PC, open a Command Prompt or DOS prompt window. In a command prompt, change to the *ICCAP2008\cdrom* folder that is shared by the server PC.
- 3 Execute the *setup.exe* command identifying the *full path* for the response file and use the silent installation option.

For example:

```
cd D:\ICCAP2008\cdrom
setup.exe -options "C:\temp\response.txt" -silent
```

- 4 After waiting 3 to 5 minutes for the installation process to finish, verify that the installation process is done by checking that the *\_uninst* directory is located under the installation directory.

### Running a Silent Uninstallation

When you need to run a silent uninstallation on a client PC, use the sample response file, *uninst\_response.txt*. Using our example location for the installation contents, the *uninst\_response.txt* file is located in the *ICCAP2008\cdrom\silent* folder.

#### To run a silent uninstallation:

- 1 In a command prompt, change to the folder containing the *uninst\_response.txt* file.

```
cd D:\ICCAP2008\cdrom\silent
```

- 2 Copy the *uninst\_response.txt* file to the folder *C:\temp*:

```
copy uninst_response.txt C:\temp
```

- 3 Change to the *\_uninst* subfolder in the IC-CAP installation folder:

```
cd Agilent\ICCAP_2008\_uninst
```

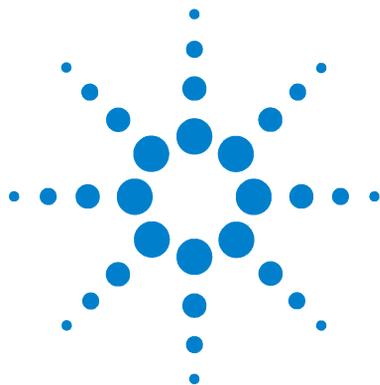
- 4 Run the uninstaller:

```
uninstaller.exe -options "C:\temp\uninst_response.txt"  
-silent
```

This process opens a progress dialog box. When the dialog box closes, the process is done.

### Troubleshooting

The most effective way to troubleshoot errors with the silent install/uninstall process is to run the same type of installation in normal or visual mode.



## 2 Setting up Licenses on Windows Systems

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Use the following information to set up licenses for IC-CAP on a PC running Windows. After you install IC-CAP using the steps described in [Chapter 1](#), “Installing IC-CAP on Windows Systems,” you will need to set up the FLEXnet license manager and your IC-CAP license file (*license.lic*) before you can run IC-CAP.

IC-CAP uses Macrovision’s Flexible License Manager (FLEXnet) software for all software security configurations. When you run the IC-CAP Setup program, the FLEXnet software is installed at *<installation folder>\licenses\bin* where *<installation folder>* is the destination folder you specified when you ran Setup.

### Using LMTTOOLS for FLEXnet

IC-CAP 2008 contains the Macrovision utility *lmttools* with the FLEXnet software. This utility does not replace the steps in this chapter regarding license installation, but can help in the installation and use of FLEXnet licenses.



## 2 Setting up Licenses on Windows Systems

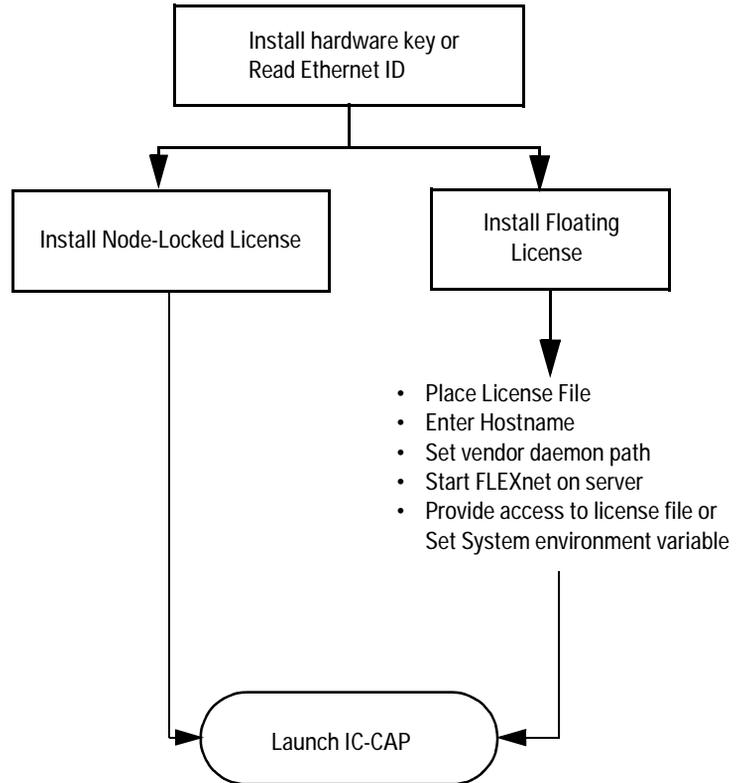
The utility can be found in the `\ICCAP_2008\licenses\bin` folder and is named `lmtools.exe`. Using `lmtools`, you can:

- Determine your system's settings, which you will need when you request codewords from Agilent EEsof EDA. This information can be found under the System Settings tab.
- Configure your FLEXnet licenses to start from a license file or as a Service using the Service/License File tab. If you choose to start FLEXnet as a service, you can configure the FLEXnet service from the Configure Services tab.
- Start, stop, and reread `license.lic` files and services using the Start/Stop/Reread tab.

For details on using FLEXnet and `lmtools`, refer to the documentation available at the Macrovision website:

[http://www.macrovision.com/support/by\\_catagory/Software\\_Licensing.shtml](http://www.macrovision.com/support/by_catagory/Software_Licensing.shtml)

## License Installation Overview



### NOTE

The Agilent License Information Tool is available to check your environment variable settings, display your *license.lic* file, and show your license and server status. Refer to [“Using the Agilent License Information Tool”](#) on page 59.

### Installing Your Licenses

You must request and install new license codewords for IC-CAP 2008. To learn how to request codewords, see [“Get Codewords for IC-CAP 2008”](#) on page 15. Use the steps in the following sections to install your IC-CAP licenses. If you have not done so, please review [“Before You Begin”](#) on page 10. Ideally, you should have installed IC-CAP before you complete these steps. For details on installing IC-CAP on a PC running Windows, please refer to [“Installing IC-CAP”](#) on page 18.

Use one of the following methods to run the FLEXnet licensing system on your PC:

- Install a Macrovision FLEXid hardware key.
- Read your LAN card’s ethernet ID.

#### NOTE

IC-CAP 2008 installs version 11.4.1 of FLEXnet. Make sure you use the latest version of the FLEXnet software, drivers, and hardware key as needed on all IC-CAP systems and license servers.

---

### Installing a Hardware Key

One way to run the FLEXnet licensing system on your PC is to install the Macrovision FLEXid hardware key (also called a dongle) on a parallel port of your computer. In a node-locked environment, it is installed on the local computer. In a floating license environment, it is only required on the server.

#### NOTE

Before you install the key, make note of the hardware key ID number that is printed on the key. If you have not already received your security codewords from Agilent EEsof, you will need to provide this number when you request codewords, as explained in [“Get Codewords for IC-CAP 2008”](#) on page 15.

---

## Installing the FLEXid Driver

The FLEXid driver is automatically installed during the IC-CAP installation providing it was not already installed. If the FLEXid driver already exists, the installation program may not load the new FLEXid driver. In this case, you need to complete the following steps to install the latest FLEXid driver. Be aware that this procedure requires system administrator privileges. Macrovision recommends that you install the FLEXid System Driver with their installer, which is included in the IC-CAP installation image that you downloaded and unzipped or on the installation CD.

To install the Macrovision FLEXid Driver:

- 1 Locate the installation image that you downloaded and unzipped or place the installation CD in your CD drive.
- 2 Select **Start > Run** (or use your Windows Explorer and skip the next step).
- 3 In the Run box, click **Browse**.
- 4 Change to the location of the installation image or CD drive.
- 5 If you wish to remove any existing FLEXid drivers, locate and double-click the *FLEXidCleanupUtility.exe* file. This starts the Macrovision FLEXid Cleanup Utility program. Click the **Next** button. When the process is complete, click **Finish** to close the utility.
- 6 Locate and double-click the *FLEXid\_Dongle\_Driver\_Installer.exe* file. This starts the Macrovision FLEXid Drivers installation program. For additional information, see the *FLEXid\_README.pdf* file also located in the installation image.
- 7 Click the **Next** button.
- 8 Select the features you want to install, then click the **Next** button.
- 9 Click the **Install** button.
- 10 When the process is complete, a dialog box with a message to restart your system is displayed.
- 11 Click **Finish**.

- 12 Restart your computer. The driver will not become active until your PC is rebooted.

### Using Ethernet ID

Another way to run the FLEXnet licensing system on your PC is to read your LAN card's ethernet ID and have Agilent EEsof Business Support tie this ID to your IC-CAP codewords. To use this method, do the following:

- 1 Make sure that you have TCP/IP and IPX/SPX network protocols loaded on your PC. The IPX/SPX protocol is required by FLEXnet. To get help on network protocols, refer to your Windows Help for Network Protocols:
  - a Choose **Start > Help**.
  - b Select the **Index** tab.
  - c Enter `network protocols`.
  - d Click on the **Display** button.
  - e Select **To install a network protocol**.
  - f Click on the **Display** button.
  - g Follow the help instructions, which will ask you to click in the help dialog box to continue.
  - h If you already have TCP/IP and IPX/SPX network protocols loaded, these items will be displayed. If you don't have both, choose the **Add** button and select the needed protocols from the list that appears. For example, select *NWLink IPX/SPX Compatible Transport* to add the IPX/SPX network protocol.
- 2 Verify that you can read your LAN card's ethernet address. For all versions of Windows, run the following FLEXnet command from the MS DOS Command Prompt:

```
cd \ICCAP_2008\licenses\bin  
lmutil lmhostid
```

To obtain your LAN card's ethernet address *before* you have IC-CAP installed, type:

```
ipconfig /all
```

If *lmutil lmhostid* does not return the expected ethernet address of your LAN card, make sure you have the IPX/SPX (NWLink IPX/SPX Compatible Transport) protocol loaded.

#### NOTE

Before you can use your LAN card's ethernet ID, you will have to let Agilent EEs of Business Support tie this ID to your IC-CAP codewords. If you have not already received your security codewords from Agilent EEs of, you will need to identify this number on your Codeword Request Form, as explained in the section, "[Determining License Type](#)" on page 33.

## Determining License Type

Look at the INCREMENT lines in your *license.lic* file to determine the type of licenses you have. If the INCREMENT lines contain the strings HOSTID= and uncounted, then your licenses are node-locked. Otherwise, your licenses are floating.

For example:

### Node-locked License

```
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 uncounted \
  VENDOR_STRING="00008OXXXXXX : SYAQRDS F1AQCOM CNEXTBD FBLCHLO \
  WYGJYZD WTFLQZD WQYQBHI EFZ" HOSTID=00008OXXXXXX \
  START=20-oct-2005 SIGN="036D 9DA2 5AA3 74FF 32AC B41E 77AA \
  3C4E FBF6 BCF0 2402 613E EB0B 377A 65EB B916 109D 8F98 BA59 \
  DC85 CAE9"
```

For Node-locked licenses, refer to "[Installing Node-Locked Licenses](#)" on page 35.

### Floating License

```
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 2 \
  VENDOR_STRING="0008XXOXXOO : SYAQRDS F1AQCOM CNEXTBD FBLCHLO \
  WYGJYZD WTFLQZD WQYQBHI EFZ" START=20-oct-2005 SIGN="030F 496F \
  0869 F6A0 FD20 66E6 1DBF A981 22C3 4143 4B02 A946 49DC DB3B \
  A791 8140 ACEB 3211 7AFE 5FFD 7143"
```

## 2 Setting up Licenses on Windows Systems

For Floating licenses, refer to [“Installing Floating Licenses on a PC Server”](#) on page 36.

## Installing Node-Locked Licenses

The *license.lic* file containing node-locked codewords should be installed on the local computer. The default location for *license.lic* is *<installation\_folder>\licenses*. For example, *C:\ICCAP\_2008\licenses\license.lic*. Copy the *license.lic* file you received via email to the *<installation\_folder>\licenses folder*.

### NOTE

Do not execute FLEXnet's *lmgrd* command for node-locked licenses. If you have started this program, stop it using the Task Manager or re-boot your PC.

## Changing the Location of the License File

If you use the default license file location, your environment variables are set automatically. To use the *license.lic* file from a different location, set the *AGILEESOFD\_LICENSE\_FILE* environment variable to point to the location.

To define the environment variable:

- Choose **Start > Settings > Control Panel > System > Advanced > Environment Variables** then add a new variable named *AGILEESOFD\_LICENSE\_FILE* that points to the full path to the *license.lic* file.

Your environment variable can be entered either as a user variable or as a system variable. The user variable affects only the currently logged-in user; the system variable affects all users. For a node-locked license, be sure you add the *AGILEESOFD\_LICENSE\_FILE* variable to the *System Environment*, not the *User variables*.

### Installing Floating Licenses on a PC Server

Use the following sections to install your IC-CAP floating licenses. You should have installed IC-CAP before you complete these steps. For details on installing IC-CAP on a PC running Windows, please refer to “[Installing IC-CAP](#)” on page 18.

#### NOTE

Be sure to use the following information to update all existing license servers with the latest version of the FLEXnet software (e.g., `lmgrd` and `lmutil`). The software is installed with IC-CAP 2008. Using older versions may cause license-encryption errors, invalid hostid results, and unsupported feature errors.

Verify that all multiple and redundant servers are updated including any license administration scripts in use. Run `lmutil` directly from the IC-CAP 2008 installation location (`<installation folder>\licenses\bin`) for information to help modify the scripts.

You will need to stop, then restart, the license server to make these updates.

---

### Installing the License File

The *license.lic* file that implements FLEXnet security must be installed to run IC-CAP. The default install path is `<installation folder>\licenses`; for example: `C:\ICCAP_2008\licenses\license.lic`. Copy the *license.lic* file that you received via e-mail to the `<installation folder>\licenses` folder.

If your licenses will be served by a central server, have your system administrator install the *license.lic* file on the license server.

## Entering the Hostname

Change the default hostname setting in your license file to the actual hostname of your license server. The license server is the computer that will serve the licenses on the network, and whose Ethernet address or FLEXID hardware key number, appears on the SERVER line.

For example, lets assume that a computer with FLEXID hardware key number 8-5E700059B957 has a hostname of joshua. The SERVER line should read:

```
SERVER joshua FLEXID=8-5E700059B957
```

License files are generated with SERVER lines with the following format:

```
SERVER <hostname> <hostid>
```

where

<hostname> is set to unknown by default

<hostid> is the FLEXID hardware key number or Ethernet address of the license server.

You can also specify a specific TCP port number for license requests as follows:

```
SERVER <hostname> <hostid> <tcp_port>
```

Any computer that runs IC-CAP and wants to checkout licenses from this license server will need to set *AGILEESOFD\_LICENSE\_FILE* as follows:

```
AGILEESOFD_LICENSE_FILE=2100@joshua
```

If you do not specify a TCP port number on the SERVER line in your *license.lic* file, the license server will automatically use the first available TCP port in the range 27000 to 27009. In this case, you should set *AGILEESOFD\_LICENSE\_FILE* as follows:

```
AGILEESOFD_LICENSE_FILE=@joshua
```

### NOTE

Enter a specific port address on the SERVER line for improved license check-out performance. You may enter a port address outside the range of 27000 to 27009, as long as the address is not used elsewhere. Then set the environment variable *AGILEESOFD\_LICENSE\_FILE*.

### Setting the Vendor Daemon Path

By default, no path is specified to the *agileesofd* vendor daemon executable. This is acceptable as long as *lmgrd* and *agileesofd* are in the same folder when you start FLEXnet.

In the typical license configuration, *lmgrd* and *agileesofd* are both located in the `\ICCAP_2008\licenses\bin` folder. When *lmgrd* is started from the `\ICCAP_2008\licenses\bin` folder, it looks for *agileesofd* in the same folder. If *agileesofd* is not in the same folder as *lmgrd*, you must specify a path to it using the following syntax:

```
VENDOR agileesofd C:\ICCAP_2008\licenses\vendors\agileesofd
```

### Starting FLEXnet

FLEXnet can be started either manually or automatically. You must start the FLEXnet license manager daemon (*lmgrd*) on the license server(s) first. Once the license server(s) is running *lmgrd* and has started the vendor daemon(s), you can configure the other computers (clients) and user login accounts that need to access IC-CAP.

To start FLEXnet you need the following.

- FLEXnet software installed in the `<installation_location>\licenses` folder. This is done when you install IC-CAP.
- The license server computer connected to the network using the TCP/IP network protocol.
- A local copy of the *license.lic* file that contains the FLEXnet codewords. Every computer that will run IC-CAP must be able to access the *license.lic* file used by the license server(s) to check out a license. Access to the *license.lic* file can be via a local copy of the *license.lic* file or through a network drive.
- Properly configured SERVER and VENDOR lines in your *license.lic* file.

If you have a three-server redundant configuration, you must start FLEXnet on all three servers before the licenses will be available on the network. Once you have FLEXnet running, you

can configure the other computers (clients) and user login accounts that need to access IC-CAP by setting *AGILEESOFD\_LICENSE\_FILE*.

### Starting FLEXnet Manually

While starting FLEXnet manually is a good way to verify that FLEXnet starts correctly, it is generally not recommend for a server, because it requires a dedicated MS-DOS Command Prompt to be open at all times and it requires re-starting after rebooting the license server. Use the following steps to start the FLEXnet executable file, *lmgrd.exe*:

- 1 From a MS-DOS Command Prompt, change to *<installation\_directory>\licenses\bin*, where *<installation\_directory>* is the folder where you installed IC-CAP.
- 2 Type the following command specifying the full path and location of the license file.

```
lmgrd -app -c <installation_directory>\licenses\
license.lic -l <inst_dir>\licenses\flex.log
```

To shut down the license manager, enter the following at a command prompt, from the *<installation\_directory>\licenses\bin* folder:

```
lmutil lmdown -c <installation_directory>\licenses\license.lic
```

### Starting FLEXnet Automatically

Ideally you should configure FLEXnet to start up automatically each time your system is booted by installing the license manager as a Control Panel service.

To start the license manager automatically:

- 1 From a MS-DOS Command Prompt, change to *<installation\_directory>\licenses\bin*, where *<installation\_directory>* is the folder where you installed IC-CAP.
- 2 Enter the full path and filename of both the license executable file and the *license.lic* file. The default location for the executable file is *<installation\_directory>\licenses\bin\lmgrd.exe*. (The *flex.log* file is useful for troubleshooting.)

## 2 Setting up Licenses on Windows Systems

```
install -e <path to lmgrd> -c < path to license file> -l  
<path to flex.log>
```

For example:

```
install -e d:\ICCAP_2008\licenses\bin\lmgrd.exe -c  
d:\ICCAP_2008\licenses\license.lic -l  
d:\ICCAP_2008\licenses\flex.log
```

If you did not specify a *flex.log* file using the “-l” option when you ran *install.exe* in step 2, FLEXnet creates a default log file in the system 32 folder. While this default log file does not contain as much information, it can still be useful. This file is typically located in `c:\winnt\system32\` and is named `lmgrd.log` or `lmgrd.xxxx` where `xxxx` is the process ID number of *lmgrd*.

- 3 Activate the license server by starting the FLEXnet service using the Control Panel or by rebooting the system:

**Start > Settings > Control Panel > Administrative Tools > Services**

Double-click on the **FLEXnet License Manager** service and click on the **Start** button.

To remove the license manager from the service list and cancel the automatic FLEXnet startup:

From your system prompt, change to the license folder and enter: `install -r`

To change the path to your license file, first remove the existing FLEXnet service using the `installs -r` command, reinstall FLEXnet using the new location, and then reboot your system.

## Ensure Access to the License File

You need to configure each PC client to access the license server and to check out a license. You can do this by using one of two methods:

- Place a copy of the *license.lic* file in the `<installation_directory>\licenses` folder of each local computer.
- Configure the `AGILEESOFD_LICENSE_FILE` to point to the license file.

Typically, it is best to use the `port@host` syntax to set the `AGILEESOFD_LICENSE_FILE` to point to the license server.

```
set AGILEESOFD_LICENSE_FILE=27000@joshua
```

Where `27000` is the TCP port number on the `SERVER` line in the *license.lic* file and *joshua* is the hostname of the license server.

If your license server is set up to search for an available port, use the `@host` syntax to set the `AGILEESOFD_LICENSE_FILE` to point to the license server.

```
set AGILEESOFD_LICENSE_FILE=@joshua
```

You can also set `AGILEESOFD_LICENSE_FILE` to the full path and filename of the *license.lic* file used by the license server:

```
set AGILEESOFD_LICENSE_FILE=C:\ICCAP_2008\licenses\license.lic
```

### Accessing Licenses From a UNIX License Server

You can access licenses from a UNIX license server by doing the following:

- 1 Set up the UNIX license server(s) to use FLEXnet version 11.4.1 or higher *lmgrd* and *agileesofd* daemons.
- 2 Set up the PC to access the UNIX license server's *license.lic* file.

### Setting Up the UNIX License Server

You must use version 11.4.1 or higher of the FLEXnet daemons *lmgrd* and *agileesofd*. Use the following commands to check the version of *lmgrd* and *agileesofd* on your UNIX license server:

```
cd $ICCAP_ROOT/licenses/bin
. / lmgrd -version
cd $ICCAP_ROOT/licenses/vendors
. / agileesofd -v
```

Use the following steps to update current FLEXnet daemons on your license server:

- 1 Stop the current FLEXnet daemons on the license server:

```
cd $ICCAP_ROOT/licenses/bin
. /lmutil lmdown -c ../license.lic
```

- 2 Replace the following files with the supported FLEXnet version files:

```
$ICCAP_ROOT/licenses/bin/lmgrd
$ICCAP_ROOT/licenses/bin/lmutil
$ICCAP_ROOT/licenses/bin/agileesofd
```

If you have more than one license server, make sure you do this on all of them.

- 3 Restart the license daemons on the UNIX license server(s):

```
cd $ICCAP_ROOT/licenses/bin
. / lmgrd -c ../license.lic -l ../flex.log
```

## Setting Up the Client(s)

Your PC can access the UNIX license server's *license.lic* file in either of two ways:

- By copying the *license.lic* file from the UNIX license server to the PC's *<installation\_directory>\licenses* folder
- By setting the *AGILEESOFD\_LICENSE\_FILE* variable on the PC to point to the UNIX license server as follows:

```
set AGILEESOFD_LICENSE_FILE=<port>@<host>
```

For example:

```
set AGILEESOFD_LICENSE_FILE=27000@joshua
```

where *27000* is the port number on the *SERVER* line in the in the *license.lic* file and *joshua* is the hostname of the UNIX license server.

To set an *AGILEESOFD\_LICENSE\_FILE* system environment variable that points to the *license.lic* file, use the steps outlined in [“Changing the Location of the License File”](#) on page 35.

### Special Licensing Needs

Be sure to use the `lmttools` utility to install an IC-CAP license on a server that is already running FLEXnet. For details on using FLEXnet, refer to the Macrovision website at:

[http://www.macrovision.com/support/by\\_catagory/Software\\_Licensing.shtml](http://www.macrovision.com/support/by_catagory/Software_Licensing.shtml)

### Using FLEXnet Options

An options file enables the license administrator to control the security parameters of FLEXnet. Specifically the license administrator can:

- Allow the use of features based on user, hostname or display name.
- Deny the user of features based on user, hostname or display name.
- Reserve licenses based on user, hostname or display name.
- Control the amount of information logged about license usage.

### Creating an Options File

Use the desired options listed to create the options file using any text editor. Ideally, you should keep the options file in the same directory as your *license.lic* file. Also, add the pathname to the options file in the *license.lic* file as the fourth field on the VENDOR line for *agileesofd* as shown in the following example. (Remember to use the backslash (\) character if the file contains wrapped lines.)

```
VENDOR agileesofd C:\ICCAP_2008\licenses\vendors\agileesofd \
C:\ICCAP_2008\licenses\agileesofd.opt
```

You can include comments in your options file by starting each comment with a pound sign '#'. Everything in the options file is case-sensitive. Be sure that user names and feature names, for example, are entered correctly. The available options are:

- **EXCLUDE**  
Deny a user access to a feature.

- **EXCLUDEALL**  
Deny a user access to all feature served by this vendor daemon.
- **GROUP**  
Define a group of users for use with any options.
- **INCLUDE**  
Allow a user to use a feature.
- **INCLUDEALL**  
Allow a user to use all features served by this vendor daemon.
- **NOLOG**  
Turn off logging certain items.
- **REPORTLOG**  
Specify that a logfile be written suitable for use by the FLEXadmin End-User Administration Tool.
- **RESERVE**  
Reserve licenses for an individual user or groups of users.

Use the following steps to create and use an options file. Details about each step located in previous sections:

- 1 Create an options file with your required options.
- 2 Modify your *license.lic* file so that the **VENDOR** or **DAEMON** line points to this option file as shown in this example:
 

```
VENDOR agileesofd C:\ICCAP_2008\licenses\vendors\agileesofd \
C:\ICCAP_2008\licenses\agileesofd.opt
```
- 3 Start up your license server (**lmgrd**) that is pointing to your license file. You must stop it first if it is running. It's important that a message is displayed or recorded in the FLEXnet log verifying the license manager is using the options file.
- 4 Set *AGILEESOFD\_LICENSE\_FILE* to point to your license server.
- 5 Run IC-CAP.

### Updating the License File

If you have been running FLEXnet and receive updated codewords from Agilent EEsof, you can add the new licenses to the FLEXnet environment as follows:

- 1 Replace the existing *license.lic* files on the license servers and clients with the new *license.lic* file.
- 2 On the primary server, run `lmutil lmreread`. This causes the *lmgrd* on the primary server to re-read the *license.lic* file and update all of the other *lmgrd* processes on the network.
- 3 After you have done this, you can run `lmutil lmstat -a` to verify that the license servers have received the new license information.

If this does not work, you may need to stop all of the *lmgrd* processes on your network and then restart them as described in “Starting FLEXnet” on page 38.

### Merging Multiple Vendor Licenses

When you are running FLEXnet-licensed products from multiple vendors, you may need to take steps to prevent licensing conflicts during installation:

- Multiple license server nodes; each running one *lmgrd* and one license file
- One license server node running one *lmgrd* and one license file
- One license server node running multiple *lmgrds* and multiple license files

Each *lmgrd* can only read a single license file. In the first option you will have more license servers to monitor. With the third option you have only one server but multiple *lmgrds* to administer.

Your product's license file(s) define the license server(s) by hostname and hostid in the SERVER line(s) in the license file.

- If the license files for two or more products contain identical hostids on the SERVER line(s), then these files can be combined.

- If the license files for two products contain different hostids on a SERVER line, then the license servers for those products will be running on different nodes and the license files cannot be combined.

If you have two or more products whose license servers run on the same node (as specified by the SERVER lines in the license files), you may be able to combine the license files into a single license file.

- If the SERVER lines in those files have identical hostids, then you can combine the files into a single file.
- If the SERVER lines have different hostids, then you must keep the license files separate.

Essentially, you can combine two license files under the following conditions:

- 1 The number of SERVER lines in each file is the same.
- 2 The hostid field of each SERVER line in one file exactly matches the hostid field of each SERVER line in the other file.

Some possible reasons license files may not be compatible are:

- License files are set up to run on different server nodes, so hostids are different.
- One file is set up for single server (has only one SERVER line), the other is set up for redundant servers (has multiple SERVER lines).
- One vendor uses a custom hostid algorithm, so the hostids on the SERVER lines are different even though the files are for the same computer.

If your license files are compatible as described above, then you can combine license files and run a single `lmgrd`, as described in [“Combining License Files from Multiple Vendors”](#) on page 48. If the license files are not compatible, then you must keep the license files separate and run separate copies of `lmgrd` for each license file, as described in [“Using Separate License Files on the Same Server Node”](#) on page 49.

### NOTE

There is virtually no performance or system-load penalty for running separate *lmgrd* processes.

---

### Combining License Files from Multiple Vendors

If your license files are compatible, you can combine them with any text editor. To combine license files, read all of the compatible license files into one file, then edit out the extra SERVER lines so that only one set of SERVER lines remains. Write out this data, and you have your combined license file.

If you combine license files from multiple vendors, it is a good idea to keep a copy of the combined license file in each vendor's default license file location. This way, your users can avoid having to set *AGILEESOFD\_LICENSE\_FILE*, because each package finds its license information in the default place. On UNIX, you can do this with a symbolic link from each default location to the location of the combined license file.

### FLEXnet Version Component Compatibility

When you combine license files for two different FLEXnet-licensed products, the products may not use the same version of FLEXnet. FLEXnet is designed to handle this situation. There are two basic compatibility rules for FLEXnet:

- 1 A newer *lmgrd* can be used with an older vendor daemon, but a newer vendor daemon might not work properly with an older *lmgrd*.
- 2 A newer vendor daemon (or *lmgrd*) can be used with an older client program, but a newer client program might not work properly with an older vendor daemon.

From these two compatibility rules come the simple rules for selecting which version of administration tools to use:

- 1 Always use the newest version of *lmgrd* and the newest version of each vendor daemon.
- 2 Use the newest FLEXnet utilities.

For specific application programs, you can use either the new or the old version (with the assumption that the vendor daemon for that application is at least as new as the application).

### Using Separate License Files on the Same Server Node

You must run a separate copy of *lmgrd* for each license file. When you run multiple copies of *lmgrd*, there are two details to remember:

- 1 The port number on the SERVER line of each license file must be unique. You can use a standard text editor to change the port number in each license file so that they are all different.
- 2 You must make sure that you are using a compatible version of *lmgrd* when you start it up for a particular license file. This can be done by using an explicit path to *lmgrd*.

When running client programs (such as a licensed application), you can set the *AGILEESOFD\_LICENSE\_FILE* environment variable to point to multiple license files. For example, you may have a license file from vendor ABC and a license file from vendor XYZ with incompatible servers. You can place the license file from vendor ABC into:

```
C:\user\flexnet\abc.lic
```

and the license file from vendor XYZ into:

```
C:\user\flexnet\xyz.lic
```

then set the *AGILEESOFD\_LICENSE\_FILE* environment variable to point to both of them. The syntax is as follows:

```
AGILEESOFD_LICENSE_FILE=27000@server1;27000@server2;  
27000@server3
```

Note that each path is separated with a semi-colon.

*AGILEESOFD\_LICENSE\_FILE* can point to only one license file for FLEXnet v1.x applications.

## Setting Up Redundant License Servers

FLEXnet allows you to setup a redundant license server configuration. This involves configuring three license servers. One of the three servers is the master server. If the master

server goes down, one of the remaining two servers becomes the new master server, and licenses remain available on the network.

Setting up a redundant server scheme requires extra system administration and is not recommended unless you have an absolute need for it.

To set up redundant license servers, use the same FLEXnet procedures on all three servers. All three servers need to be up and running before you licenses will be made available.

### Controlling License Path Settings

The *lmutil* utility provides the *lmpath* function, which allows direct control over FLEXnet license path settings. You can use *lmpath* to add to, override, or get the current license path set in the registry. This enables you to change or view path settings without locating individual settings in the Windows registry on the PC or in the FLEXnet registry (*.flexlmrc*) on UNIX.

The *lmutil* utility is located in *\$ICCAP\_ROOT/licenses/bin*. This location must be in your PATH, or use the following command before running the utility:

```
cd $ICCAP_ROOT/licenses/bin
lmutil lmpath {-status | -add | -override} {vendor_name |
all} license_path_list
```

where

*-status* displays the current license path settings.

*-add* appends *license\_path\_list* to the front of the current license-path settings or creates the list of license-path settings, if it doesn't exist, initializing it to *license\_path\_list*. Duplicates are discarded.

*-override* overrides the existing list of license-path settings with the contents of *license\_path\_list*. If *license\_path\_list* is the null string, "", the specified list is deleted. For example:

- `lmutil lmpath -override agileesofd ""`  
Deletes the value of AGILEESOFD\_LICENSE\_FILE from the registry.

- `lmutil lmpath -override vendor2 ""`  
Deletes the value of `VENDOR2_LICENSE_FILE` from the registry.
- `lmutil lmpath -override all ""`  
Deletes the value of `LM_LICENSE_FILE` from the registry.

*vendor* is a string naming a particular vendor daemon name. Affects the value of *vendor\_LICENSE\_FILE*. For example, use `agileesofd` to affect `AGILEESOFD_LICENSE_FILE`.

*all* refers to all vendor daemons. Affects the value of only `LM_LICENSE_FILE`.

*license\_path\_list* is the new path setting(s). On UNIX, this is a colon-separated list, and on Windows it is a semi-colon-separated list. If *license\_path\_list* is the null string, "", then the list is deleted for the specified *vendor*. Though you can enter specific license file names, you gain flexibility by entering only a path without a file name. This will include all \*.lic files in the same location.

**NOTE**

Environment variable settings (set in your shell) always override these registry settings.

---

### Checking the Status

Before you change license path settings, Agilent recommends that you display the current settings. To display the settings, enter the following commands:

```
lmutil lmpath -status
```

The following shows an example status listing:

```
lmutil - Copyright (C) 1989-2004 Macrovision Corporation.  
All rights reserved.  
Known Vendors:  
-----  
agileesofd: C:\Agilent\ICCAP_2008\licenses\license.lic  
-----  
Other Vendors:  
-----  
C:\flexlm\license.dat
```

#### NOTE

Where a path is set to a directory, each of the \*.lic files are listed separately.

### Changing License Path Settings

When adding or overriding path settings, *lmpath* sets the FLEXnet entry in the Windows registry on the PC, or changes the file *\$HOME/flexlmrc* on UNIX. Here are examples of how license settings may appear in each registry:

UNIX:

```
AGILEESOFD_LICENSE_FILE = /iccap2008/licenses
```

Windows:

Registry location:

```
My Computer\HKEY_LOCAL_MACHINE\Software\Agilent\ICCAP_2008
```

Registry license path setting:

```
AGILEESOFD_LICENSE_FILE REG_SZ C:\Agilent\ICCAP_2008\licenses
```

To change license path settings, enter the appropriate command in a Command Prompt on Windows, or a terminal window on UNIX. You can adapt the following examples which change path settings for `AGILEESOFD_LICENSE_FILE`:

- To add path settings on UNIX:

```
lmutil lmpath -add agileesofd <new_lic_path1>:<new_lic_path2>
```

- To add path settings on Windows:

```
lmutil lmpath -add agileesofd C:\<new_lic_path1>;C:\<new_lic_path2>
```

- To replace the current path settings on UNIX:

```
lmutil lmpath -override agileesofd <new_lic_path>
```

- To replace the current path settings on Windows:

```
lmutil lmpath -override agileesofd C:\<new_lic_path>
```

## Managing Multiple IC-CAP Versions

This section discusses how to manage the licenses for multiple versions of IC-CAP.

### Backward Compatibility of Codewords

The following table lists previous IC-CAP versions with details of their license management. The compatibility of codewords with the various IC-CAP versions is discussed below.

| Release Name | License File Version | Daemon Name | FLEX Version      | License Environment Variable | Default License File Location |
|--------------|----------------------|-------------|-------------------|------------------------------|-------------------------------|
| IC-CAP 2002  | 6.1                  | agileesof   | FLEXlm 7.2h       | AGILEESOF_LICENSE_FILE       | \$ICCAPHOME\licenses          |
| IC-CAP 2004  | 2.3                  | agileesofd  | FLEXlm 8.2a CRO   | AGILEESOFD_LICENSE_FILE      |                               |
| IC-CAP 2006  | 2.35                 | agileesofd  | FLEXnet10.1.3 CRO | AGILEESOFD_LICENSE_FILE      |                               |
| IC-CAP 2008  | 2.7                  | agileesofd  | FLEXnet 11.4.1    | AGILEESOFD_LICENSE_FILE      |                               |

The following table shows the codeword compatibility between various IC-CAP releases. Note that codeword compatibility also depends on the whether the codeword was available in that release.

| Codewords From This Release | Will Work With This Release |             |             |             |
|-----------------------------|-----------------------------|-------------|-------------|-------------|
|                             | IC-CAP 2008                 | IC-CAP 2006 | IC-CAP 2004 | IC-CAP 2002 |
| IC-CAP 2008                 | X                           | X           |             |             |
| IC-CAP 2006                 |                             | X           | X           |             |
| IC-CAP 2004                 |                             |             | X           |             |
| IC-CAP 2002                 |                             |             |             | X           |

## Combining IC-CAP 2008 Codewords with Other Agilent EESof EDA Codewords

For IC-CAP 2008, the vendor daemon *agileesofd* is used. If you want to serve IC-CAP 2008 licenses and earlier from the same server, you need to have the latest version of *lmgrd*, v11.4.1, and one or more DAEMON lines in your license file, depending on how many versions you want to support. The IC-CAP daemon names available are:

`agileesofd` - for IC-CAP 2004/2006/2008

`agileesof` - for IC-CAP 2002

For example, the license file would include:

```
SERVER hpnmems 77a588a7 1700
```

```
VENDOR agileesofd C:\ICCAP_2008\licenses\vendors\agileesofd
VENDOR agileesof C:\ICCAP_2002\licenses\vendors\agileesof
```

The INCREMENT lines for the different products would then be added to the file.

### NOTE

If combining codewords for IC-CAP 2002 and ADS 2002 or ADS 2002C, use the *agileesof* daemon included with ADS since it is a newer version than the one included with IC-CAP.

Here is how you might build a license file that contains IC-CAP 2008, ADS 2003C, and ADS 2002C codewords. The name and extension of the license file are arbitrary (i.e., `license.lic` or `iccaplicenses.txt`). By default, IC-CAP 2002, IC-CAP 2004, and IC-CAP 2008 look for a file named `license.lic`. You can use `license.lic`, or some other name you prefer. Whatever name you choose to use, make sure you set the environment variables to point to your license file.

Supported environment variables are:

- AGILEESOFD\_LICENSE\_FILE for IC-CAP 2004/2006/2008
- AGILEESOF\_LICENSE\_FILE for IC-CAP 2002

For example, if the combined codeword file is named `iccaplicenses.txt`, then:

- IC-CAP 2008 will use:

```
AGILEESOFD_LICENSE_FILE=C:\ICCAP_2008\licenses\iccaplicenses.txt
```

- IC-CAP 2002 will use:

```
AGILEESOF_LICENSE_FILE=C:\ICCAP_2002\licenses\iccaplicenses.txt
```

Each version of IC-CAP uses a certain search order to look for the environment variable:

- IC-CAP 2004/2006/2008 will first look for the environment variable named `AGILEESOFD_LICENSE_FILE`. If both `AGILEESOFD_LICENSE_FILE` and `LM_LICENSE_FILE` are defined, IC-CAP 2004/2006/2008 will use `AGILEESOFD_LICENSE_FILE` and ignore `LM_LICENSE_FILE`. If `AGILEESOFD_LICENSE_FILE` is not defined, then IC-CAP 2004/2006/2008 will default to `LM_LICENSE_FILE`.
- IC-CAP 2002 will first look for the environment variable named `AGILEESOF_LICENSE_FILE`. If both `AGILEESOF_LICENSE_FILE` and `LM_LICENSE_FILE` are defined, IC-CAP 2002 will use `AGILEESOF_LICENSE_FILE` and ignore `LM_LICENSE_FILE`. If `AGILEESOF_LICENSE_FILE` is not defined, then IC-CAP 2002 will default to `LM_LICENSE_FILE`.

### NOTE

Even though all versions of IC-CAP will default to `LM_LICENSE_FILE` if that is the only environment variable that exists, it is recommended that you use `AGILEESOFD_LICENSE_FILE` for IC-CAP 2004/2006/2008 and `AGILEESOF_LICENSE_FILE` for IC-CAP 2002.

## Example of a Merged License File

```

SERVER solarone 80FB214D 1700
VENDOR agileesofd C:\ICCAP_2008\licenses\vendors\agileesofd
VENDOR agileesofd C:\ICCAP_2002\licenses\vendors\agileesofd
#
# ADS 2002C Codewords
#
INCREMENT ads_datadisplay agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D HOSTID=80fb214d SIGN="008E 5A70 FECF \
  8BEF 9B3A 8A67 7375 0A51 0940 A264 6B00 C335 666B 03E2 D8E7 \
  99A8 A0F9 9007 2AC4 EF7D E101"
INCREMENT ads_datadisplay agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D SIGN="01CB 4272 B241 5A67 A4C8 CADB \
  A080 FFB2 7796 6C29 EC02 C3A9 FD8A BE47 C0C0 F027 5552 947F \
  64CC 06BA 2201"
INCREMENT ads_drc agileesofd 2.0 30-jun-2002 1 VENDOR_STRING=80FB214D \
  HOSTID=80fb214d SIGN="0138 3E48 7191 3703 8FFB 2614 067B 2A7E \
  203F 4F0C C900 79FE F186 9B1E 2B10 3B3D D650 2204 18CF 00C9 \
  3E3A"
INCREMENT trans_veriloggen agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D HOSTID=80fb214d SIGN="014D A119 4C16 \
  9831 16B3 B5C6 EFE7 ED11 D0AE F389 EA00 590B 0E0A E0CD 5E4D \
  9CE6 E6AD B27E 2CC4 8C1A 1D9D"
INCREMENT trans_veriloggen agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D SIGN="0332 DEBA 8398 B80F D2A0 0237 \
  BF97 0C7E 1CF3 CB15 2902 A5CB 47FA ECCB 9C6B BED2 E3D9 FBEB \
  EF84 FAFE 7AC8"
INCREMENT trans_vhdlgen agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D HOSTID=80fb214d SIGN="03D0 0C40 7E3C \
  E656 F8A8 ADF2 B161 97C1 CE6C DC0C DA00 A704 91C9 F5A0 30C6 \
  DA2A 60C0 A435 E003 02A0 C7A4"
INCREMENT trans_vhdlgen agileesofd 2.0 30-jun-2002 1 \
  VENDOR_STRING=80FB214D SIGN="028D FD25 D0E4 AD1A A0B7 5D61 \
  E2A8 7CC2 8135 D605 8200 F200 39D8 E5AF 4B9E D240 3682 4BAA \
  D9BD 6FB3 E580"
#
#ADS2003C codewords
#
INCREMENT ads_datadisplay agileesofd 2.3 07-jul-2003 1 \
  VENDOR_STRING="00047518D858 : O2GAZUD WSGSONJ 2HNECZL 12WKCKE \
  LRXYGSO MWYFKGP AKBPONX LOYSO" HOSTID=00047518d858 SIGN="0246 \
  771A BBA2 A0D4 B29E 7371 6FF7 F3D9 161A 1204 EE00 2E92 8AC0 \
  1AF7 FAF9 5B2C B017 23F7 91E8 BF97 B9AD"
INCREMENT ads_drc agileesofd 2.3 07-jul-2003 1 \
  VENDOR_STRING="00047518D858 : QEGHABO KEYWTHV 1HEIWND JFAVQ2A \
  UJXJ2EW KYARWEQ GY" HOSTID=00047518d858 SIGN="02EC 9EA3 EE62 \
  BDBC 9793 019D 0551 FD3E 20DD D0C1 D301 DA95 9F79 16A8 5E11 \
  1B81 E7CC 90F8 68A0 E116 8F0B"
INCREMENT ads_encoder agileesofd 2.3 07-jul-2003 1 \
  VENDOR_STRING="00047518D858 : GONJAZX FHGGNAP BWOGIAH PBKWEYK \
  UCKGULO YSO2GAZ UDWSGS" HOSTID=00047518d858 SIGN="027B 178E \
  2893 8446 A5C4 0990 830E CC2C F215 528B 6401 9B93 9540 A54C \
  B85A A68E 0049 200F 1685 96D1 FD7F"
INCREMENT ads_layout agileesofd 2.3 07-jul-2003 1 \
  VENDOR_STRING="00047518D858 : BUYPSCY ESZGY2G PVZBPON XODFINY \
  IUIUACJ EFQGAUY XLYSX" HOSTID=00047518d858 SIGN="032E E2FE \
  1D41 5386 F290 C7AA 207B 20C6 9187 D2D5 0D00 7DB9 8FF8 531A \
  9947 9A9D 5D72 A8E6 9807 3037 F7EA"

```

## 2 Setting up Licenses on Windows Systems

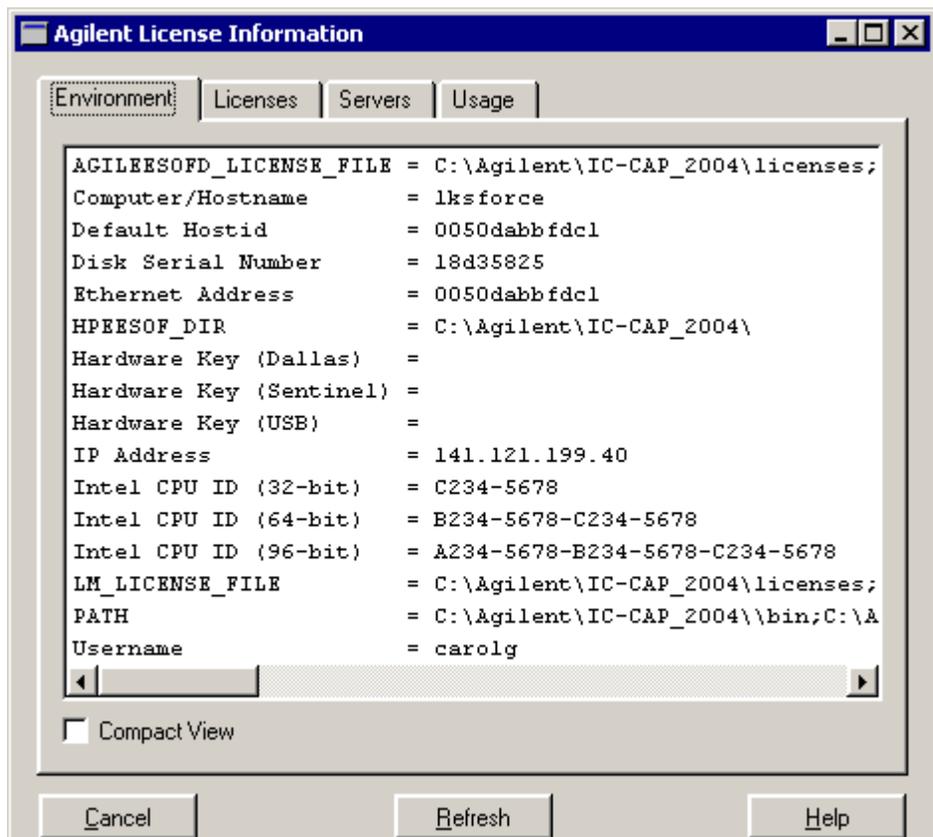
```
#
#IC-CAP 2008 codewords
#
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXXO : SYAQRDS FLAQQCOM CNEXTBD FBLCHLO \
  WYGJYZD WFFLQZD WQYQBHI EFZ" START=20-oct-2005 SIGN="023E 6EC8 \
  0EAD 7537 5072 CA30 C5F9 3DAE 73BC 3168 D601 453A F3BE F758 \
  ACE2 4576 CE88 FB0E 8663 C8EE 918B"
INCREMENT dev_bsim3 agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXXO : WVRFWQG PJEL1QG AUYLILYS XUYGJCY \
  L2WEYGO LSRXYBG PHEUL" START=20-oct-2005 FFA0 0BD3 8206 B191 \
  E658 F333 440F 8D03 17F3 D6CB A53B C176 1CDF 5A91 6BB4 28D0 \
  1386 E211"
INCREMENT dev_bsim4 agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXXO : WZJDCYM NBWJLYM YMQGRFW XSUCLYD \
  GXDWYGJ YZDWTY2 NMAJ" START=20-oct-2005 SIGN="012B FF53 9F9D \
  3ED9 47A5 8744 E57E 4B07 9FC0 B0F1 7D03 A125 35B2 3FF2 9C97 \
  ABE9 66E5 D12D 5EDD 718D EC6A"
INCREMENT dev_bsims0i agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXXO : KKEYWEH VXGIJRV WDYLNT2 ACFUBHA \
  VU2JOEN WFMJOPB SOKTNCH 1O" START=20-oct-2005 SIGN="001A C20B \
  3EDE 88BE 0FAF D892 4310 DCE0 9D76 0830 B100 71FA E487 CD4F \
  EEDE E019 2E71 F2D5 D338 A728 D607"
```

## Using the Agilent License Information Tool

The Agilent License Information Tool is available to check your environment variable settings, display your *license.lic* file, and show your license and server status.

You can access this tool in two ways:

- From the IC-CAP Main or Schematic window, choose **Help > License Information**.
- If you are unable to run IC-CAP, you may be having a problem with licenses. In this case, from an MS-DOS command prompt, type `<installation folder>\bin\aglmtool` then press **Enter**.

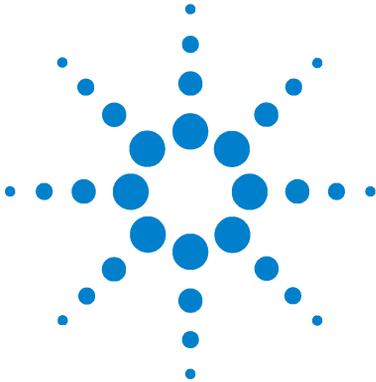


**Environment** Lists environment/license variables and computer information that affect your IC-CAP license configuration. This information can be very helpful when debugging license trouble. Use the Compact View option to wrap the lines making it easier to see where multiple path statements start and stop.

**Licenses** Lists all licenses found in the *license.lic* file installed on your computer, or in the case of a network installation, the license server. Use the Compact View option to wrap the lines making it easier to view complete license statements. Click Refresh if the *license.lic* file has been modified while viewing license information.

**Servers** Lists all license servers serving Agilent EEsof licenses on your network. You can expand any given server to see the licenses served by that server.

**Usage** This pane enables you to view the current status of all installed licenses. You can sort by Licenses (multiple licenses for a single feature) or by Users (select the User Info option first). Select All to view a complete list of installed licenses. Select Available to view only those licenses that are currently available. Select In Use to view only those licenses that are currently in use.



### 3

## Using IC-CAP on Windows Systems

Running IC-CAP 62

How Do I... 65

To get you started using IC-CAP on a PC running Windows, this section includes some basics along with useful tips for resolving problems that might occur after you have installed IC-CAP.



## Running IC-CAP

Your FLEXnet license file must be properly configured and installed before you can run IC-CAP. To set up your license file, follow the instructions in [Chapter 2](#), “Setting up Licenses on Windows Systems.”

To run IC-CAP from the Start menu, select **Programs > IC-CAP 2008 > <name of application>**.

where *<name of application>* is one of the following:

- **IC-CAP.** Launches the IC-CAP Main window.
- **IC-CAP Documentation.** Brings up your Web browser and the starting point for accessing IC-CAP documentation. The documentation files are accessed from:
- **UnInstall IC-CAP 2008.** Launches the Uninstall Program. For information on using this utility, refer to “[Delete All Installed Files](#)” on page 65.

## IC-CAP Does Not Start

It is possible to install programs or options for which you have not purchased licenses. Although the icons and features will appear in the software, you cannot access the applications without a license. Contact your Agilent EEsof sales representative to obtain additional licenses.

If your IC-CAP applications will not start:

- Make sure all of your licensing requirements are correctly set up, as explained in [Chapter 2](#), “Setting up Licenses on Windows Systems.”
- Using a text editor open and review the *install.log* file in your installation folder to see if there are any apparent problems with the installation structure. (You can re-run Setup if necessary to re-install.)

- Try using the Agilent License Information Tool, which is available to check your environment variable settings, display your *license.lic* file, and show your license and server status. Refer to “Using the Agilent License Information Tool” on page 59 for more information.
- Make sure a directory exists for temporary IC-CAP files. Temporary files are stored in the directory defined by the ICCAP\_TMP variable. If ICCAP\_TMP is not defined, temporary files are stored in the TMP directory. If the TMP directory does not exist, temporary files are stored in the TEMP directory.

If you cannot find the problem, run IC-CAP in verbose (debug) mode and contact Technical Support to help pinpoint the problem.

## Running IC-CAP in Verbose Mode

IC-CAP 2008 can be started in verbose (debug) mode to display more information about what is happening as IC-CAP runs. This extra information can be very useful to debug a problem with IC-CAP both at startup and in general operation. In verbose mode, IC-CAP writes a log file to the root folder of your PC’s system disk. Typically, this is:

*C:\iccap\_daemon.log*

The *iccap\_daemon.log* file can be sent by e-mail to Agilent EEs of EDA Technical Support for assistance.

To start IC-CAP in verbose mode, do the following:

- 1 Open your Windows Explorer.
- 2 Navigate to the *bin* folder in the IC-CAP installation folder. For example,
- 3 *C:\ICCAP\_2008\bin*
- 4 Double click on the *iccap\_verbose.bat* file.

This will start IC-CAP. You will notice some extra message windows as IC-CAP starts. Just click OK on each of the windows. Run IC-CAP until the problem you are trying to debug occurs, then take a look at the *iccap\_daemon.log* file for errors.

If you can't locate the cause of the problem based on the contents of *iccap\_daemon.log*, please contact Agilent EEsof EDA Technical Support and e-mail the *iccap\_daemon.log* file to the assigned support engineer.

## Licenses Stop Working

The FLEXnet software must be able to read the ethernet address of your LAN card for this to work properly. If you only have the TCP/IP protocol loaded, then FLEXnet will be unable to read the ethernet address and IC-CAP will not work.

You must have the NWLink IPX/SPX protocol loaded in addition to the TCP/IP protocol.

To load the NWLink IPX/SPX protocol in Windows, do the following:

- 1 Choose **Start > Settings > Control Panel**
- 2 In Control Panel, double-click on **Network**
- 3 In the Network dialog box, select the **Protocols** tab.
- 4 Click on the **Add** button.
- 5 Select **NWLink IPX/SPX Compatible Transport** from the list that appears and click **OK**.
- 6 The protocol will be loaded. Once it is complete, select **OK** until out of the Network dialog box.
- 7 To complete this procedure, reboot your PC.

## How Do I...

Following are some frequently asked questions about installation of IC-CAP programs on the PC.

### Check the Nodelock ID of My Hardware Key

You need the nodelock ID of your hardware security key to get codewords from Agilent EEsof. It might also be useful to access this information when you place a call to Technical Support. There are two ways to check this:

- Before you install the hardware key on your PC, you can read the id directly from the key.
- If you have installed the hardware key on your PC, and have also already installed your codewords and the FLEXnet software, enter a command to check the nodelock id:

```
lmutil lmhostid -flexid
```

### Delete All Installed Files

You don't have to uninstall all files before you run the Setup installation again. Any new installation supersedes previous installations. However, the Uninstaller is useful whenever you want to make sure you have deleted all installed IC-CAP files, including registry entries.

To run the Uninstaller program:

- 1 Close all IC-CAP applications.
- 2 Select **Start > Programs > IC-CAP 2008 PC > Uninstall IC-CAP 2008 PC**.
- 3 Answer **yes** to the prompt that asks whether you want to remove all IC-CAP applications and components.
- 4 When the uninstall process is complete, a prompt will indicate when the uninstall process is complete. Click **OK** to dismiss the dialog box.

#### NOTE

Be sure you have exited all applications before running the Uninstaller program. If you have not, it is possible you will get errors upon re-installing IC-CAP. If these errors occur, reboot your computer and start the new installation again, or search for and end the lingering application(s) through the Windows Task Manager and start the new installation again.

## Change the Home Directory

You can change the IC-CAP home directory by setting an environment variable named HOME or by changing the value listed in the registry for your IC-CAP home directory. If you set an environment variable named HOME, then IC-CAP uses that before the value listed in the registry.

To change the value listed in the registry for your IC-CAP home directory:

- 1 Select **Start > Run**.

Type `regedt32.exe`

Click **OK**.

- 2 Inside the registry editor, find the folder or window titled *HKEY\_LOCAL\_MACHINE on Local Machine*. Select **Software > Agilent > IC-CAP > 6.2 > eeenv**. You will see a registry entry called

*HOME: C:\users\default.*

(This is only true if you accepted the default startup folder during installation.)

- 3 Double-click this entry to open the string editor. Change this to reflect the path of your new home directory.
- 4 Change the Start directory of the IC-CAP Main window's file browser. Select the following:

**Start > Settings > Taskbar & Start Menu Programs > Advanced > Advanced.**

This opens the Explorer window.

- 5 On the right side of the Explorer window, double-click the **Programs** icon.

- 6 Open the **IC-CAP 2008 PC** icon. This displays the shortcuts to IC-CAP executable.
- 7 Right-click the **IC-CAP** icon and choose **Properties**
- 8 Choose the **Shortcut** tab.
- 9 Change the field *Start in:* to reflect the path of your new home directory.

## Ensure Hard Disk Storage Efficiency

This section provides an overview of the effects different types of file systems and different partition sizes have on the disk space required for installation of your IC-CAP application.

See the table below for definitions of some important storage terminology.

**Table 2** Storage Terminology

|             |   |
|-------------|---|
| sector      | The smallest unit of disk space that the hardware can read or write to, and it equals 512 bytes.  |
| cluster     | A group of one or more contiguous sectors and is the smallest unit that a file system can allocate (hence it is also referred to as an <i>allocation unit</i> ). For partitions larger than 16 MB, there are normally 4, 8, 16, 32, or 64 sectors per cluster. The number of sectors per cluster is determined when the hard disk is formatted. |
| file system | The means used by an operating system to store and retrieve files from a hard disk.   |
| partition   | A logical hard disk and appears on a PC as having a unique drive letter such as C:\. A physical hard disk can be divided into one or more partitions.   |

An IC-CAP installation typically contains thousands of files. Although many of these files are only a few kilobytes in size, they can occupy a lot more disk space than their individual sizes suggest. For instance, it is not uncommon for a 1 kilobyte file to occupy 32 kilobytes of space.

### 3 Using IC-CAP on Windows Systems

The amount of space occupied will depend on the type of file system that IC-CAP is installed on and the size of that particular disk partition. Identical installations can differ in space requirements by as much as 300% between different file systems.

Adding a new hard disk is a relatively inexpensive and common way to compensate for poor hard disk storage efficiency. However there are other options that can provide additional space without adding hardware. Options include changing disk partition sizes, changing file system types, and using disk compression software.

## Agilent EEsof Technical Support

Agilent EEsof worldwide technical support is available Monday through Friday. The toll-free North America hotline is open 6:00 am to 5:00 pm PT. Throughout Europe, the localized Online Technical Support Centers are open 8:30 am to 5:30 pm, local time; throughout Asia, the localized Customer Response Centers are open 9:00 am to 6:00 pm, local time.

The e-mail addresses for the various regions are listed below. However, for both the regional e-mail addresses and local telephone numbers for more than 25 countries, please refer to the Agilent EEsof Web site at

<http://www.agilent.com/find/eesof/>

### North America

Phone: 1 800 47 EEsof (473-3763) · Fax: 818-879-6465

e-mail: [eesof\\_support@agilent.com](mailto:eesof_support@agilent.com)

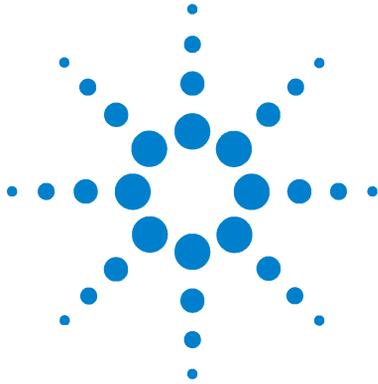
**Europe:** e-mail: [eesof-europe\\_support@agilent.com](mailto:eesof-europe_support@agilent.com)

**Japan:** e-mail: [eesof-japan\\_support@agilent.com](mailto:eesof-japan_support@agilent.com)

**Korea:** e-mail: [eesof\\_korea@agilent.com](mailto:eesof_korea@agilent.com)

**Asia:** e-mail: [eesof-asia\\_support@agilent.com](mailto:eesof-asia_support@agilent.com)

### 3 Using IC-CAP on Windows Systems



## 4 Installing IC-CAP on UNIX Systems

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This chapter describes how to install IC-CAP on Solaris and Linux. To install IC-CAP on Windows, see [Chapter 1](#), “Installing IC-CAP on Windows Systems.”

## Before You Begin

Before you begin, please take the time to go over the guidelines for installing IC-CAP on UNIX systems. For last-minute program and documentation information, refer to the *Release Notes* document on our website at:

<http://www.agilent.com/find/eesof-docs/>

Choose **IC-CAP 2008 > Release Notes**.

### Note the Changes in IC-CAP 2008

**NOTE**

If you have systems running older versions of IC-CAP, see the following table for a brief description of changes in the latest IC-CAP versions and their impact on systems with older versions installed.

**Table 3** Changes in IC-CAP 2008

| Description and Reference to Details  | Version Introduced and Impact  |
|---|--|
| Supported platforms changed. See “ <a href="#">Check the UNIX System Requirements</a> ”.        | IC-CAP 2008<br>The following platforms are no longer supported: HP-UX, Solaris 8, Solaris 9, and Red Hat Linux WS 3.x. Redhat Enterprise 4.0 is now supported. |
| Required processor changed. See “ <a href="#">Check the UNIX System Requirements</a> ”.         | IC-CAP 2008<br>Intel Pentium® 4 or better, or AMD XP 3000 or better is now required for Linux.   |
| Required RAM changed. See “ <a href="#">Check the UNIX System Requirements</a> ”.               | IC-CAP 2008<br>1 GB RAM is now the recommended minimum.  |
| Required hard disk space increased. See “ <a href="#">Check the UNIX System Requirements</a> ”. | IC-CAP 2008<br>1 GB is now required for installation,  |

**Table 3** Changes in IC-CAP 2008

| Description and Reference to Details   | Version Introduced and Impact   |
|--|---|
| Supported compilers changed. See <a href="#">“Check the UNIX System Requirements”</a> .  | IC-CAP 2008<br>SunStudio 11 and gcc 4.1.1 are now supported.  |
| Support for downloading installation images added. See <a href="#">“Installing IC-CAP”</a> .   | IC-CAP 2008<br>Installation images available for download.  |
| The version for the license server ( <i>Imgrd</i> ) has changed to FLEXnet 11.4.1 from FLEXnet 10.8. See <a href="#">“Installing Licenses”</a> . | IC-CAP 2008<br>Impacts all systems, hardware keys, license servers, and license administration scripts. |
| The codeword version changed to 2.7 from 2.35. See <a href="#">“Installing Licenses”</a> ,   | IC-CAP 2008<br>You must obtain new FLEXnet license codewords from Agilent EEsof EDA.                    |

## Check the UNIX System Requirements

Be sure your hardware and software configuration meets the following minimum hardware and system requirements to run IC-CAP, including RAM, disk space, operating systems, etc. Keep in mind that minimum requirements are just that, and they may not provide adequate performance and responsiveness.

| Requirement  | Solaris Workstation   | Linux Workstation  |
|--|---|--|
| Operating System (see <a href="#">“Operating System”</a> on page 75) | Solaris 10 (see <a href="#">“Solaris 10”</a> on page 75)  | Redhat Enterprise 4.0 (see <a href="#">“Red Hat Linux Details”</a> on page 75)   |
| Displays   | High-resolution color only (Super VGA, 1024x768, 15-inch monitor minimum) (at least 1280x1024 required for Extraction packages).          |  |
| Processor  | IC-CAP is not supported on Intel Itanium-based workstations. If linking to 3rd party Simulators, refer to Simulator requirements as well. | Intel Pentium® 4 or better, or AMD XP 3000 or better. If linking to 3rd party Simulators, refer to Simulator requirements as well. |

## 4 Installing IC-CAP on UNIX Systems

| Requirement  | Solaris Workstation  | Linux Workstation  |
|--|--|--|
| RAM  | 1 GB RAM recommended minimum. Additional RAM up to 2 GB will improve performance. Since IC-CAP is compiled on a 32-bit operating system, its processes cannot use more than 2 GB regardless of the maximum addressable memory available on your system. If linking to 3rd party Simulators, refer to Simulator requirements as well.   |  |
| Swap Space   | 200 MBytes recommended minimum, increased swap space may be required for larger model files.   |  |
| Hard Disk  | 1 GB required for installation,  |  |
| Web Browser  | IC-CAP documentation is HTML-based and displayed via a web browser. Netscape version 4.5 or higher is required.<br>Mozilla 1.7 or Firefox 1.5.0.4 or better are the recommended web browsers. To view the pdf files, Acrobat Reader 5.0 or higher is recommended.<br>Java Virtual Machine and JavaScript must be enabled on your browser for the documentation to appear correctly. You can use your browser's internal Java support or download and install a Java plug-in. If you install a Java plug-in, the minimum recommended version is Sun Java Plug-in 1.3. |  |
| Security Device  | An IC-CAP software codeword is locked to an individual computer ID number.   | IC-CAP software codewords are locked to an external device (FLEXid hardware security key) attached to the PC's USB port or locked to a PC's LAN ethernet card. |
| Supported Printer/ Plotters                            | IC-CAP uses Xprinter for all PostScript®, HPGL2 and PCL printing. For a complete list of output devices supported with Xprinter, consult the text file called <i>filename_map.txt</i> , located in the directory path: <i>&lt;installation directory&gt;/xprinter/ppds</i> . For instructions on UNIX printing and plotting, refer to <a href="#">Chapter 9, "Printing and Plotting"</a> in the User's Guide.  |  |
| Supported Media Type                                   | CD-ROM or high speed internet access required for program installation.  |  |
| Window Manager   | Motif V.1.1/1.2 Open Windows 3.0, or CDE   | KDE or GNOME   |
| Compiler required for userc customization              | C++ and CC:<br>SunStudio 11  | C++:<br>gcc Version 4.1.1  |
| Compiler required for adding custom instrument drivers | C++ and CC:<br>SunStudio 11  | C++:<br>gcc Version 4.1.1  |

| Operating Systems Details    |  |
|------------------------------|--|
| <b>Solaris Details</b>       | Solaris operating systems are not supported on Intel-compatible chips. Solaris requires the following patches (exact patch numbers may change as new patches are issued):<br>You can find patches at <a href="http://sunsolve.sun.com/pub-cgi/show.pl?target=patchpage">http://sunsolve.sun.com/pub-cgi/show.pl?target=patchpage</a> |
| <i>Solaris 10</i>            | 119689-06 (libc.so.1 Patch)<br>117461-08 (ld patch)<br>118822-27 (kernel patch)<br>118707-04 (Expert3D IFB Graphics Patch)<br>118712-08 (Sun XVR-100 Graphics Accelerator Patch)<br>118711-02 (M64 Graphics Patch)<br>118708-11 (Sun XVR-1200 Graphics Accelerator Patch)  |
| <b>Red Hat Linux Details</b> | For instrument connectivity, RHEL 4 Update 3 (kernel-2.6.9-34.el, 2.6.9-34.el.smp) is required. The following is the minimum RPM and RPM version recommendation based on RHEL 4 Update 1 — the required RPM version for your system may vary:  |
| <i>Linux RHEL 4.0</i>        | kernel-2.6.9-11.EL<br>glibc-2.3.4-2.9<br>elfutils-0.97.5<br>elfutils-libelf-0.97.5   |

## Checking the Operating System

To determine the version that you are currently running, at the system prompt type:

```
uname -r (All UNIX platforms)
```

## Check the Supported Instrument Interfaces

If you are using IC-CAP with an Agilent GPIB interface, install the interface and its driver according to the instructions supplied with the interface.

| Description   | Part Number                             |
|---|---|
| <b>Supported GPIB Interfaces on SUN OS Workstations</b>   |   |
| Agilent LAN/GPIB Gateway Interface                        | E2050A <sup>1</sup> /B <sup>1,2,3</sup> |
| National Instruments PCI-GPIB card and NI-488.2M Software | 777462-01                               |
| NI-488.2M Software Only                                   | 778599-01                               |

| Description   | Part Number         |
|---|---------------------|
| National Instruments SB-GPIB card and NI-488.2M Software  | 776789-01           |
| <b>Supported GPIB Interfaces on Linux OS Workstations</b> |                     |
| Agilent LAN/GPIB Gateway Interface                        | E5810A <sup>2</sup> |
| TAMS IO Library   | 82091               |
| TAMS High Speed PCI GPIB and TAMS IO Library              | 81488               |
| TAMS IO Library Only                                      | 82091               |
| TAMS PCI and TAMS IO Library                              | 80488               |
| TAMS IO Library Only                                      | 82091               |
| TAMS USB GPIB and TAMS IO Library                         | 83488               |
| TAMS IO Library Only                                      | 82091               |

1 These are discontinued products.

2 Typically the LAN has some impact on speed; therefore, the E2050A/B will most likely be somewhat slower than a card.

3 E2050A/B driver built into IC-CAP.

### NOTE

For information on the TAMS SICL IO Libraries, please visit the TAMS - Test and Measurement Systems, Inc. website at:

<http://www.tamsinc.com/>

### NOTE

For the latest information refer to this manual on our website at:

<http://www.agilent.com/find/eesof-docs>.

## Get Codewords for IC-CAP 2008

You must obtain new FLEXnet license codewords to run IC-CAP 2008.

You may request codewords via the Web at:

<http://www.agilent.com/find/eesof-support/>

Choose **Request Codeword**.

The codewords are emailed to you in a license file called *license.lic*.

If you do not have a hardware key, contact Agilent EEsof Business Support at 1-800-507-6274.

For details on both methods of securing codewords refer to [Chapter 5](#), “Setting up Licenses on UNIX Systems.”

### Special License Issues

Please consider the following issues before requesting a license.

**Linux Systems** If you will be using your LAN card's Ethernet ID to run the FLEXnet licensing system on your PC and you have more than one network card (such as a permanent LAN card and a removable WLAN card) inform your Agilent sales representative to assist you in selecting the correct ID when you request licenses. Use the following command to read the ID, and copy the address returned for Ethernet HWAddr. Then ask the Agilent EEsof Business Support to tie this ID to your IC-CAP codewords when you submit your Codeword Request Form.

```
/sbin/ifconfig
```

### Check Available Memory

Minimum recommended memory is 1 GB. More memory results in better overall system performance for some design work.

#### Solaris Systems

To check the amount of memory on your system, enter the following command at a command prompt:

```
/usr/bin/dmesg | more
```

Look for the avail mem= and mem= lines.

This command lists the messages displayed during the last boot of the system.

#### Red Hat Linux Systems

To check the amount of memory on your system, enter the following command at a command prompt:

```
/bin/dmesg
```

Look for the Memory line which includes the amount of available memory.

### Check Available Disk Space

The amount of disk space required depends on the IC-CAP products that you wish to install. A minimum of 500 MBytes of available disk space is required to install all IC-CAP products. To display the available disk space, at the prompt enter the command for the workstation you are using:

| Workstation   | Command |
|---------------|---------|
| Solaris       | df -k   |
| Red Hat Linux | df -k   |

#### NOTE

IC-CAP requires at least 20-30 MB of free disk space under /tmp and var/tmp to work properly.

### Checking Swap Space

The recommended minimum swap space is 100 MB. Very large designs could require more. To check the current amount of swap space on your system, enter one of the following:

| Workstation   | Command           |
|---------------|-------------------|
| Solaris       | /usr/sbin/swap -s |
| Red Hat Linux | /usr/bin/free -t  |

### Defining an Install Location

Be sure you have permissions to write to the disk drive on which you want to install IC-CAP.

- You do not need to install as *root*, although you may need root privileges to mount and unmount the installation CD-ROMs.

- If installed as root, all IC-CAP files should have at least read permission for all users.

You can re-run the installation program to install components you chose not to install the first time through.

For details on install steps and options, refer to “[Installation Steps](#)” on page 81.

**NOTE**

The installation program does not support cross-platform installations. Please be sure to use the correct platform-specific installation image for your system.

---

## Installing IC-CAP

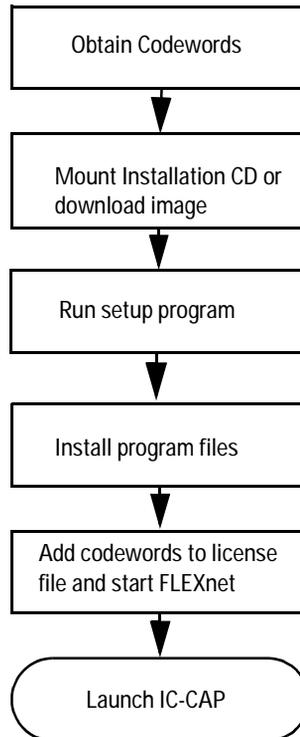
IC-CAP can be installed on a UNIX system using either the IC-CAP installation CD or by downloading IC-CAP installation images from the Agilent EEsof Knowledge Center website:

<http://www.agilent.com/find/eesof-knowledgecenter>

Use the following information for installing IC-CAP on a UNIX system. For last-minute program and documentation information, refer to the Release Notes document on our website at:

<http://www.agilent.com/find/eesof-docs/>

Choose **IC-CAP 2008 > Release Notes**.



## Installation Steps

Use the following steps for installing IC-CAP on UNIX systems. If you have not done so, please review “[Before You Begin](#)” on page 72. Also, if you installed a pre-release Beta version of IC-CAP, you should uninstall it before loading this release.

### NOTE

The installation program does not support cross-platform installations. Please be sure to use the correct platform-specific installation image for your system.

To install IC-CAP on UNIX systems:

- 1 Log onto the system using an account that has permissions to write to the disk to which you want to install.
- 2 If you are installing from a CD-ROM, mount the IC-CAP CD-ROM. Mounting a CD-ROM file system on a UNIX system requires *root* or super-user privileges on most systems.

The typical mount point, or directory, for a CD-ROM is */cdrom*. This may be different on your system. The mount point directory must exist before you can mount the CD-ROM. To create a */cdrom* directory, type:

```
mkdir /cdrom
```

To mount the Program CD-ROM, run the command for your system:

```
mount -rt hsfs /dev/sr0 /cdrom (SunOS 5.x)
mount -t iso9660 /dev/cdrom /cdrom (Linux)
```

Once the Program CD-ROM is mounted, exit from being *root* before completing the rest of the installation procedure if you do not want to install as root.

- 3 If you are installing from a downloaded image, download then untar the appropriate IC-CAP installation image for your platform from the Agilent EEsof Knowledge Center website:

<http://www.agilent.com/find/eesof-knowledgecenter>

For example to untar the file on Linux:

```
tar xf iccap640rday_linux_x86.tar
```

- 4 Change directory to the Program CD-ROM or to the path of the extracted tar files.

```
cd /cdrom
```

- 5 To start the installation program type:  
`./SETUP.SH`

### NOTE

If you do not have a fully compliant X display available, you can run the installation in console mode. To start the program in console mode, add the `-console` argument to the `SETUP` command. For example, type:

```
./SETUP.SH -console
```

### NOTE

The Sun File Manager is not recommended to invoke `SETUP`. If you use the file manager to invoke `SETUP`, a new terminal window is created. If you select `Q` to quit the installation, the terminal window remains open until you close it by pressing `Ctrl-C`.

### NOTE

If you are running Netscape, or another program that uses a lot of color resources, you should shut it down before starting the installation.

- 6 At the *Welcome* screen, choose:
  - **Next** to read the License Agreement. This is a usage agreement and is not related to the license codewords required to run the software. You must accept the agreement to continue with the installation. This appears only when you run Setup the first time or after uninstalling IC-CAP.
- 7 At the *License Agreement* screen, after reviewing the agreement, choose either:
  - *I accept the terms of the license agreement*
  - *I do not accept the terms of the license agreement*then click **Next** to continue with the setup or **Cancel** to end the setup program.
- 8 At the *Installation Directory* screen, choose:

- **Next** to install to the default destination.
  - **Browse** to specify a different destination folder. If you specify a folder that does not exist, the installation program will ask if you want to create it.
- 9 At the *Summary Information* screen, review your choices then choose:
- **Back** to access previous screens to verify entries and make changes. This screen appears again if you go back to make other choices.
  - **Install** to begin the installation.
  - **Cancel** to exit the Setup without completing the installation.

After you click *Install*, the program starts copying files. The status screen displays the files being installed and shows the installation progress.

- 10 After reading the information about how to obtain licenses or codewords to run IC-CAP, click **Finish**.
- 11 If you installed from a CD-ROM, unmount the installation CD-ROM:

```
cd /
umount /cdrom
```

#### NOTE

You will need to be in the root directory to unmount the CD-ROM. If you are running Solaris and vold is active, you can type the following command to unmount the CD-ROM: `eject cdrom`.

- 12 Use the FLEXnet security codewords from Agilent EEsof to create a *license.lic* file with the correct SERVER and VENDOR line configurations.
- 13 Place the *license.lic* file in the licenses sub-directory of your IC-CAP installation directory and start FLEXnet to enable your codewords. (Refer to [Chapter 5](#), “Setting up Licenses on UNIX Systems.”)

### Installing from a File Server

The contents of the IC-CAP CD or downloaded and untarred installation image can be copied to a file server enabling you to install IC-CAP from this file server. This arrangement is useful for doing silent installations (see “[Silent Installations](#)” on page 84). The following steps explain how to set up the file server and run the installation.

- 1 If installing from a CD, insert the IC-CAP installation CD into the file server’s CD-ROM drive and mount the Program CD-ROM by running the command for your system:

```
mount -rt hsfs /dev/sr0 /cdrom (SunOS 5.x)
mount -t iso9660 /dev/cdrom /cdrom (Linux)
```

- 2 Either copy the contents of the CD into a folder or untar the downloaded installation image into a folder.

```
cd /mnt/cdrom
cp -r * /local/ICCAP2008_image
```

- 3 To start the installation program type:

```
./SETUP.SH
```

You may run the normal installation described in “[Installation Steps](#)” on page 81, or the silent installation described in “[Silent Installations](#)” on page 84.

### Silent Installations

The InstallShield program provided with IC-CAP supports a silent installation. A normal (non-silent) installation receives the necessary input from the person installing the software in the form of responses to prompts in dialog boxes. However, a silent installation does not display prompts for inputs. Instead, a silent installation gets inputs from a response file.

#### Silent Installation Overview

To set up and run a silent installation on a UNIX system for IC-CAP 2008:

- 1 On a server, copy the contents of the IC-CAP installation image (from CD or downloaded and untarred) to a folder.

Details about setting up a file server are described in “Installing from a File Server” on page 84.

- 2 On clients, run the *SETUP* using arguments for a silent installation, including the path and file name of the response file.
- 3 If needed, run a silent uninstallation to remove IC-CAP from client machines.

### Response File Contents

The response file provides the inputs automatically during silent installations. The command to execute a silent installation includes the path and file name of the response file. Using our example location for the installation contents, the sample *response.txt* file is located in the *local/ICCAP2008\_image/silent* folder.

The *response.txt* file supplies the following inputs requested by the installation program:

- Installs IC-CAP 2008 into the current folder.
- Sets the home folder to the current folder.

If you want to change these settings, copy and edit the *response.txt* file being careful to change only the settings in question to avoid corrupting the file. To change the installation folder, change *-P installLocation* and *-V IS\_DESTINATION* to a new path.

### Running a Silent Installation

To run a silent installation:

- 1 Verify that IC-CAP 2008 has not already been installed. There should not be a *iccap2008* folder since the silent installation process is not expecting it to be there. If IC-CAP has been installed, uninstall it.
- 2 Change to the */local/ICCAP2008\_image* folder.
- 3 To start the installation program type *./SETUP.SH* followed by the *full path* for the response file and the silent installation option. For example:

```
cd /local/ICCAP2008_image
./SETUP.SH -options "tmp/response.txt" -silent
```

- 4 After waiting 3 to 5 minutes for the installation process to finish, verify that the installation process is done by checking that the `_uninst` directory is located under the installation directory.

### Running a Silent Uninstallation

When you need to run a silent uninstallation, use the sample response file, *uninst\_response.txt*. Using our example location for the installation contents, the *uninst\_response.txt* file is located in the */local/ICCAP2008\_image/silent* folder.

#### To run a silent uninstallation:

- 1 Change to the folder containing the *uninst\_response.txt* file.

```
cd /local/ICCAP2008_image/silent
```

- 2 Copy the *uninst\_response.txt* file to the folder *tmp*:

```
cp uninst_response.txt /tmp
```

- 3 Change to the `_uninst` subfolder in the IC-CAP installation folder:

```
cd local/iccap2008/_uninst
```

- 4 Run the uninstaller:

```
./uninstaller.bin -options "tmp/uninst_response.txt"
-silent
```

This process opens a progress dialog box. When the dialog box closes, the process is done.

### Troubleshooting

The most effective way to troubleshoot errors with the silent install/uninstall process is to run the same type of installation in normal or visual mode.

## Configuring User Accounts

Configure the user accounts that will run IC-CAP as follows:

### C-Shell:

Add the following at the end of `$HOME/.cshrc`:

```
setenv ICCAP_ROOT <install_directory>
setenv AGILEESOFD_LICENSE_FILE <path_to_license_file>
```

Default: `$ICCAP_ROOT/licenses/license.lic`

```
set path = ( . $ICCAP_ROOT/bin $path )
```

### Bourne or Korn Shell:

Add the following at the end of `$HOME/.profile`:

```
ICCAP_ROOT=<install_directory>
AGILEESOFD_LICENSE_FILE=<path_to_license_file>
```

Default: `$ICCAP_ROOT/licenses/license.lic`

```
PATH=.:$ICCAP_ROOT/bin:$PATH
export ICCAP_ROOT AGILEESOFD_LICENSE_FILE PATH
```

### NOTE

If you are running Common Desktop Environment (CDE), your user account may be using `$HOME/.dtprofile` to set up your user account instead of `.cshrc` or `.profile`. The `.dtprofile` files contain a line that can be uncommented to activate the use of `.cshrc` or `.profile`. Please see your system administrator or CDE documentation for details.

Once the user accounts are configured, each user should log in and verify that the new environment variables are set. Type the `env` command and check that `ICCAP_ROOT` and `AGILEESOFD_LICENSE_FILE` are set and that `PATH` contains a path to the IC-CAP `bin` subdirectory.

If you installed IC-CAP as root, the ownership of directories and files will be set to user id 1313 and group id 22. To change this, enter:

```
cd $ICCAP_ROOT
chown -R root *
chgrp -R sys *
```

### Setting the Display

If you plan to run IC-CAP from a remote computer and you want the display to appear on your local machine, you will need to set the DISPLAY environment variable:

```
setenv DISPLAY <my_hostname>: 0.0 (C-Shell)  
DISPLAY = <my_hostname>: 0.0 (Korn Shell, Bourne Shell)  
export DISPLAY
```

For details on using the Sun Ray appliance, refer to the Sun website at: <http://www.sun.com/sunray/index.html>

## Installing to Multiple Disk Partitions or Directories

If you do not have a single partition large enough to hold the entire IC-CAP installation, you can spread the installation across partitions using symbolic or *soft* links. The symbolic links are created before installation to redirect files to other partitions.

For example, suppose you want to install IC-CAP with most of the software installed in `/usr/local/iccap2008`, but you want the example projects to be installed to `/disk2` due to lack of disk space in the `/usr` partition. Before starting the installation process you would do the following:

- 1 Create the main installation directory:

```
cd /usr/local
mkdir iccap2008
```

- 2 Create the directory that will hold the example files on `/disk2`:

```
cd /disk2
mkdir iccap_examples
```

- 3 Create a link named *examples* in the main installation directory that points to the `/disk2/iccap_examples` directory:

```
cd /usr/local/iccap2008
ln -s /disk2/iccap_examples examples
```

- 4 Begin the installation process. When the examples are installed, the example projects will follow the `/usr/local/iccap2008/examples` link to `/disk2/iccap_examples`.

Following is a list of the larger directory names for IC-CAP, along with approximate sizes. The *doc* directory can be re-directed to another disk partition as shown above for the examples directory. The sizes shown are for a complete installation.

| Directory Name | Approximate Size |
|----------------|------------------|
| examples       | 115 Megabytes    |
| doc            | 86 Megabytes     |

### Using Multiple IC-CAP Versions

Use the following instructions to maintain and run more than one version of IC-CAP (such as version 2006 and 2008). Keep a separate \$HOME directory for each version of IC-CAP to help in structuring all the files and prevent problems that may arise if the configuration files are shared between multiple installations. The \$HOME directory is where all your projects are kept.

#### Setting the HOME Environment Variable

You need to specify the variable \$HOME separately for each version of IC-CAP that you want to run. You can set up two directories from which you can run different scripts to launch the version of IC-CAP you want.

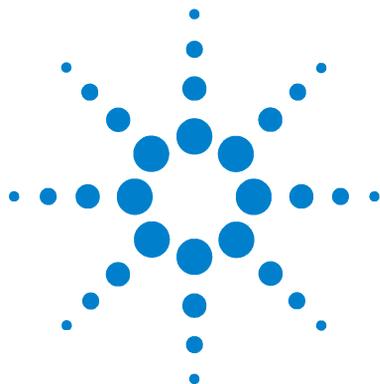
Below are some example scripts. Please change them to match your system.

##### Script for IC-CAP 2006

```
#!/bin/ksh
#
# Script for starting IC-CAP 2006 on UNIX.
HOME=/users/jdoe/iccap2006
ICCAP_ROOT=/utils/eesof/iccap2006
PATH=$ICCAP_ROOT/bin:$PATH
export HOME ICCAP_ROOT PATH
iccap
```

##### Script for IC-CAP 2008

```
#!/bin/ksh
#
# Script for starting IC-CAP 2008 on UNIX.
cd /users/jdoe/iccap2008
HOME=/users/jdoe/iccap2008
ICCAP_ROOT=/utils/eesof/iccap2008
PATH=$ICCAP_ROOT/bin:$PATH
export HOME ICCAP_ROOT PATH
iccap
```



## 5 Setting up Licenses on UNIX Systems

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Use the following information to set up licenses for IC-CAP on UNIX systems. After you install IC-CAP using the steps described in [Chapter 4](#), “Installing IC-CAP on UNIX Systems,” you will need to set up the FLEXnet license manager and your IC-CAP license file (*license.lic*) before you can run IC-CAP.

IC-CAP uses Macrovision’s Flexible License Manager (FLEXnet) software for all software security configurations. When you run the IC-CAP Setup program, the FLEXnet software is installed at *<installation folder>/licenses/bin* where *<installation folder>* is the destination folder you specified when you ran Setup.

For Linux systems, you can use one of the following methods to run the FLEXnet licensing system on your PC:

- Install a USB FLEXid hardware key.
- Read your LAN card’s ethernet ID.

For information on installing a FLEXid hardware key, see the *FLEXid\_README.pdf* file located in the *doggle\_sup* directory on the IC-CAP installation image (CD or downloaded). This directory also contains the files needed to install a USB hardware key. For the most up-to-date files, contact your hardware key vendor.



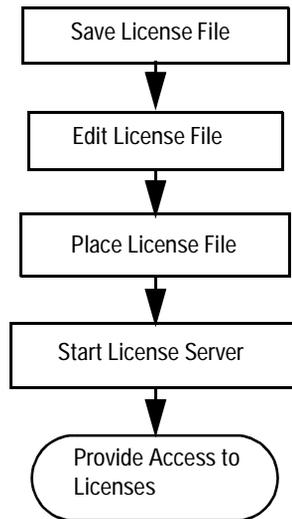
## 5 Setting up Licenses on UNIX Systems

For details on using FLEXnet, refer to the Macrovision website at:

[http://www.macrovision.com/support/by\\_catagory/Software\\_Licensing.shtml](http://www.macrovision.com/support/by_catagory/Software_Licensing.shtml)

## Installing Licenses

You must request and install new license codewords for IC-CAP 2008. To learn how to request codewords, see [“Get Codewords for IC-CAP 2008”](#) on page 76. To install and configure your new license file, complete the steps in the following sections.



### Installing a Hardware Key

One way to run the FLEXnet licensing system on your PC is to install the FLEXid hardware key (also called a dongle) on a parallel or USB port of your computer. In a node-locked environment, it is installed on the local machine. In a floating license environment, it is only required on the server machine.

**NOTE**

Before you install the key, make a note of the hardware key ID number on the key. If you have not already received your security codewords from Agilent EEsof, you will need to provide this number for your Codeword Request Form.

For information about linking your LAN card's Ethernet ID to your IC-CAP codewords, see [“Get Codewords for IC-CAP 2008”](#) on page 76.

### Save the License File

When you receive your codeword file from Agilent EEsof Business Support, it will be called *license.lic*. Save the *license.lic* file using the same filename. Most codewords are distributed by e-mail.

### Edit the License File

Edit your *license.lic* file to correct the SERVER line and add information to the VENDOR line. Refer to [“SERVER Line Guidelines”](#) on page 96 and [“VENDOR Line Guidelines”](#) on page 97 for details. You can use the Agilent License Information Tool to check your environment variable settings, display your *license.lic* file, and show your license and server status. For details, refer to [“Using the Agilent License Information Tool”](#) on page 121.

#### NOTE

Each line in the *license.lic* file must be a single continuous line with each field separated by a single space. You may line wrap lines using the backslash ('\') character, but be very careful not to add a space after the backslash. Otherwise, you can remove the backslash and make each INCREMENT line one continuous line.

### Node-Locked File

The codeword file must follow the format shown in the following example. This example is from a node-locked file where the quantity, displayed on the first line after the date, is typically “1”:

```

SERVER lapin 000086XXXXXX
VENDOR agileesofd
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 1 \
  VENDOR_STRING="000086XXXXXX : SYAQRDS F1AQCOM CNEXTBD FBLCHLO \
  WYGJYZD WFLQZD WQYQBHI EFZ" HOSTID=000086XXXXXX \
  START=20-oct-2005 SIGN="00CF 6970 1933 85E7 1D14 AF45 A3FE \
  CB12 8E82 3BDC BD03 CF91 4618 77D4 0CCC B721 391C E439 A3CD \
  923A 549A"
INCREMENT dev_bsim3 agileesofd 2.7 19-apr-2008 1 \
  VENDOR_STRING="000086XXXXXX : WVRFWQG PJEL1QG AUYILYS XUYGJCY \
  L2WEYGO LSRXYBG PHEUL" HOSTID=000086XXXXXX START=20-oct-2005 \
  SIGN="0284 47D1 DBF7 041F 3F0D 9507 D914 DC36 B670 FE4D 2601 \
  C880 BCCE 5510 D478 5F44 964C 9BBB 17AD 8F99 5BC4"

```

## Floating-License File

The codeword file for a floating license is the same as the previous node-locked file example, with two exceptions: There is no HOSTID identifier in a floating license and the quantity can be any number, one or more, depending upon the number of licenses you own. Below is a sample of a section of a floating-license file:

```

SERVER A0049626 0008XXOOXXOO
VENDOR agileesofd
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 2 \
  VENDOR_STRING="0008XXOOXXOO : SYAQRDS F1AQCOM CNEXTBD FBLCHLO \
  WYGJYZD WFLQZD WQYQBHI EFZ" START=20-oct-2005 SIGN="030F 496F \
  0869 F6A0 FD20 66E6 1DBF A981 22C3 4143 4B02 A946 49DC DB3B \
  A791 8140 ACEB 3211 7AFE 5FFD 7143"
INCREMENT dev_bsim3 agileesofd 2.7 19-apr-2008 2 \
  VENDOR_STRING="0008XXOOXXOO : WVRFWQG PJEL1QG AUYILYS XUYGJCY \
  L2WEYGO LSRXYBG PHEUL" START=20-oct-2005 SIGN="00E7 7925 AEF7 \
  91D3 0595 5457 4C86 E596 20AB 38E8 4001 3A0D 30F3 0E13 C6C4 \
  150D 5808 DA83 6AC1 8467 1AD2"

```

## SERVER Line Format

The SERVER line, by default, has the following format:

```
SERVER hostname hostid [port]
```

where:

*hostname* is the network name of the machine whose *hostid* appears in field 3 of the SERVER line.

| Operating System | Command       |
|------------------|---------------|
| Solaris          | /bin/hostname |
| Linux            | /bin/hostname |

*hostid* is the unique machine ID of the license server machine running Solaris. On Linux, it is either the unique machine ID of the license server machine or the LAN card's Ethernet ID. Use one of the following commands to read the *hostid* for your system:

| Operating System | Command        |
|------------------|----------------|
| Solaris          | /bin/hostid    |
| Linux            | /sbin/ifconfig |

*port* is an optional entry naming the TCP/IP port number that the license server will listen at for license requests. An example port number is 27000.

### SERVER Line Guidelines

- Your license file should contain an odd number of SERVER lines; for example, 1 or 3. If you have 3 SERVER lines, the first SERVER is the primary license server and the other two are backup servers. All three SERVER lines must use the same *port* number.
- You may only change the *hostname* and the optional *port* number fields.
- Adding or removing SERVER lines requires a new *license.lic* file.
- By default, Agilent EEsof sets *hostname* to unknown. The SERVER line does not contain a port address. FLEXnet software assigns a port address in the range of 27000 to 27009. The examples in this manual use a port address of 27000, but your license file may differ. If you do not want to use the port address assigned by FLEXnet, specify any other unused port number for your network.

**NOTE**

Enter a specific port address on the SERVER line for improved license check-out performance. You may enter a port address outside the range of 27000 to 27009, as long as the address is not used elsewhere. Also, set the environment variable AGILEESOFD\_LICENSE\_FILE as described in “Place License File” on page 99.

- If the *hostid* is wrong, or changes for some reason, you will need to request a new *license.lic* file from Agilent EEsof.

Here are examples of properly configured SERVER lines:

```
SERVER joshua 2072EFE45 (default)
SERVER isaiah 20472A3D3 27000 (optional)
```

**VENDOR Line Format**

The VENDOR line, by default, has the following format:

```
VENDOR daemon_name
```

where

*daemon\_name* is the name of the vendor daemon.

Optionally, you may specify a path to the vendor daemon and a path to the FLEXnet options file, for example:

```
VENDOR agileesofd \
/my_install_dir/licenses/vendors/agileesofd \
/my_install_dir/licenses/agileesofd.opt
```

**VENDOR Line Guidelines**

- During installation of IC-CAP, the vendor daemon is installed in the *\$ICCAP\_ROOT/licenses/vendors* and *\$ICCAP\_ROOT/licenses/bin* directories.
- The *daemon\_name* must be *agileesofd*.
- The path to the options file is intentionally left blank. If you want to use FLEXnet options, you must add a full path to your option file. To learn about FLEXnet options, see “Using FLEXnet Options” on page 106. If the file does not exist and this option is not blank, a warning message will appear in the flex.log file.
- Here is an example of a properly configured VENDOR line (without an options file):

```
VENDOR agileesofd /my_inst_dir/licenses/vendors/agileesofd
```

### INCREMENT Line Format

The INCREMENT lines must have the following format:

```
INCREMENT feature vendord ver exp num vendorstring  
hostid sign
```

where

*feature* is the name of the feature licensed by this line.

*vendord* is the name of the vendor daemon that will manage this feature.

*ver* is the version of the feature licensed by this line.

*exp* is the expiration date of this license.

*num* is the number of licenses this line enables.

*vendorstring* is the CPU ID of the primary license server.

*hostid* is an optional field. If this field exists, it is the hostid of the machine that this license is node-locked to. Only the machine whose hostid appears in this field may checkout this license.

*sign* is the encrypted codeword.

### INCREMENT Line Guidelines

- None of the fields on the INCREMENT lines are editable. Any change made to any of the fields on an INCREMENT line will make that feature invalid. The only valid edit of an INCREMENT line is to add a backslash ('\') to line wrap the line. Be careful not to add an extra space between fields when using a backslash to line wrap an INCREMENT line.
- Here are two examples of valid INCREMENT lines.

*Floating license example:*

```
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 2 \  
VENDOR_STRING="00008XX00XO : SYAQRDS F1AQCOM CNEXTBD \  
FBLCHLO WYGJYZD WTFLOZD WQYQBHI EFZ" START=20-oct-2005 \  
SIGN="023E 6EC8 0EAD 7537 5072 CA30 C5F9 3DAE 73BC 3168 \  
D601 453A F3BE F758 ACE2 4576 CE88 FB0E 8663 C8EE 918B"
```

*Node-locked license example:*

```
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-apr-2008 1 \
VENDOR_STRING="000086XXXXXX : SYAQRDS FLAQCOM CNEXTBD \
FBLCHLO WYGJYZD WTFLQZD WQYQBHI EFZ" HOSTID=000086XXXXXX \
START=20-oct-2005 SIGN="00CF 6970 1933 85B7 1D14 AF45 \
A3FE CB12 8E82 3BDC BD03 CF91 4618 77D4 0CCC B721 391C \
E439 A3CD 923A 549A"
```

The backslash used to line wrap these two INCREMENT line examples is prefaced by a space and contains a carriage return immediately after it. The '\ ' character is the absolute last character of the line it is on.

## Place License File

A copy of the *license.lic* file must be placed on all SERVER machine(s) listed in the *license.lic* file.

### License Placement Guidelines

- The recommended location for the *license.lic* file is:  
*\$ICCAP\_ROOT/licenses/license.lic*
- You might need root permission to copy the *license.lic* file into the IC-CAP installation directory if IC-CAP was installed by a user logged in as root.
- You can choose to locate the *license.lic* file someplace else on the SERVER machine(s). If you choose to do this, make sure that IC-CAP users properly set *AGILEESOFD\_LICENSE\_FILE*.

- Make sure that the *license.lic* file has at least read permission for all users:

```
cd $ICCAP_ROOT/licenses
chmod 555 license.lic
```

This command gives you read/executable permissions only.

- Place a copy of the *\$ICCAP\_ROOT/license* directory on all SERVER machines or custom install the FLEXnet license server on each machine.

## Start the License Server (lmgrd)

Use the following procedure and guidelines to start the license server, *lmgrd*, on the SERVER machine.

### NOTE

Be sure to use the following guidelines to update all existing license servers with the latest version of the FLEXnet software (e.g., *lmgrd* and *lmutil*). The software is installed with IC-CAP 2008. Using older versions may cause license-encryption errors, invalid hostid results, and unsupported feature errors.

Verify that all multiple and redundant servers are updated including any license administration scripts in use. Run *lmutil* directly from the IC-CAP 2008 installation location (*\$ICCAP\_ROOT/licenses/bin*) for information to help modify the scripts.

You will need to stop, then restart, the license server to make these updates.

---

### Guidelines for Starting lmgrd

- You only need to run *lmgrd* on the SERVER machine(s).
- If the SERVER machine(s) has IC-CAP installed on it, you will find the FLEXnet license manager daemon (*lmgrd*) in the *\$ICCAP\_ROOT/licenses/bin* directory. If the SERVER machine does not have IC-CAP installed, you can copy the *\$ICCAP\_ROOT/licenses* directory from the machine that has IC-CAP installed.
- IC-CAP installs version 11.4.1 of FLEXnet. Make sure you use the version 11.4.1 *lmgrd* and *agileesofd* supplied or a newer version of *lmgrd*. You can determine the version of *lmgrd* and *agileesofd* by typing the following commands:

```
cd $ICCAP_ROOT/licenses/bin
./lmgrd -v
cd $ICCAP_ROOT/licenses/vendors
./agileesofd -v
```

### To start lmgrd:

Change the directory to where *lmgrd* resides on the SERVER machine and execute *lmgrd*. For example:

```
cd $ICCAP_ROOT/licenses/bin
./lmgrd -c ../license.lic > ../flex.log
```

The login executing *lmgrd* must have full permissions to the *licenses/bin* directory and at least write permissions to the directory specified for *flex.log*.

All error, warning and status messages will be redirected to the *flex.log* file. After starting *lmgrd*, wait approximately 30 seconds, then look at the contents of *flex.log* to see if there are any errors that need to be corrected.

### To verify that the licenses are available:

Make sure that the *flex.log* file does not contain any errors, then run *lmstat* as follows:

```
cd $ICCAP_ROOT/licenses/bin
./lmutil lmstat -a -c ../license.lic | more
```

Or, you may launch the Agilent License Information Tool to do this. Refer to [“Using the Agilent License Information Tool”](#) on page 121 for more information.

If the licenses are available, you should see a listing similar to the following:

```
lmutil - Copyright (C) 1989-2004 Macrovision, Inc. All Rights Reserved
Flexible License Manager status on Thu 02/28/2008 07:39
License server status: 27000@joshua
  License files on joshua: /iccap2008/licenses/bin/./license.lic:
joshua: license server UP (MASTER) v11.4.1
Vendor daemon status (on joshua):
agileesofd: UP v11.4.1
Feature usage info:
Users of ac_driver: (Total of 3 licenses available)
Users of analysis: (Total of 3 licenses available)
Users of curtice_statz_fet: (Total of 3 licenses available)
Users of dc_driver: (Total of 3 licenses available)
Users of gummel_poon_bjt: (Total of 3 licenses available)
Users of hp_eebjt2: (Total of 3 licenses available)
Users of hp_eefet3_ehemtl: (Total of 3 licenses available)
Users of hp_root_diode: (Total of 3 licenses available)
Users of hp_root_fet_femt: (Total of 3 licenses available)
Users of hp_root_mos: (Total of 3 licenses available)
Users of iccap_environment: (Total of 3 licenses available)
Users of lcrz_driver: (Total of 3 licenses available)
Users of noise_driver: (Total of 3 licenses available)
Users of philips_mextram_bjt: (Total of 3 licenses available)
Users of philips_mos_model_9: (Total of 3 licenses available)
Users of pulsed_sys_driver: (Total of 3 licenses available)
Users of statistical_modeling: (Total of 3 licenses available)
Users of time_domain_driver: (Total of 3 licenses available)
Users of ucb_bsim3: (Total of 3 licenses available)
Users of ucb_mos2_mos3: (Total of 3 licenses available)
Users of vbic_bjt: (Total of 3 licenses available)
```

### Provide Access to Licenses

Before attempting to start IC-CAP, you must configure each user's login environment to allow access to the licenses on the SERVER machine(s). To do this you need to configure the environment variable named `AGILEESOFD_LICENSE_FILE` in the user's `.profile` or `.cshrc`.

For example:

C Shell:

```
setenv AGILEESOFD_LICENSE_FILE
$ICCAP_ROOT/licenses/license.lic
```

Bourne/Korn Shell:

```
AGILEESOFD_LICENSE_FILE=$ICCAP_ROOT/licenses/license.lic
export AGILEESOFD_LICENSE_FILE
```

You can avoid the need to have a copy of the `license.lic` file directly on the machine running IC-CAP by setting `AGILEESOFD_LICENSE_FILE` as follows:

```
AGILEESOFD_LICENSE_FILE=<port>@<SERVER_hostname>
```

where

*port* is the TCP port number from the SERVER line(s) of the *license.lic* file.

*SERVER\_hostname* is the network name of a SERVER machine serving IC-CAP licenses. This must be a name that the SERVER is known by on the network. You should be able to successfully ping this name from the machine that will run IC-CAP.

Or, if your license server is set up to search for an available port, your AGILEESOFD\_LICENSE\_FILE should read:

```
AGILEESOFD_LICENSE_FILE=@<SERVER_hostname>
```

For example,

C Shell:

```
setenv AGILEESOFD_LICENSE_FILE 27000@joshua
```

OR

```
setenv AGILEESOFD_LICENSE_FILE @joshua
```

Bourne/Korn Shell:

```
AGILEESOFD_LICENSE_FILE=27000@joshua
export AGILEESOFD_LICENSE_FILE
```

OR

```
AGILEESOFD_LICENSE_FILE=@joshua
xport AGILEESOFD_LICENSE_FILE
```

The syntax to access *multiple* license servers is as follows.

C shell:

```
setenv AGILEESOFD_LICENSE_FILE
27000@server1:27000@server2:27000@server3
```

Bourne/Korn shell:

```
export AGILEESOFD_LICENSE_FILE=
27000@server1:27000@server2:27000@server3
```

However, in this case, “server” should be replaced by the actual license server name or IP address, and the “27000” may need to be changed to the actual port number on the license server. Note that the list of servers is separated by colons (:). For details on running FLEXnet-licensed products from multiple vendors refer to [“Merging Multiple Vendor Licenses”](#) on page 108.

## Using a UNIX-to-PC Floating License

A Windows PC system can access the UNIX license server's *license.lic* file in either of two ways:

- By copying the *license.lic* file from the UNIX license server to the PC's *\$ICCAP\_ROOT/licenses* folder
- By setting the `AGILEESOFD_LICENSE_FILE` variable on the PC to point to the UNIX license server as follows:

```
set AGILEESOFD_LICENSE_FILE=<port>@<host>
```

For example:

```
set AGILEESOFD_LICENSE_FILE=27000@joshua
```

where

*27000* is the port number on the `SERVER` line in the *license.lic* file on the UNIX license server

*joshua* is the hostname of the UNIX license server

Conversely, the license server can be a Windows PC with a floating license locked to a LAN card or dongle hardware key and the UNIX computer can be set to point to it in the same way by using its host name or IP address.

## Automating FLEXnet License Manager Startup

You can automate the FLEXnet startup so that *lmgrd* is started automatically each time the license server machine is rebooted by adding the following three lines for a startup routine to the appropriate *rc* file for your operating system:

```
/iccap/licenses/bin/lmgrd -c /iccap/licenses/license.lic >
/iccap/licenses/flex.log &
echo "Starting Agilent EEsof FLEXnet license daemon....."
/usr/bin/sleep 5
```

### NOTE

Be sure to change *all* references to */iccap* to the actual path of your Agilent EEsof software installation directory.

Following are instructions for the supported operating systems:

#### 1 Change to the appropriate directory:

```
/etc/rc.d/init.d (Linux)
```

```
/etc/rc3.d (Solaris)
```

- 2 Create a file in this directory named *Sagileesofd*.

**NOTE**

The S is capitalized. All other letters are in lower-case.

- 3 Place the FLEXnet startup routine (shown above) into this file.

- 4 Set the permissions for this file as follows:

```
chmod 755 Sagileesofd  
chown root Sagileesofd  
chgrp sys Sagileesofd
```

- 5 For Linux license servers, create the following soft links:

```
ln -s /etc/rc.d/init.d/Sagileesofd rc3.d/S99Sagileesofd  
ln -s /etc/rc.d/init.d/Sagileesofd rc4.d/S99Sagileesofd  
ln -s /etc/rc.d/init.d/Sagileesofd rc5.d/S99Sagileesofd
```

## Special Licensing Needs

Use the following information to accommodate any special licensing needs you may have. For details on using FLEXnet, refer to the Macrovision website at:

[http://www.macrovision.com/support/by\\_catagory/Software\\_Licensing.shtml](http://www.macrovision.com/support/by_catagory/Software_Licensing.shtml)

### Using FLEXnet Options

An options file enables the license administrator to control the security parameters of FLEXnet. Specifically the license administrator can:

- Allow the use of features based on user, hostname or display name.
- Deny the user of features based on user, hostname or display name.
- Reserve licenses based on user, hostname or display name.
- Control the amount of information logged about license usage.

### Creating an Options File

Use the desired options listed below to create the options file using any text editor. Ideally, you should keep the options file in the same directory as your *license.lic* file. Also, add the pathname to the options file in the *license.lic* file as the fourth field on the VENDOR line for *agileesofd* as shown in the following example. (Remember to use the backslash ('\') character if the file contains wrapped lines.)

```
VENDOR agileesofd /iccap2008/licenses/vendors/agileesofd \
/iccap2008/licenses/agileesofd.opt
```

You can include comments in your options file by starting each comment with a pound sign '#'. Everything in the options file is case-sensitive. Be sure that user names and feature names, for example, are entered correctly. The available options are:

- **EXCLUDE**  
Deny a user access to a feature.
- **EXCLUDEALL**  
Deny a user access to all feature served by this vendor daemon.
- **GROUP**  
Define a group of users for use with any options.
- **INCLUDE**  
Allow a user to use a feature.
- **INCLUDEALL**  
Allow a user to use all features served by this vendor daemon.
- **NOLOG**  
Turn off logging certain items.
- **REPORTLOG**  
Specify that a logfile be written suitable for use by the FLEXadmin End-User Administration Tool.
- **RESERVE**  
Reserve licenses for an individual user or groups of users.

Use the following steps to create and use an options file. Details about each step located in “[Installing Licenses](#)” on page 93:

- 1 Create an options file with your required options.
- 2 Modify your *license.lic* file so that the **VENDOR** or **DAEMON** line points to this option file as shown in this example:
 

```
VENDOR agileesofd /iccap2008/licenses/vendors/agileesofd \
/iccap2008/licenses/agileesofd.opt
```
- 3 Start up your license server (Imgrd) that is pointing to your license file. You must stop it first if it is running. It's important that a message is displayed or recorded in the FLEXnet log verifying the license manager is using the options file.
- 4 Set *AGILEESOFD\_LICENSE\_FILE* to point to your license server.
- 5 Run IC-CAP.

## Updating the License File

If you have been running FLEXnet and receive updated codewords from Agilent EEsof, you can add the new licenses to the FLEXnet environment as follows:

- 1 Replace the existing *license.lic* files on the license servers and clients with the new *license.lic* file.
- 2 On the primary server, run `lmutil lmreread`. This causes the *lmgrd* on the primary server to re-read the *license.lic* file and update all of the other *lmgrd* processes on the network.
- 3 After you have done this, you can run `lmutil lmstat -a` to verify that the license servers have received the new license information.

If this does not work, you may need to stop all of the *lmgrd* processes on your network and then restart them as described in the section “[Installing Licenses](#)” on page 93.

## Merging Multiple Vendor Licenses

When you are running FLEXnet-licensed products from multiple vendors, you have three ways to prevent licensing conflicts during installation:

- Multiple license server nodes; each running one *lmgrd* and one license file
- One license server node running one *lmgrd* and one license file
- One license server node running multiple *lmgrds* and multiple license files

Each *lmgrd* can only read a single license file. With the first option you will have more license servers to monitor. With the third option you have only one server but multiple *lmgrds* to administer.

Your product's license file(s) define the license server(s) by hostname and hostid in the SERVER line(s) in the license file.

- If the license files for two or more products contain identical hostids on the SERVER line(s), then these files can be combined.
- If the license files for two products contain different hostids on a SERVER line, then the license servers for those products will be running on different nodes and the license files cannot be combined.

If you have two or more products whose license servers run on the same node (as specified by the SERVER lines in the license files), you may be able to combine the license files into a single license file.

- If the SERVER lines in those files have identical hostids, then you can combine the files into a single file.
- If the SERVER lines have different hostids, then you must keep the license files separate.

More precisely, you can combine two license files under the following conditions:

- The number of SERVER lines in each file is the same.
- The hostid field of each SERVER line in one file exactly matches the hostid field of each SERVER line in the other file.

Some possible reasons license files may not be compatible are:

- License files are set up to run on different server nodes, so hostids are different.
- One file is set up for single server (has only one SERVER line), the other is set up for redundant servers (has multiple SERVER lines).
- One vendor uses a custom hostid algorithm, so the hostids on the SERVER lines are different even though the files are for the same machine.

If your license files are compatible as described above, then you can combine license files and run a single `lmgrd`, as described in [“Combining License Files from Multiple Vendors”](#) on page 110. If the license files are not compatible, then you

must keep the license files separate and run separate copies of *lmgrd* for each license file, as described in the section, “[Using Separate License Files on the Same Server Node](#)” on page 111.

### NOTE

There is virtually no performance or system-load penalty for running separate *lmgrd* processes.

### Combining License Files from Multiple Vendors

If your license files are compatible, you can combine them using any text editor. To combine license files, merge all of the compatible license files into one file, then edit out the extra `SERVER` lines so that only one set of `SERVER` lines remains. Write out this data, and you have your combined license file.

If you combine license files from multiple vendors, it is a good idea to keep a copy of the combined license file in each vendor's default license file location. This way, your users can avoid having to set `AGILEESOFD_LICENSE_FILE`, because each package finds its license information in the default place. On UNIX, you can do this with a symbolic link from each default location to the location of the combined license file.

### FLEXnet Version Component Compatibility

When you combine license files for two different FLEXnet-licensed products, the products may not use the same version of FLEXnet. FLEXnet is designed to handle this situation. There are two basic compatibility rules for FLEXnet:

- A newer *lmgrd* can be used with an older vendor daemon, but a newer vendor daemon might not work properly with an older *lmgrd*.
- A newer vendor daemon (or *lmgrd*) can be used with an older client program, but a newer client program might not work properly with an older vendor daemon.

From these two compatibility rules come the simple rules for selecting which version of administration tools to use:

- Always use the newest version of *lmgrd* and the newest version of each vendor daemon.
- Use the newest FLEXnet utilities.

For specific application programs, you can use either the new or the old version (with the assumption that the vendor daemon for that application is at least as new as the application).

### Using Separate License Files on the Same Server Node

You must run a separate copy of *lmgrd* for each license file. When you run multiple copies of *lmgrd*, there are two details to remember:

- The port number on the SERVER line of each license file must be unique. You can use a standard text editor to change the port number in each license file so that they are all different.
- You must make sure that you are using a compatible version of *lmgrd* when you start it up for a particular license file. This can be done by using an explicit path to *lmgrd*.

When running client programs (such as a licensed application), you can set the AGILEESOFD\_LICENSE\_FILE environment variable to point to multiple license files. For example, you may have a license file from vendor ABC and a license file from vendor XYZ with incompatible servers. You can place the license file from vendor ABC into:

```
/user/flexnet/abc.lic
```

and the license file from vendor XYZ into:

```
/user/flexnet/xyz.lic
```

then set the AGILEESOFD\_LICENSE\_FILE environment variable to point to both of them. The syntax is as follows:

```
AGILEESOFD_LICENSE_FILE=27000@server1;27000@server2;27000@server3
```

Note that each path is separated with a semi-colon.

AGILEESOFD\_LICENSE\_FILE can point to only one license file for FLEXnet v1.x applications.

### Redundant License Servers

You can set up a redundant or backup license server(s), in case a primary server is unavailable. If your license.lic file has the maximum number of SERVER lines (three), you have a redundant license server configuration. The license setup is identical to a single SERVER configuration, with the exception that no licenses will be available until a majority of the license servers are running. That is, if you have three SERVER lines, at least two must be up and running before any licenses will be available for checkout. Be sure that the FLEXnet software is loaded and running on each server.

#### NOTE

If you have more than one SERVER line in the *license.lic* file, you must start *lmgrd* on all the SERVER machines to enable the licenses.

### Controlling License Path Settings

The *lmutil* utility provides the *lmpath* function which allows direct control over FLEXnet license path settings. You can use *lmpath* to add to, override, or get the current license path set in the registry. This enables you to change or view path settings without locating individual settings in the Windows registry on the PC or in the FLEXnet registry (*.flexlmrc*) on UNIX.

The *lmutil* utility is located in *\$ICCAP\_ROOT/licenses/bin*. This location must be in your PATH, or use the following command before running the utility:

```
cd $ICCAP_ROOT/licenses/bin
```

The usage for this function is:

```
lmutil lmpath {-status | -add | -override} {vendor_name | all} license_path_list
```

where

*-status* displays the current license path settings.

*-add* appends *license\_path\_list* to the front of the current license-path settings or creates the list of license-path settings, if it doesn't exist, initializing it to *license\_path\_list*. Duplicates are discarded.

*-override* overrides the existing list of license-path settings with the contents of *license\_path\_list*. If *license\_path\_list* is the null string, "", the specified list is deleted. For example:

```
lmutil lmpath -override agileesofd ""
```

Deletes the value of AGILEESOFD\_LICENSE\_FILE from the registry.

```
lmutil lmpath -override vendor2 ""
```

Deletes the value of VENDOR2\_LICENSE\_FILE from the registry.

```
lmutil lmpath -override all ""
```

Deletes the value of LM\_LICENSE\_FILE from the registry.

*vendor* is a string naming a particular vendor daemon name. Affects the value of *vendor\_LICENSE\_FILE*. For example, use agileesofd to affect AGILEESOFD\_LICENSE\_FILE.

*all* refers to all vendor daemons. Affects the value of only LM\_LICENSE\_FILE.

*license\_path\_list* is the new path setting(s). On UNIX, this is a colon-separated list, and on Windows it is a semi-colon-separated list. If *license\_path\_list* is the null string, "", then the list is deleted for the specified *vendor*. Though you can enter specific license file names, you gain flexibility by entering only a path without a file name. This will include all \*.lic files in the same location.

#### NOTE

Environment variable settings (set in your shell) always override these registry settings.

### Checking the Status

Before you change license path settings, Agilent recommends that you display the current settings. To display the settings, enter the following commands:

```
lmutil lmpath -status
```

The following example status listing is from UNIX and is similar to a Windows listing:

```
lmpath - Copyright (C) 1989-2004 Macrovision Corporation. All rights reserved.
Known Vendors:
-----
agileesofd: /iccap2006licenses/license.lic:/iccap2008/licenses/license.lic
-----
Other Vendors:
-----
/usr/local/flexlm/licenses/license.lic
```

#### NOTE

Where a path is set to a directory, each of the \*.lic files are listed separately.

### Changing License Path Settings

When adding or overriding path settings, *lmpath* sets the FLEXnet entry in the Windows registry on the PC, or changes the file *\$HOME/flexlmrc* on UNIX. Here are examples of how license settings may appear in each registry:

UNIX:

```
AGILEESOFD_LICENSE_FILE = /iccap2002/licenses:/iccap2008/licenses
```

Windows:

Registry location:

```
My Computer\HKEY_LOCAL_MACHINE\Software\Agilent\ICCAP_2008
```

Registry license path setting:

```
AGILEESOFD_LICENSE_FILE REG_SZ C:\ICCAP_2008\licenses
```

To change license path settings, enter the appropriate command in a Command Prompt on Windows, or a terminal window on UNIX. You can adapt the following examples which change path settings for `AGILEESOFD_LICENSE_FILE`:

- **To add path settings on UNIX:**

```
lmutil lmpath -add agileesofd  
<new_lic_path1>:<new_lic_path2>
```

- **To add path settings on Windows:**

```
lmutil lmpath -add agileesofd C:\<new_lic_path1>;C:\  
<new_lic_path2>
```

- **To replace the current path settings on UNIX:**

```
lmutil lmpath -override agileesofd <new_lic_path>
```

- **To replace the current path settings on Windows:**

```
lmutil lmpath -override agileesofd C:\<new_lic_path>
```

## Managing Multiple IC-CAP Versions

This section discusses how to manage the licenses for multiple versions of IC-CAP.

### Backward Compatibility of Codewords

The following table lists previous IC-CAP versions with details of their license management. The compatibility of codewords with the various IC-CAP versions is discussed below.

| Release Name | License File Version | Daemon Name | FLEX Version       | License Environment Variable | Default License File Location |
|--------------|----------------------|-------------|--------------------|------------------------------|-------------------------------|
| IC-CAP 2001  | 6.0                  | agileesof   | FLEXlm 7.2h        | LM_LICENSE_FILE              | \$ICCAP_ROOT/licenses/        |
| IC-CAP 2002  | 6.1                  | agileesof   | FLEXlm 7.2h        | LM_LICENSE_FILE              |                               |
| IC-CAP 2004  | 2.3                  | agileesofd  | FLEXlm 8.2a CRO    | AGILEESOFD_LICENSE_FILE      |                               |
| IC-CAP 2006  | 2.3.5                | agileesofd  | FLEXnet 10.1.3 CRO | AGILEESOFD_LICENSE_FILE      |                               |
| IC-CAP 2008  | 2.7                  | agileesofd  | FLEXnet 11.4.1     | AGILEESOFD_LICENSE_FILE      |                               |

The following table shows the codeword compatibility between various IC-CAP releases. Note that codeword compatibility also depends on the whether the codeword was available in that release.

| Codewords From This Release | Will Work With This Release |             |             |             |             |
|-----------------------------|-----------------------------|-------------|-------------|-------------|-------------|
|                             | IC-CAP 2008                 | IC-CAP 2006 | IC-CAP 2004 | IC-CAP 2002 | IC-CAP 2001 |
| IC-CAP 2008                 | X                           | X           |             |             |             |
| IC-CAP 2006                 |                             | X           | X           |             |             |
| IC-CAP 2004                 |                             |             | X           |             |             |
| IC-CAP 2002                 |                             |             |             | X           | X           |

| Codewords From This Release | Will Work With This Release |             |             |             |             |
|-----------------------------|-----------------------------|-------------|-------------|-------------|-------------|
|                             | IC-CAP 2008                 | IC-CAP 2006 | IC-CAP 2004 | IC-CAP 2002 | IC-CAP 2001 |
| IC-CAP 2001                 |                             |             |             | X           | X           |

## Combining IC-CAP 2008 Codewords with Other Agilent EEsof EDA Codewords

For IC-CAP 2008, the vendor daemon `agileesofd` is used. If you want to serve IC-CAP 2008 licenses and earlier from the same server, you need to have the latest version of `lmgrd`, v11.4.1, and one or more `DAEMON` lines in your license file, depending on which versions you want to support. The IC-CAP daemon names available are:

`agileesofd` - for IC-CAP 2004/2006/2008

`agileesof` - for IC-CAP 2002/2001

For example, the license file would include:

```
SERVER hpnmems 77a588a7 1700
```

```
VENDOR agileesofd /iccap2008/licenses/vendors/agileesofd
VENDOR agileesof /iccap2002/licenses/vendors/agileesof
```

The `INCREMENT` lines for the different products would then be added to the file.

### NOTE

If combining codewords for IC-CAP 2001 or IC-CAP 2002 and ADS 2002 or ADS 2002C, use the `agileesof` daemon included with ADS since it is a newer version than the one included with IC-CAP.

Here is how you might build a license file that contains IC-CAP 2008, ADS 2003C, ADS 2002C, and IC-CAP 2001 codewords. The name and extension of the license file are arbitrary (i.e., `license.dat`, `license.lic` or `iccaplicenses.txt`). By default, all IC-CAP versions up to and including IC-CAP 2001 look for a file named `license.dat` and IC-CAP 2002, IC-CAP 2004, and IC-CAP 2008 look for a file named `license.lic`.

You can use one of these names, or some other name you prefer. Whatever name you choose to use, make sure you set the environment variables to point to your license file.

Supported environment variables are:

- `AGILEESOFD_LICENSE_FILE` for IC-CAP 2004/2006/2008
- `LM_LICENSE_FILE` for IC-CAP 2002 and IC-CAP 2001

For example, if the combined codeword file is named `iccaplicenses.txt`, then:

- IC-CAP 2008 will use:

```
AGILEESOFD_LICENSE_FILE=/licenses/iccaplicenses.txt
```

- IC-CAP 2002 and IC-CAP 2001 will use:

```
LM_LICENSE_FILE=/licenses/iccaplicenses.txt
```

IC-CAP uses a certain search order to look for the environment variable:

- IC-CAP 2004/2006/2008 will first look for the environment variable named `AGILEESOFD_LICENSE_FILE`. If `AGILEESOFD_LICENSE_FILE` and `LM_LICENSE_FILE` are both defined, IC-CAP 2004/2006/2008 will use `AGILEESOFD_LICENSE_FILE` and ignore `LM_LICENSE_FILE`. If `AGILEESOFD_LICENSE_FILE` is not defined, then IC-CAP 2004/2006/2008 will default to `LM_LICENSE_FILE`.
- All previous IC-CAP versions, up to and including IC-CAP 2002 will use `LM_LICENSE_FILE`.

### NOTE

Even though IC-CAP 2008 will default to `LM_LICENSE_FILE` if that is the only environment variable that exists, it is recommended that you use the `AGILEESOFD_LICENSE_FILE`.

---

## Example of a Merged License File

```

SERVER solarone 80FB214D 1700
VENDOR agileesof /hfs/d1/local/licenses/agileesof
VENDOR agileesofd /hfs/d1/local/licenses/agileesofd
#
# ADS 2001 codewords
#
INCREMENT Adapt_comp hpeesofd 1.5 03-nov-2002 5 EC7A98E3FB4AC8771142 \
  VENDOR_STRING=s=80FB214D
INCREMENT Ad_da_appkit hpeesofd 1.5 03-nov-2002 5 \
  1CCA189368AF358196C4 VENDOR_STRING=s=80FB214D
INCREMENT Ampsa_appkit hpeesofd 1.5 03-nov-2002 5 \
  0CBAB813D8101E34EB55 VENDOR_STRING=s=80FB214D
INCREMENT Analog_lib hpeesofd 1.5 03-nov-2002 5 9CEA88930822C5CF81AC \
  VENDOR_STRING=s=80FB214D
INCREMENT Tx_appkit hpeesofd 1.5 03-nov-2002 5 6C0A5873869F9624DFF5 \
  VENDOR_STRING=s=80FB214D
INCREMENT User_defined_model hpeesofd 1.5 03-nov-2002 5 \
  2CAA8E326E3D9DD888B VENDOR_STRING=s=80FB214D
INCREMENT Verilog_code_gen hpeesofd 1.5 03-nov-2002 5 \
  FCAA489350CD03768D44 VENDOR_STRING=s=80FB214D
INCREMENT Vhdl_code_gen hpeesofd 1.5 03-nov-2002 5 \
  FC4A58B306109B640C5C VENDOR_STRING=s=80FB214D
INCREMENT Wcdma3g_des_lib hpeesofd 1.5 03-nov-2002 5 \
  DC7AA89389009E4B61BF VENDOR_STRING=s=80FB214D
INCREMENT Wcdma_des_lib hpeesofd 1.5 03-nov-2002 5 \
  7C0A38F308FA2C30CE3D VENDOR_STRING=s=80FB214D
INCREMENT Wlan_des_lib hpeesofd 1.5 03-nov-2002 5 \
  4C8A6893E259E6C86399 VENDOR_STRING=s=80FB214D
#
# IC-CAP 2001 codewords
#
INCREMENT a_si_tft agileesof 6.0 29-oct-2001 1 D0A4535DE290 \
  VENDOR_STRING=s=80FB214D
INCREMENT ac_driver agileesof 6.0 29-oct-2001 1 1A9EE36873A0 \
  VENDOR_STRING=s=80FB214D
INCREMENT analysis agileesof 6.0 29-oct-2001 1 025C2B939BD5 \
  VENDOR_STRING=s=80FB214D
INCREMENT curtice_statz_fet agileesof 6.0 29-oct-2001 1 7D88F11FEE4B \
  VENDOR_STRING=s=80FB214D
INCREMENT dc_driver agileesof 6.0 29-oct-2001 1 65C14D4C7948 \
  VENDOR_STRING=s=80FB214D
INCREMENT gummel_poon_bjt agileesof 6.0 29-oct-2001 1 8FB9632C0555 \
  VENDOR_STRING=s=80FB214D
INCREMENT ucb_bsim3 agileesof 6.0 29-oct-2001 1 BEDFA8C2810F \
  VENDOR_STRING=s=80FB214D
INCREMENT ucb_bsim4 agileesof 6.0 29-oct-2001 1 D454A8AB830D \
  VENDOR_STRING=s=80FB214D
INCREMENT ucb_mos2_mos3 agileesof 6.0 29-oct-2001 1 D9768F388827 \
  VENDOR_STRING=s=80FB214D
INCREMENT vbic_bjt agileesof 6.0 29-oct-2001 1 3DE6FB45CD8C \
  VENDOR_STRING=s=80FB214D

```

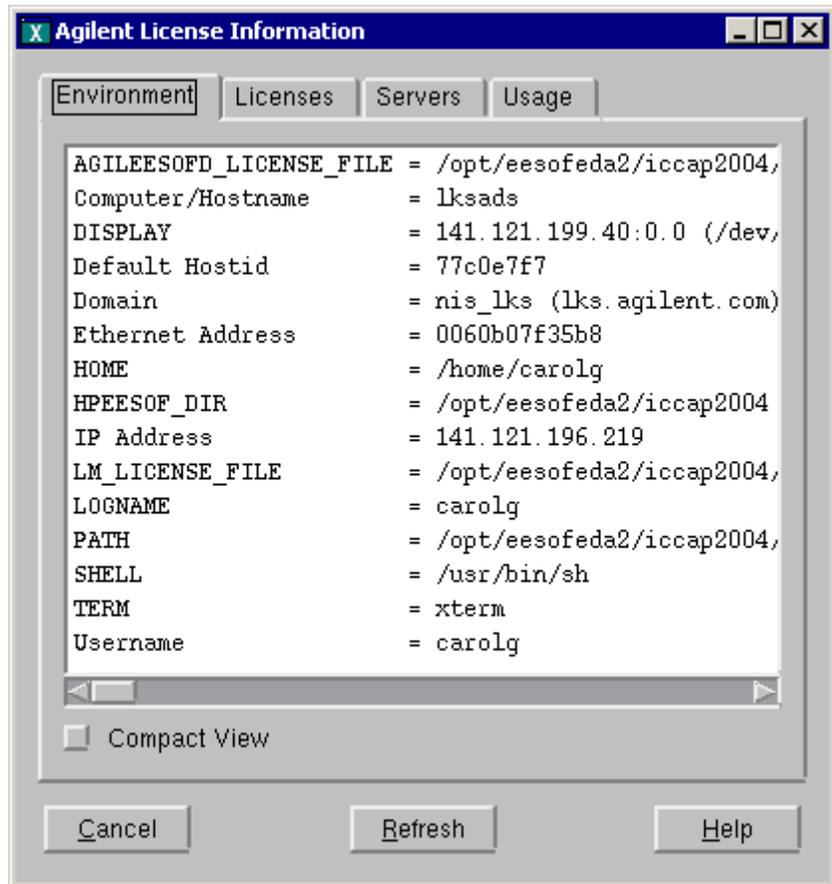
## 5 Setting up Licenses on UNIX Systems

```
#
# ADS2005A codewords
#
INCREMENT ads_datadisplay agileesofd 2.35 08-nov-2005 1 \
  VENDOR_STRING="81AAAAAA : DXNLFPO WZBCLQ2 AUJXJ2E IEKCKLI \
  WFYQNVN DNJU1YM LHYKQC OM" HOSTID=81aaaaaa START=11-may-2005 \
  SIGN="0169 4457 1B00 5266 852D 7813 5FB6 F38F 941A 1D0F E300 \
  F868 5245 2627 CF7B 03B9 037F 9F0F 6BAE 32F6 321C"
INCREMENT ads_layout agileesofd 2.35 08-nov-2005 1 \
  VENDOR_STRING="81AAAAAA : KSGSOTJ D1JYAXW BOCLRMW 2YNB2HN \
  GFVU2LG FQ1AQPJ UGW" HOSTID=81aaaaaa START=11-may-2005 \
  SIGN="0115 CEDE 58A8 A734 FF5C 8AC8 A3AC DAE6 FD7E E9D2 C002 \
  EB4B 0FF8 884C 61BE 84D7 AB0F A3E2 47EA EC43 A5E6"
INCREMENT ads_schematic agileesofd 2.35 08-nov-2005 1 \
  VENDOR_STRING="81AAAAAA : NNWCSOI WSVFVWZ JOXDHFS NRMW2YN \
  BHAHUW2 JMAJGIJ OEYHM1W ST" HOSTID=81aaaaaa START=11-may-2005 \
  SIGN="03E6 6359 6509 5297 45E2 6EB6 DBAF B148 04BF DE83 C502 \
  E872 86AA 522C 9257 369B BE71 A3F5 4FDE 16E2 F13F"
INCREMENT mdl_multilayer agileesofd 2.35 08-nov-2005 1 \
  VENDOR_STRING="81AAAAAA : TS1OKRT EIQQAUY DLYSXUY LUTGOHK \
  ULCKL2R XYPNPHN EFKNVMD NGCWP" HOSTID=81aaaaaa \
  START=11-may-2005 SIGN="0333 DFD8 FD38 B049 9935 34CD A24B \
  91DF 8BE5 3E17 3D03 3CAB 88C2 4239 D021 526B 45F1 E539 FA55 \
#
# IC-CAP 2008 Codewords
#
INCREMENT dev_bjt_gp_ee agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXO : SYAQRDS F1AQCOM CNEXTBD FBLCHLO \
  WYGJYZD WFFLQZD WQYQBHI EFZ" START=20-oct-2005 SIGN="023E 6EC8 \
  0EAD 7537 5072 CA30 C5F9 3DAE 73BC 3168 D601 453A F3BE F758 \
  ACE2 4576 CE88 FB0E 8663 C8EE 918B"
INCREMENT dev_bsim3 agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXO : WVRFWQG PJEL1QG AUYILYS XUYGJCY \
  L2WEYGO LSRXYBG PHEUL" START=20-oct-2005 FFA0 0BD3 8206 B191 \
  E658 F333 440F 8D03 17F3 D6CB A53B C176 1CDF 5A91 6BB4 28D0 \
  1386 E211"
INCREMENT dev_bsim4 agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXO : WZJDCYM NBWJ1YM YMQRFW XSUCLYD \
  GXDWYGJ YZDWTY2 NMAJ" START=20-oct-2005 SIGN="012B FF53 9F9D \
  3ED9 47A5 8744 E57E 4B07 9FC0 B0F1 7D03 A125 35B2 3FF2 9C97 \
  ABE9 66E5 D12D 5EDD 718D EC6A"
INCREMENT dev_bsimsoi agileesofd 2.7 19-mar-2008 2 \
  VENDOR_STRING="00008XXOOXO : KKEYWEH VXGIJRV WDYLNT2 ACFUBHA \
  VU2JOEN WFMJOPB SOKTNCN 10" START=20-oct-2005 SIGN="001A C20B \
  3EDE 88BE 0FAF D892 4310 DCE0 9D76 0830 B100 71FA E487 CD4F \
  EEDE E019 2E71 F2D5 D338 A728 D607"
```

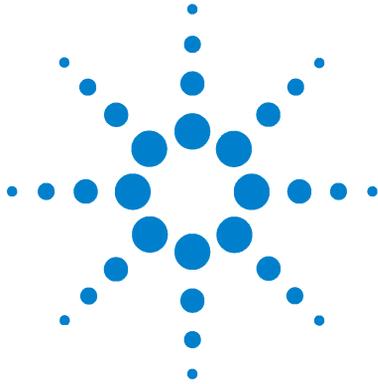
## Using the Agilent License Information Tool

The Agilent License Information Tool is available to check your environment variable settings, display your *license.lic* file, and show your license and server status.

To run this tool from the IC-CAP Main window, choose **Help > License Information**. To run it from the terminal window, type `$ICCAP_ROOT/bin/aglmtool` and press **Enter** to display the following window:



## 5 Setting up Licenses on UNIX Systems



## 6 Using IC-CAP on UNIX Systems

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To get you started using IC-CAP on a UNIX system, this chapter includes some basics along with useful tips for resolving problems that might occur after you have installed IC-CAP.



## Running IC-CAP

Your FLEXnet license file must be properly configured and installed before you can run IC-CAP. To set up your license file, follow the instructions in [Chapter 5](#), “Setting up Licenses on UNIX Systems.”

To run IC-CAP, open a terminal window and enter `iccap`

Choose **Help > Topics and Index > User’s Guide** for help on getting started with IC-CAP.

## Printing and Plotting

Printing and plotting from IC-CAP on UNIX is accomplished by establishing the desired print setup and then choosing **File > Print**. For a complete description of IC-CAP printing, refer to [Chapter 9, “Printing and Plotting”](#) in the IC-CAP *User’s Guide*.

The Print Setup and related dialog boxes enable you to:

- Select a printer/plotter other than the default
- Install additional printers or plotters
- Set the print resolution (dpi)
- Scale the output

When you select a printer/plotter, you can also change the following default printer/plotter-specific options:

- Page Size
- Source (Paper Tray)
- Duplexing (Double-sided)
- Orientation (Portrait or Landscape)
- Color (Black and White or Color)

When you choose **File > Print**, you can select from the following additional options:

- Choose to send output to a printer/plotter or print to file
- Scale the output to fit to the page
- Select a file format (if printing to file)
- Specify the number of copies

Your print setup is saved in `$HOME/.Xprinterdefaults`. If you do not have a local copy of this file, or the file `.Xpdefaults` (from a previous release), the default file is read from the `$HPPEESOF_DIR/xprinter` directory. When you change your print setup, the changes are saved (as new defaults) to `$HOME/.Xprinterdefaults`.

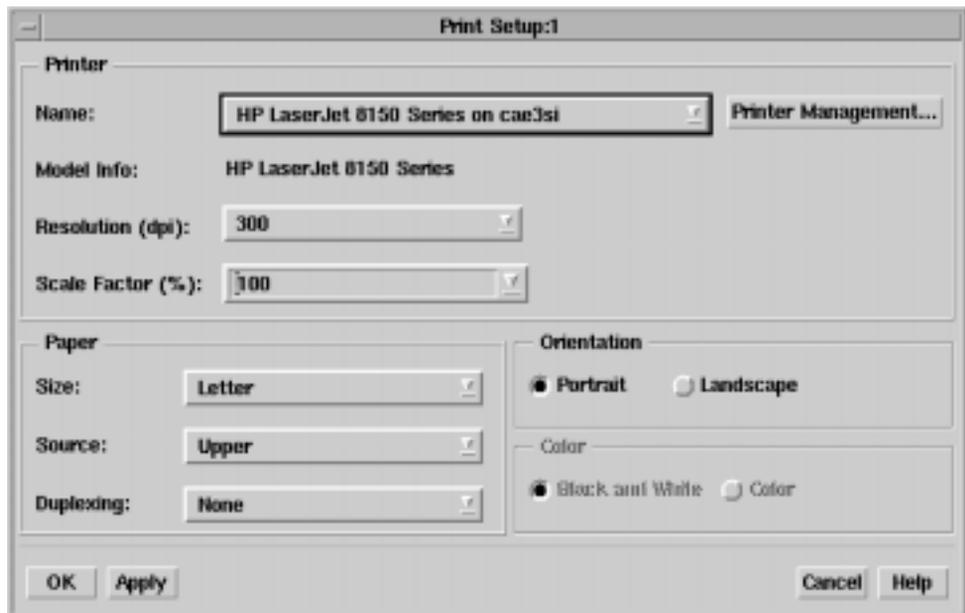
**NOTE**

If you do have a file *.Xpdefaults* (from a previous release), the settings of this file are copied to the new filename to serve as the starting point for your print setup. Both files are valid, depending on which release of IC-CAP you are using. The old file is maintained for running an earlier version of IC-CAP, but the new file is used when you run IC-CAP 2006 (or later).

## Setting Up a Printer

The *Print Setup* dialog box enables you to setup and manage your printer options. To access the Print Setup dialog box,

- 1 Choose **File > Print Setup**. The *Print Setup* dialog box appears.



For detailed information on using the Print Setup dialog box, refer to the following table.

**Table 4** Using the Print Setup Dialog box

| Option             | Description  |
|--------------------|--|
| Printer            | Use this section of the Print Setup dialog box to define and manage your printers.   |
| Name:              | Select a printer from the Name drop-down list. If the printer you want to use is not available in the list, click the Printer Management button. For more information, refer to <a href="#">"Managing Printers"</a> on page 129. |
| Printer Management | If you want to add, replace, or remove a printer, click the Printer Management button to access the Printer Management dialog box. For more information, refer to <a href="#">"Managing Printers"</a> on page 129.               |
| Model Info:        | This section displays the selected printer model information.  |
| Resolution (dpi):  | This option enables you to set the print quality (resolution) in dots per inch (dpi).  |
| Scale Factor (%):  | This option enables you to set a scaling factor that defines the percentage of normal size by which to enlarge or reduce the document on the page. Default is 100%.  |

**Table 4** Using the Print Setup Dialog box (continued)

| Option     | Description   |
|------------|---|
| Paper      | Use this section of the Print Setup dialog box to define the paper settings.  |
| Size:      | <p data-bbox="843 413 1243 470">Use the Size drop-down menu to select the paper size. Default is Letter.</p> <p data-bbox="843 499 1272 736">Note that paper sizes can vary depending on the paper manufacturer. If you own a printer that provides a specific paper size that you are not familiar with, consult your printer manual for information on the paper size options available. The more common American paper sizes are listed below in inches (Width vs. Height).</p> <p data-bbox="843 765 1162 909">           Letter = 8.50" (W) x 11.00" (H)<br/>           Executive = 7.25" (W) x 10.55" (H)<br/>           Legal = 8.50" (W) x 14.00" (H)<br/>           Tabloid = 17.00" (W) x 11.00" (H)<br/>           Ledger = 11.00" (W) x 17.00" (H)         </p> <p data-bbox="843 939 1258 1025">Consult the International Organization for Standardization (ISO) for standard A through D-sizes as well as RA and SRA-sizes.</p> |
| Source:    | Use the Source drop-down menu to select the tray that has the paper you want to use. Default is the Upper tray.   |
| Duplexing: | <p data-bbox="843 1159 1272 1246">The Duplexing drop-down menu enables you to print on both sides of the paper. The options available are:</p> <ul data-bbox="843 1246 1272 1482" style="list-style-type: none"> <li data-bbox="843 1246 1272 1303">- None - No duplexing, the document will only print on one side of the paper.</li> <li data-bbox="843 1303 1272 1390">- Flip on Short Edge - This option prints on both sides of each sheet and flips the page along the short edge of the paper.</li> <li data-bbox="843 1390 1272 1477">- Flip on Long Edge - This option prints on both sides of each sheet of paper and flips the page along the long edge of the paper.</li> </ul> <p data-bbox="843 1477 1193 1506">The default Duplexing option is None.</p>   |

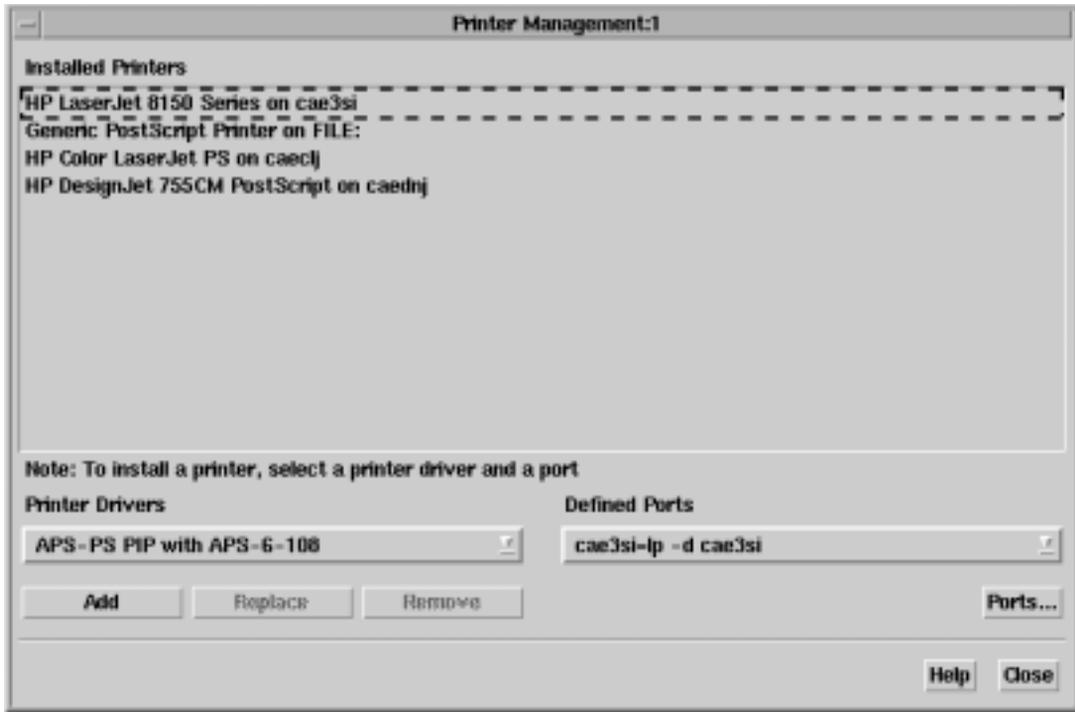
**Table 4** Using the Print Setup Dialog box (continued)

| Option          | Description   |
|-----------------|---|
| Orientation     | Use this section of the Print Setup dialog box to define the orientation of your printed page.  |
| Portrait        | Click this option if you want your output printed in portrait orientation mode. Portrait is taller than it is wide when you view the text right-side up. Default is activated.                            |
| Landscape       | Click this option if you want your output printed in landscape orientation mode. Landscape is wider than it is tall when you view the text right-side up. Default is deactivated.                         |
| Color           | Use this section of the Print Setup dialog box to define your color settings.   |
| Black and White | Click this option if you want your output in black and white. Default is activated unless the system detects support for color printer. If this is the case, the system will default to the color option. |
| Color           | Click this option if you want your output in color. Default is deactivated unless the system detects support for color printer. If this is the case, the system will default to the color option.         |

## Managing Printers

The *Printer Management* dialog box enables you to manage an individual printer or group of printers. To access the Printer Management dialog box,

- 1 Choose **File > Print Setup**. The *Print Setup* dialog box appears.
- 2 Click the **Printer Management** button in the *Print Setup* dialog box. The *Printer Management* dialog box appears.



For detailed information on using the Printer Management dialog box, refer to the following table.

**Table 5** Using the Printer Management Dialog Box

| Options            | Description   |
|--------------------|---|
| Installed Printers | The Installed Printers field displays a list of all currently installed printers.   |
| Printer Drivers    | Use the Printer Drivers drop-down list to select a printer driver.  |
| Defined Ports      | Use the Defined Ports drop-down menu to select a defined port.  |
| Ports              | To define a new printer port and/or replace or remove an existing printer port, click the Ports button to access the Ports dialog box. For more information on the Ports dialog box, refer to <a href="#">“Defining Printer Ports”</a> on page 131. |

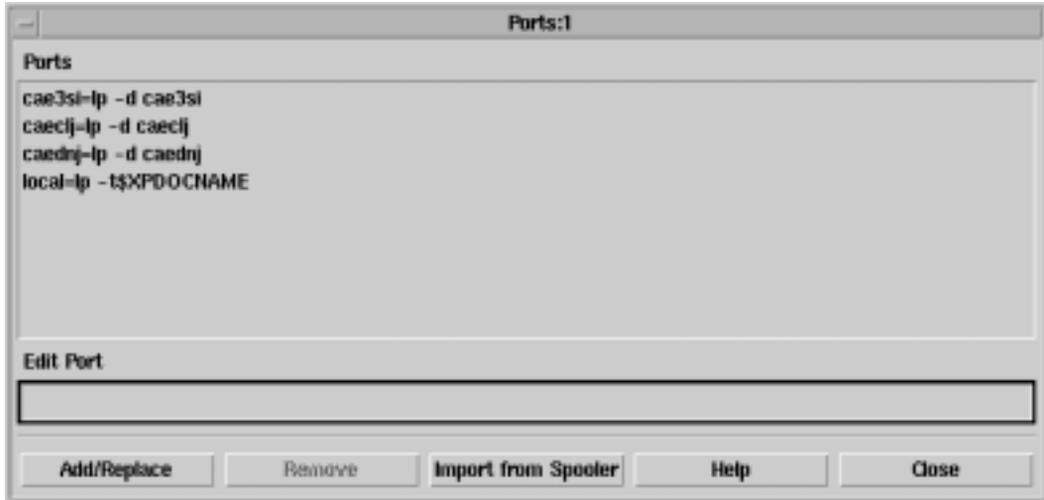
**Table 5** Using the Printer Management Dialog Box (continued)

| Options | Description  |
|---------|--|
| Add     | To install a new printer, select a printer driver and a defined port, then click the Add button. The new printer appears in the Installed Printers list.   |
| Replace | To replace an existing printer, click the printer you want to replace in the Installed Printers list. Then select a new printer driver and a new defined port. Click the Replace button to replace the printer. The new printer appears in place of the old printer in the Installed Printers list.  |
| Remove  | To remove an existing printer or group of printers, click the printer(s) you want to remove in the Installed Printers list and then click the remove button.<br>A confirmation dialog box appears asking if you really want to remove the printer. Click OK to confirm or Cancel to abort the removal process. If you click OK, the printer(s) no longer appears in the Installed Printers list. |
| Help    | Click the Help button to access the online context sensitive help.   |
| Close   | Click the Close button to dismiss the Printer Management dialog box and accept the changes. Settings will be saved upon exit.  |

## Defining Printer Ports

The *Ports* dialog box enables you to define new printer ports and/or replace or remove existing printer ports. To access the *Ports* dialog box,

- 1 Choose **File > Print Setup**. The *Print Setup* dialog box appears.
- 2 Click the **Printer Management** button. The *Printer Management* dialog box appears.
- 3 Click the **Ports** button. The *Ports* dialog box appears.



For detailed information on using the Ports dialog box, refer to the following table.

**Table 6** Using the Ports Dialog Box

| Option              | Description   |
|---------------------|---|
| Ports               | The Ports field displays a list of ports. Port names can be any names you choose with the exception of <i>FILE</i> : which is a reserved port name.   |
| Edit Port           | The Edit Port field is used to enter a new port. After you have entered the port definition, click the Add/Replace button.  |
| Add/Replace         | Click the Add/Replace button to update the Ports list with contents of Edit Port field.   |
| Remove              | If you want to remove a port from the Ports list, click the port name in the Ports list to activate the Remove button. Click the Remove button to remove the selected port.   |
| Import from Spooler | Click the Import from Spooler button to generate a list of ports (based on your <i>printcap</i> file).<br><br>Note that the third party utility that provides this feature does not guarantee it to operate on the current supported platforms. |
| Help                | Click the Help button to access the online context sensitive help.  |

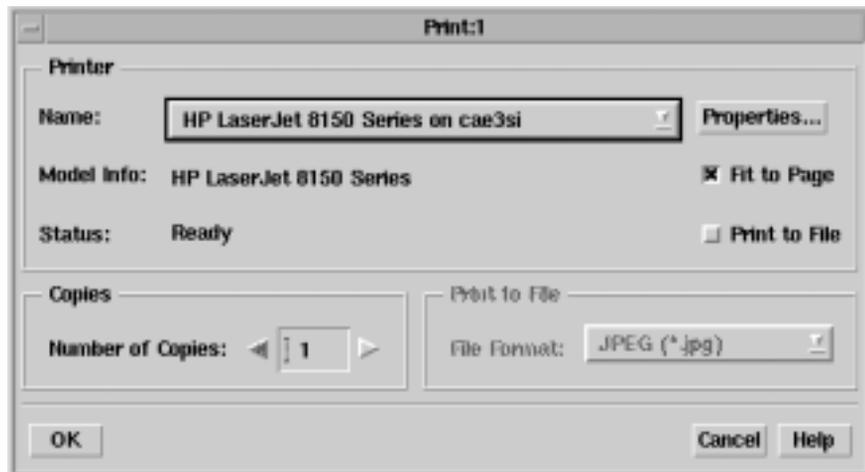
**Table 6** Using the Ports Dialog Box (continued)

| Option | Description  |
|--------|--|
| Close  | Click the Close button to dismiss the Ports dialog box and accept the changes. Settings will be saved upon exit. |

## Printing to a Printer, Plotter, or File

The *Print* dialog box enables you to output your information to a supported printer, plotter, or specified file. To access the Print dialog box,

- 1 Choose **File > Print**. The *Print* dialog box appears.



For detailed information on using the Print dialog box, refer to the following table.

**Table 7** Using the Print Dialog Box

| Option  | Description  |
|---------|--|
| Printer | The Printer options in the Print dialog box enable you to define a printer and the output characteristics. |

**Table 7** Using the Print Dialog Box (continued)

| Option        | Description  |
|---------------|--|
| Name:         | Select a printer from the Name drop-down list. If the printer you want to use is not available in the list, click the Cancel button and access the Print Setup dialog box.           |
| Model Info:   | This section displays the printer model information.   |
| Status:       | This section displays information on the printer status. If the printer is ready to print, the Status will display Ready.  |
| Properties    | Click the Properties button to view or set additional options used in the Print Setup dialog box. For more information, refer to <a href="#">"Setting Up a Printer"</a> on page 126. |
| Fit to Page   | Activate the Fit to Page option if you want your output to be automatically scaled to fit on the page.   |
| Print to File | Activate the Fit to Page option if you want your output to be directed to a file.  |
|               | When this option is selected, the Number of Copies feature is deactivated and the Print to File feature is activated.  |
|               | When this option is deactivated, the Number of Copies feature is activated and the Print to File feature is deactivated.   |
| Copies        | This section is used to set the number of copies to print.   |
|               | Number of Copies   |
|               | Use this feature to specify the number of copies to print. If Print to File is selected, this feature is deactivated.  |
| Print to File | This section is used to define the type of file you want to send your output to.   |

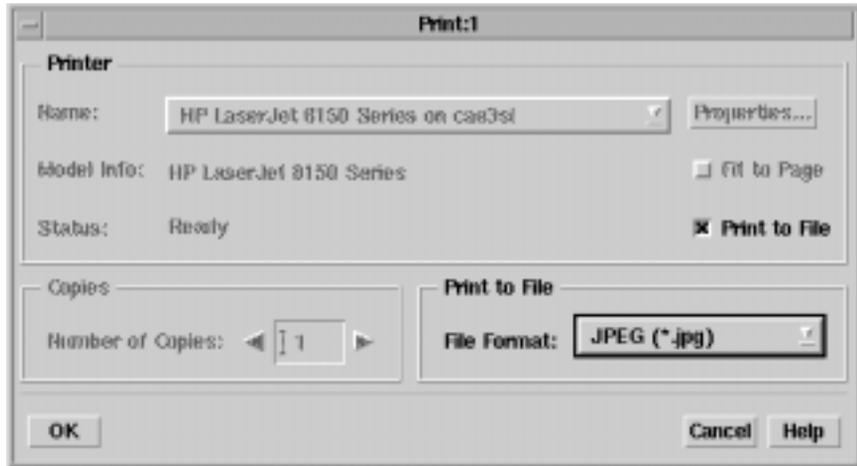
**Table 7** Using the Print Dialog Box (continued)

| Option       | Description   |
|--------------|---|
| File Format: | Use this feature to specify the file format to save your output to.<br><br>After you have selected your file format, click OK in the Print dialog box. A Print to File dialog box will appear enabling you to define the path and name of the file. For more information on the Print to File dialog box, refer to <a href="#">“Printing to a File”</a> on page 136.<br><br>If the Print to File radio button is deselected, this feature is deactivated. |
| OK           | Click the OK button to accept the settings and send your output to the selected printer or file, depending on how you have set your options. Settings will be saved upon exit.  |
| Cancel       | Click the Cancel button to dismiss the Print dialog box. Settings will not be saved upon exit.  |
| Help         | Click the Help button to access the online context sensitive help.  |

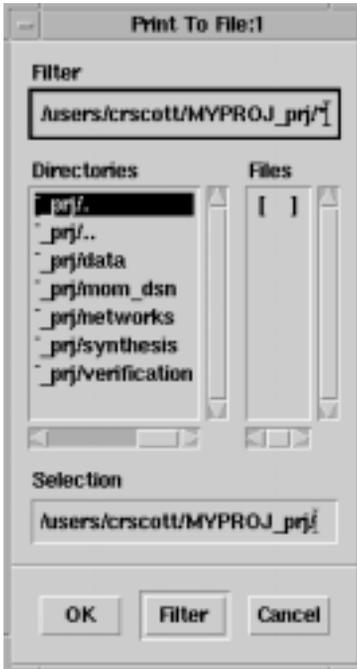
### Printing to a File

The *Print to File* dialog box enables you to define a destination path and file name and then output your information to the specified file. To use the Print to File dialog box,

- 1 Choose **File > Print**. The *Print* dialog box appears.



- 2 Select the *Print to File* option in the *Printer* section of the Print dialog box. Notice that when you select the *Print to File* option, the *Print to File* section is activated enabling you to select a file format.
- 3 Use the *File Format* drop-down list to select the desired file format. Options include JPEG, GIF, PDF, Bitmap, and HP-GL/2.
- 4 Click **OK** in the *Print* dialog box. The *Print to File* dialog box appears.



- 5 Enter the file name for your output in the Selection field.
- 6 Click the OK button to output the file.

## IC-CAP Does Not Start

It is possible to install programs or options for which you have not purchased licenses. Although the icons and features will appear in the software, you cannot access the applications without a license. Contact your Agilent EEsof sales representative to obtain additional licenses.

If your IC-CAP applications will not start:

- Make sure all of your licensing requirements are correctly set up, as explained in [Chapter 5](#), “Setting up Licenses on UNIX Systems.”
- Using a text editor open and review the *install.log* file in your installation folder to see if there are any apparent problems with the installation structure. (You can re-run Setup if necessary to re-install.)
- Try using the Agilent License Information Tool, which is available to check your environment variable settings, display your *license.lic* file, and show your license and server status. Refer to “[Using the Agilent License Information Tool](#)” on page 121.

If you cannot find the problem, run IC-CAP in verbose (debug) mode and contact Technical Support to help pinpoint the problem.

## Starting IC-CAP in Verbose Mode (Debug Mode)

IC-CAP 2008 can be started in verbose (debug) mode to display more information about what is occurring as IC-CAP runs. This extra information can be very useful to debug a problem with IC-CAP both at startup and in general operation. In verbose mode, IC-CAP writes log files that can be used by Agilent EEsof EDA Technical Support to help track down any problems.

To start IC-CAP in verbose mode, do the following:

- 1 Open a UNIX terminal window.
- 2 Type `iccap_verbose`.

This will start IC-CAP. You will see some messages indicating the location of two log files. Note the location of these files as indicated in the messages. The filenames are as follows:

`iccap_daemon.log`

`iccap_verbose.log`

### NOTE

If `iccap_verbose` is not found, you may need to set the `HPESOF_DIR` and `PATH` environment variables.

---

Run IC-CAP until the problem you are trying to debug occurs, then take a look at the `iccap_daemon.log` and `iccap_verbose.log` files for errors.

If you can't locate the trouble based on the contents of the log files, please contact Agilent EEsof EDA Technical Support. You will want to e-mail the log files to the support engineer you work with.

## Common Licensing Problems

Following are solutions to common problems that occur regarding the FLEXnet licensing setup for IC-CAP.

For details on using FLEXnet and lmttools, refer to the Macrovision website at:

[http://www.macrovision.com/support/by\\_catagory/Software\\_Licensing.shtml](http://www.macrovision.com/support/by_catagory/Software_Licensing.shtml)

### Where to Begin

If you are having trouble getting FLEXnet working, the best place to begin troubleshooting is the *flex.log* file. The *flex.log* file is typically located in *\$ICCAP\_ROOT/licenses*. Read the *flex.log* file and look for error or warning messages.

If no relevant errors or warnings are noted in the *flex.log* file, start IC-CAP in debug mode by setting the following environment variable in a UNIX window, then start IC-CAP:

*C Shell (/bin/csh)*

```
setenv HPEESOF_DEBUG_MODE all
```

*Bourne/Korn Shell (/bin/sh, /bin/ksh)*

```
HPEESOF_DEBUG_MODE=all  
export HPEESOF_DEBUG_MODE
```

Look for errors or warnings in the shell where you started IC-CAP.

### Common Errors and Solutions

Following are possible solutions to certain license-related error messages that occur.

## Inconsistent Encryption Code

This error occurs when the information on the INCREMENT lines in the *license.lic* file is corrupt or incorrectly formatted. Check the *license.lic* file for the following:

- 1 Make sure that each line of the *license.lic* file is a single continuous line with each field separated by a single space.
- 2 If there are backslash characters ('\') line wrapping the lines, make sure that the backslash character is the absolute last character on its line. Even a space after the '\' will cause a problem.
- 3 Try removing the backslash characters and joining the INCREMENT lines, so that each INCREMENT line is a single continuous line with no line wrap.
- 4 If the *license.lic* file was transferred from DOS to UNIX, make sure to remove the control M's (^M) at the end of all the lines in the *license.lic* file. If spaces are added to the end of each line to eliminate the ^M's, the spaces must also be removed. The spaces turn out to be just as disruptive as the ^M's. The best way to remove the ^M's is using the *vi* editor and the following substitution command:  

```
:1,$ s/.$//g
```
- 5 Make sure that none of the original SERVER line hostid information has been changed. Make sure that none of the SERVER lines have been eliminated.

## Invalid Host or Unable to Determine Machine ID

This can be caused by one of the following:

- 1 Make sure that the information on the SERVER line(s) in *license.lic* is correct.
- 2 If the licenses are node-locked, and you attempt to run IC-CAP on a machine other than the machine the licenses are node-locked to, you will get a license error indicating *invalid host*. To check if this is the case, look at the *\$ICCAP\_ROOT/licenses/license.lic* file and check the INCREMENT lines. If each INCREMENT line ends in a machine hostid, then the licenses are node-locked to the

machine whose id is shown. You can, however, export the display from the node-locked machine to another display.

- 3 If you are on an HP workstation, check the permissions of the `/dev/lan0` file. This file must have read and write permissions for all:

```
chmod 777 /dev/lan0
```

The FLEXnet *lmgrd* and *agileesof* vendor daemons use this file and must be able to read and write to this device.

### Invalid System Clock Time

FLEXnet detects when systems have had their dates set more than 24 hours back, and prevents users from using expired licenses by setting the clock back. It works by looking for any files in “/” or “/etc” that have a date more than 24 hours in the future.

Use the command `ls -lat` in “/” and “/etc” to find the offending file(s). The date of the offending file(s) can be corrected by using the touch command:

```
touch <filename>
```

If the file is a link, the link must be removed and then recreated. If the link itself is dated ok, check the date of the actual file or directory it points to. The *pointed to* file must also have a valid date.

### A Feature is Not Enabled

FLEXnet codewords have both enable and expiration dates. If the codeword enable date is in the future with respect to the current machine date, then this error will occur.

First check the date on the computer. If it is not today's date, correct it. On UNIX systems, the date can be set using the date command:

```
date mmddhhmm[yy]
```

For example, to set the date to *23 Sept, 2002 at 13:30*, the command would be:

```
date 0923133002
```

If this still does not correct the problem, or if the date is correct, then request new codewords with an enable date set to today's date.

### Cannot Connect to License Server

If you see a flex.log file with the following errors:

```
(lmgrd) Started agileesofd
(agileesofd) Vendor daemon can't talk to lmgrd (cannot
connect to
license server) port 1700
(lmgrd) Vendor daemon died with status 241
(lmgrd) Since this is an unknown status, lmgrd will
(lmgrd) attempt to re-start the vendor daemon.
(lmgrd) REStarted agileesofd (internet tcp_port xxxx)
```

Make sure that the *lmgrd* and *agileesofd* daemon are the correct version (version 8.2h or higher). The *lmgrd* daemon should have the same or higher version number as *agileesofd*. You can check version numbers as follows:

```
cd $ICCAP_ROOT/licenses
./bin/lmgrd -v
./vendors/agileesofd -v
```

Make sure that the workstation is connected to a network or that the network connector on the workstation is properly terminated. FLEXnet will not work if the network connection is down or if the network services are not starting properly. Check all physical network connections to make sure that they are okay and look for errors during machine boot up. On HP700 workstations, look at the */etc/rc.log* file for errors.

Make sure that the *agileesofd* is being started successfully by *lmgrd*. If *agileesofd* cannot be started from the path specified on the VENDOR line in the *license.lic* file, this error will occur. Also make sure that the *agileesofd* file has execute permissions:

```
cd $ICCAP_ROOT/licenses/vendors
chmod 755 agileesofd
```

### Address Already in Use

The tcp port number specified on the SERVER line in the *license.lic* file is in use by another process. Try the following: Kill any stranded *lmgrd* processes. Remove the */usr/tmp/flexnet/lmgrd.xxxx* file that contains the tcp port you want to use. You can remove the entire */usr/tmp/flexnet* directory if you are the only one using *lmgrd* on this machine, then restart *lmgrd*. If you still have a problem, try using a different tcp port number on the SERVER line in *license.lic* and then restart *lmgrd*.

Here is an example of properly configured SERVER lines:

```
SERVER joshua 2072EFE45 1705
SERVER isaiah 20472A3D3 1705
SERVER jonah 2052C6416 1705
```

## Installation and Configuration Issues

Following are helpful hints for installation and configuration problems that may occur.

### Viewing Installation Files

If you wish to see a list all of the IC-CAP files that have been installed, they are identified in the text-only *filesset* file, which can be accessed from the directory: *\$ICCAP\_ROOT/etc*.

### Recovery of Temporary Files

If IC-CAP is abruptly terminated (by power failure, kill command, system shutdown and so on), temporary files may be left in one of the following locations:

- */var/tmp*
- directory specified if *\$TMPDIR* file is defined
- */tmp* for Linux regardless of *\$TMPDIR* or *\$ICCAP\_TMP*

If work is lost during a crash, files beginning with an IC... filename might contain macro and transform PEL code that can be recovered. If they exist, these files will appear in the appropriate *tmp* directory.

Purge these files, but only when IC-CAP is not running. Avoid removing any files that are currently in use by other applications running on the CPU or cluster. IC-CAP temporary files appear in blocks that are all created at approximately the same time, and share the last four or five digits of their names.

## Altering *maxuers* Variable on SUN systems

If you are having memory problems when running IC-CAP on a SUN system, try the following:

- 1 Create a new kernel.
- 2 Increase the value of the *maxuers* variable to 32 from 16.

This variable affects many other system variables, as it figures in the equations for calculating their value. It is recommended to limit the value of this variable to about 128, as a larger number tends to become counter-productive.

## Checking XNLSPATH Variable

If you are having difficulty starting or running IC-CAP, check to see if the environment variable XNLSPATH is specified in your *.cshrc* (C-shell) or *.profile* (Bourne or Korn shell) startup file in your home directory. This variable should not be set. If it is, cancel the setting and restart IC-CAP.

## Specifying Start and End Address of Instrument Searches

The `INST_START_ADDR` system variable specifies the start address for instrument searching during Rebuild (active list). This value should be an integer between 0 and 31, inclusively. When there is a printer, plotter, or prober on the same GPIB with measurement instruments, set `INST_START_ADDR` greater than any one of those non-instruments to avoid the identification process. Default is 0. You may need to change some addresses. The objective is that IC-CAP should not attempt to communicate with any printer, prober, or plotter on the GPIB bus during the rebuild.

The `INST_END_ADDR` system variable specifies the ending address for instrument searching during Rebuild (active list). This value should be greater than the `INST_START_ADDR` value and less than 31.

## Differences Between IC-CAP Linux and SUN Installations

The following table shows some important installation differences between usage of Linux vs. SUN systems.

**Table 8** HP vs. SUN Installations

| Item                         | Linux Systems                          | SUN Systems                 |
|------------------------------|--|-----------------------------|
| Default interface file       | hpib or gpib1 (depending on interface) | /dev/gpib0                  |
| Card identity                | Select code                            | Board number                |
| Default card address         | 21                                     | 0                           |
| Time out value               | Continuous                             | Discrete                    |
| Bus hang                     | Breakable                              | Rely on time out            |
| HP-GL plotter                | Supported                              | Supported                   |
| Character set (plotter only) | USASCII only                           | USASCII only                |
| Window Manager               | KDE or Gnome                           | Motif or OpenWindows or CDE |

## Differences in Measurement Between Sun and HP Systems

Differences in measurement between HP and SUN systems include the interface file, the select code, the bus lock and the timeout value.

### Interface File

Because the Sun SPARCstation does not have an Agilent GPIB interface, a GPIB interface from National Instruments is used. This interface plugs into one SBus (or PCI depending on your machine's bus architecture) slot of the workstation and is named `/dev/gpib0` to serve as a GPIB board. National Instruments has provided a library to control this interface either as a raw GPIB file or an addressed device. Refer to the NI488-M Software Manual for more information.

### Select Code

IC-CAP treats the GPIB interface as a raw GPIB file. This requires a select code on HP to be replaced with a board number on Sun calculated from the minor number of the device file. National supports up to 2 interfaces per system. So the board number is either 1 (first board) or 2 (second board). When this number is larger than 2, it is an addressed device which is not suitable for IC-CAP operation. The installation script of the National interface creates `/dev/gpib0` as a GPIB board file. The default GPIB address of the interface is 0 on Sun and 21 on HP. This should not cause any problems.

### Bus Lock

Because of the limited capability of the National card, *I-O Lock* and *I-O Unlock* do not function. This means users must avoid concurrent accesses to the GPIB board used by IC-CAP.

## Timeout Value

The available timeout values are: 10ms, 30ms, 100ms, 300ms, 1sec, 3sec, 10sec, 30sec, 100sec, 300sec, 1000sec, and None (0sec). Any value that falls between two discrete values becomes the larger one. A timeout value larger than 1000sec turns off the timeout mechanism.

### NOTE

An infinite timeout value (0sec) is not recommended for this GPIB interface because even a KILL signal cannot terminate the *bus hang* condition.

---

## IC-CAP Disappears and no Message is Displayed

If IC-CAP disappears and does not print any message to the terminal window, it may be because you have issued the UNIX command *stty tostop* (either in the terminal window or from within a start-up file such as *.cshrc*, *.profile*, etc.). When you do this, certain IC-CAP error messages may not be displayed.

To prevent this from happening, issue the command *stty -tostop* prior to launching IC-CAP.

## Agilent EEsof Technical Support

Agilent EEsof worldwide technical support is available Monday through Friday. The toll-free North America hotline is open 6:00 am to 5:00 pm PT. Throughout Europe, the localized Online Technical Support Centers are open 8:30 am to 5:30 pm, local time; throughout Asia, the localized Customer Response Centers are open 9:00 am to 6:00 pm, local time.

The e-mail addresses for the various regions are listed below. However, for both the regional e-mail addresses and local telephone numbers for more than 25 countries, please refer to the Agilent EEsof Web site at

<http://www.agilent.com/find/eesof/>

### North America

Phone: 1 800 47 EEsof (473-3763) · Fax: 818-879-6465

e-mail: [eesof\\_support@agilent.com](mailto:eesof_support@agilent.com)

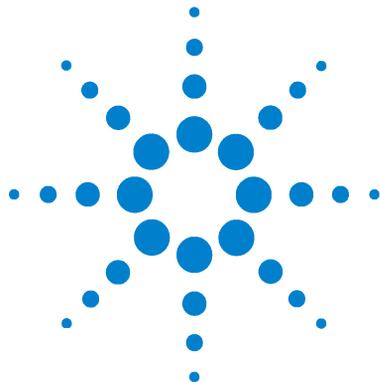
**Europe:** e-mail: [eesof-europe\\_support@agilent.com](mailto:eesof-europe_support@agilent.com)

**Japan:** e-mail: [eesof-japan\\_support@agilent.com](mailto:eesof-japan_support@agilent.com)

**Korea:** e-mail: [eesof\\_korea@agilent.com](mailto:eesof_korea@agilent.com)

**Asia:** e-mail: [eesof-asia\\_support@agilent.com](mailto:eesof-asia_support@agilent.com)





## 7 Customizing the IC-CAP Environment

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IC-CAP uses a number of configuration files. The files contain definitions for configuration variables and environment variables.



## Customizing Environment Variables

On UNIX, environment variables are usually initialized in a shell start-up file such as `.cshrc` (C-shell) or `.profile` (Bourne-shell) in your home directory.

On Windows, the required environment variables are maintained in the Windows Registry. To set optional environment variables, open System Properties (choose **start > Control Panel > System**) then select the Advanced tab and choose **Environment Variables**.

[Table 9](#) describes the most common environment variables used by IC-CAP.

### NOTE

The environment variable name \$HPEESOF\_DIR should point to an installation of ADS. However, IC-CAP is built on some of the same technology, so IC-CAP remembers your \$HPEESOF\_DIR environment variable as \$ADS\_DIR at startup, and temporarily reassigns HPEESOF\_DIR=\$ICCAP\_ROOT during the run of IC-CAP in the IC-CAP process space only. Thus references to \$HPEESOF\_DIR in configuration files under \$ICCAP\_ROOT/config are equivalent to references to \$ICCAP\_ROOT when IC-CAP is running.

**Table 9** System Environment Variables

| Name            | Default Value                     | Description  |
|-----------------|-----------------------------------|--|
| ICCAP_ROOT      | /usr/local/icc2008                | The location where the IC-CAP software was installed (also called the root location). This variable is used extensively throughout IC-CAP. The default value is also set in the registry during installation. Therefore, the default value normally should not be changed. |
| LM_LICENSE_FILE | \$ICCAP_ROOT/licenses/license.lic | Specifies the location of the FLEXnet security license files. Use the AGILEESOFD_LICENSE_FILE variable instead of this variable.   |

Table 9 System Environment Variables

| Name                    | Default Value                     | Description  |
|-------------------------|-----------------------------------|--|
| ICCAP_OPEN_DIR          | None                              | Specifies the directory where the user-compiled code library resides. For more information, refer to <a href="#">“Creating C Language Functions in IC-CAP”</a> in the <i>IC-CAP User’s Guide</i> .   |
| AGILEESOFD_LICENSE_FILE | \$ICCAP_ROOT/licenses/license.lic | Specify the location of the FLEXnet security license files, overriding the LM_LICENSE_FILE variable.   |
| ICCAP_TMP               | None                              | The location where temporary IC-CAP files are located. If ICCAP_TMP is not set, temporary files will be stored in the directory specified by \$TMPDIR on UNIX or %TMP% on Windows. If \$TMPDIR or %TMP% are not defined, files will be stored at /var/tmp for UNIX or the directory specified by %TEMP% on Windows. If ICCAP_TMP, TMP, or TEMP do not reference a valid temporary directory on Windows, IC-CAP will not run. |
| ADS_DIR                 | None                              | The location of the ADS installation to use when performing hpeesofsim simulations. Set when using Windows.  |
| HPEESOF_DIR             | None                              | The location of the ADS installation to use when performing hpeesofsim simulations. Set when using Linux or Solaris.   |

### Setting Environment Variables

To set an Environment Variable:

- Choose **Start > Settings > Control Panel > System > Advanced > Environment Variables** and enter the variable name and value.

For example:

| Variable       | Value            |
|----------------|------------------|
| ICCAP_OPEN_DIR | c:\WIN\System32; |

## Customizing Configuration Variables

The default values of the configuration variables should get you up and running, but they can be customized to better reflect your work environment. By default, the program searches for these configuration files in the following order, and uses the first one found:

- Your current working directory

Define configuration variables here that apply only to your current working directory.

- Your personal directory = *\$HOME/hpeesof/config*

Define configuration variables here that apply to your user directory.

Note: On the PC, *%HOME%* represents the path you specified as the *Home Folder* during installation ( by default, *C:\users\default*)

- The IC-CAP installation directory *\$ICCAP\_ROOT/config*

Define the default installed configuration variables here that apply to all projects of all users. Configuration variables should not be customized here.

Each of the individual IC-CAP tools has its own configuration file. The supplied configuration files can be found in the directory *\$ICCAP\_ROOT/config* (where *\$ICCAP\_ROOT* represents the complete installation path). The filenames for each of the tools are shown in [Table 10](#).

**Table 10** Configuration Filenames

| Product/Tool                              | Filename       |
|---|----------------|
| Layered A.P.I.                            | eeapi.cfg      |
| RGB Colors                                | eecolorRGB.cfg |
| TXT Colors                                | eecolorTXT.cfg |
| Legacy support of HPGL and B/W PostScript | eehcopy.cfg    |
| Colors                                    | iccolor.cfg    |

**Table 10** Configuration Filenames (continued)

| Product/Tool        | Filename           |
|---------------------|--------------------|
| Fill Patterns       | icfill.cfg         |
| Globally used paths | hpeesof.cfg        |
| Browser             | hpeesofbrowser.cfg |
| Data Sets           | hpeesofdss.cfg     |
| Online help system  | hpeesofhelp.cfg    |
| IC-CAP              | iccap.cfg          |

## Configuration File Format

Configuration variables are defined using standard assignment syntax:

```
<variable>=<value>
```

where *variable* is the configuration variable name and *value* is the string that is assigned to the variable. This *value* can be a directory, search path, numeric value, or other value defined by the program. For example, the location of the preferences could be set by:

```
PREFERENCES_DIR=${ICCAP_ROOT}/de/defaults
```

where *\$ICCAP\_ROOT* is an environment variable representing the complete installation path.

Note the following details about file format, illustrated in the accompanying example:

- Any line starting with # is a comment line and is ignored
- Blank lines are ignored
- Blank spaces to the left or right of the equal sign are ignored
- Empty assignments are acceptable (as shown by *env\_var\_2*)

### Example

```
#
# This is a sample configuration file
#
env_var_1 = first_value
env_var_1a = value-1a
#
env_var_2 =
env_var_3 = 17
env_var_4 = $SYSTEM/%HOME/ex4
env_var_4a = ${ICCAP_ROOT}/de/defaults/{%env_var_1a}.ex4a
```

References to environment variables *\$name* and IC-CAP configuration variables *%name* can appear in any order; they are resolved inside each IC-CAP program. A reference to an environment variable or configuration variable name may be enclosed in braces { } when their use is not followed by a punctuation character. The braces are not included in an expanded value.

## Configuration Variable Description

IC-CAP configuration variables are identified by a case-insensitive string of 1 to 31 alphanumeric characters (an underscore is allowed). Variables that are longer than 31 characters are automatically truncated when the configuration file is read. When a variable is set from a configuration file, the line

```
<variable>=<value>
```

is parsed and *variable* is set to the *value*.

A configuration variable can contain a reference. A reference may be enclosed in braces and the text is preceded by either a \$ or % (see Table 11). For example,

```
PREFERENCES_DIR=${$ICCAP_ROOT}/de/defaults
```

assigns the string *\$ICCAP\_ROOT/de/defaults* to the configuration variable PREFERENCES\_DIR, and *\$ICCAP\_ROOT* is defined in a start-up file.

**Table 11** IC-CAP Configuration Variables

| Configuration variable | Description   |
|------------------------|---|
| \$name                 | The configuration variable is replaced by the text string assigned to <i>name</i> in the environment.   |
| %name                  | The configuration variable is replaced by the text string assigned to <i>name</i> in the IC-CAP configuration file.<br><br>Certain IC-CAP variables have a pre-defined meaning in a given program. All of the special IC-CAP configuration variables that are recognized are given in the shipped <i>{\$ICCAP_ROOT}/config/&lt;app-name&gt;.cfg</i> file. |

Most IC-CAP configuration variables are assigned a single value. This text can represent a *number*, *string*, *file*, or *path* as in the following examples.

```
STATUS_DISP = 0
EESTATUS_LOG_FILE = Off
HPEESOF_KEY = $ICCAP_ROOT/licenses/hpeesof.key
PREFERENCES_DIR=${$ICCAP_ROOT}/de/defaults
```

Note that when the *file* is outside of a project configuration, it is necessary to include the full path with the filename to ensure that the file is found.

Some IC-CAP configuration variables accept a *path* assignment. A *path* is a list of one or more directories, where each directory is separated by a colon.

```
variable=directory:directory: . . . .
```

These variables can represent search paths or load paths, depending on the variable and the program. Ordering of the list is significant. When treated as a search path, the list is only scanned until the item needed is found. For loading, the entire list is sequentially examined with the last directory usually taking precedence.

The documentation for each specific variable indicates the type of value allowed. Some variables may have a limited type, such as a range of numbers or list of specific strings.

### Configuration Variable Expansion

Configuration variable expansion refers to the process of replacing all references and variables that make up the configuration variable with their text equivalents until the complete value of the configuration variable is known. (There are no limits to the levels of referencing you can use.) Note that this expansion is done internally by the program; the file that contains the variable assignments is not modified.

For example, assume that the system environment variable `ICCAP_ROOT` is set to `opt/iccap/mysite` and the following two lines exist in a configuration file.

```
MY_LIB      = {${ICCAP_ROOT}/lib/iccap  
ICCAP_LIB   = {%MY_LIB}/rfl
```

After expansion within IC-CAP:

```
MY_LIB = /opt/iccap/mysite/lib/iccap  
ICCAP_LIB = /opt/iccap/mysite/lib/iccap/rfl
```

As in the system environment, you may redefine and add your own IC-CAP variables in any IC-CAP configuration files to help manage system- and user-specific configurations.

## How a Configuration is Determined

Each configuration is distinguished by its name. Each named configuration contains all of the variables needed for describing that particular setup. At the topmost level is the configuration file named *hpeesof.cfg*, which is associated with all IC-CAP programs. Other named configurations are associated with specific programs.

Each named configuration is determined by the location and content of any related configuration files. For example, the complete *iccap* configuration could consist of:

- The file *iccap.cfg*, located in the install directory *\$ICCAP\_ROOT/config*
- An edited copy of this same file, located in the customized site directory *\$ICCAP\_ROOT/custom/config*
- An edited copy of this same file located under your home directory *\$HOME/hpeesof/config* directory
- An edited copy of this same file located in a particular working directory

As noted earlier, configurations in the user directory take precedence over the installation directory, and configurations in the working directory take precedence over the user directory. This is because the search order for configuration information is: working directory, user directory, and installation directory.

Note that variables in each successive file override any previously set value. You can even put two lines in the same configuration that assign values to the same variable, as in:

```
MY_VAR1 = entrya
MY_VAR1 = entryb
```

When expanded, MY\_VAR1 will always have the value of *entryb*.

The following table shows a list of named configurations used in the programs.

**Table 12** Named Configurations

| <b>Activity</b>                        | <b>Configuration</b> |
|--|----------------------|
| Graphical User Interface customization | iccap, hpeesof       |
| Plot graphics                          | hpeesof              |
| Hardcopy customization                 | hpeesof              |
| Online Help                            | hpeesofhelp          |
| Colors                                 | iccolor              |

## Special Variables

There are two configuration files that have a different syntax than the others: *icolor* and *icfill*. Note that the naming convention and loading of system-wide, home directory, and work directory configurations still apply. Only the internal file format differs.

### Color Definitions, *icolor.cfg*

The various windows comprising the IC-CAP design environment, as well as plotters, use the colors defined in the *icolor* configuration. By default, these colors are read from `{$ICCAP_ROOT}/config/icolor.cfg`, but can be overridden at the installation, user, or working directory level (any of which can have an *icolor* file).

The *icolor* file format differs from the *variable=value* syntax. Each line contains these major fields:

- RGB color values
- Color name
- Plotter pen number

The syntax for each line is as follows:

```
<Red #> <Green #> <Blue #> : <Color name> : <Pen number>
```

The following example illustrates the format of a typical color definition file:

| R   | G   | B   |   | X11 color name |   | Plotter pen number |
|-----|-----|-----|---|----------------|---|--------------------|
| 0   | 0   | 0   | : | black          |   | 1                  |
| 255 | 0   | 0   | : | red            | : | 2                  |
| 0   | 255 | 0   | : | green          | : | 3                  |
| 0   | 0   | 255 | : | blue           | : | 4                  |
| 255 | 255 | 255 | : | white          | : | 5                  |
| 128 | 64  | 0   | : |                | : | 6                  |
|     |     |     |   | salmon         | : | 7                  |

Colors are described in the first and/or second fields of this file. You can enter three RGB color values (in the range 0-255) in the first field and/or you can enter the X color name from the RGB color database (found in */usr/lib/X11/rgb.txt* for Motif or */usr/openwin/lib/rgb.txt* for Sun's Open Windows) in the second field. If both are entered, the RGB values take precedence, and the color name is ignored.

The last field specifies which pen number to use for hard-copy output when performing HPGL plotting. An entry in this field is required and pen numbers may be recycled and repeated.

By default, the current implementation uses shared server colors from the RGB color database and uses no privately allocated color cells for X Window displays. This is done to simplify the color specification and to promote sharing of colors. Sharing of color cells can only happen if two clients allocate read-only color cells with the same X color name or RGB values.

### NOTE

On UNIX, we strongly recommend that you only use the names given in the RGB color database instead of explicit RGB values; on the PC, only RGB values are supported.

Because of differences in screen hardware, the same RGB values may generate different colors on different hardware. By using names from the color database, you are more likely to get colors close to the ones requested across different hardware platforms.

It is also important to note that values corresponding to color names are not fixed. Therefore, they may not be exactly the same across all platforms or correspond to an exact RGB value.

### NOTE

Some platforms have limited color resources and some platforms may use non-shared colors, resulting in color exhaustion problems. When IC-CAP programs run into these types of color problems, the solution is to reduce the number of requested colors until color conflicts stop occurring. As an example, truncating the list of colors in *iccolor.cfg* to 64 colors may be a good start.

An example *iccolor* configuration file is shown:

```
#
=====
# IC-CAP Color Definition File:
#
=====
#   R   G   B   :   Color Name   :   Plotter Pen #
# -----
#   0   0   0   :   black       :   1
#  255  0   0   :   red         :   2
#   0  255  0   :   green      :   3
#   0   0  255  :   blue       :   4
#  255  255  0   :   yellow    :   5
#  255  0  255  :   magenta    :   6
#   0  255  255 :   cyan       :   7
#  255  255  255 :   white     :   8
#
# For Unix X Windows systems either RGB values or standard
# X Color Names, or both, may be specified for color entries.
# For Windows only RGB values are supported.
# Note, if both RGB and Color Name values are specified,
# the RGB values take precedence.
#
=====
#
#   0   0   0   :black           : 0 # First always black
#  255  0   0   :red            : 1 # First trace color
#  255  255  0   :yellow        : 2 # Second trace color
#   0  255  0   :green         : 3 # Third trace color
#   0  255  255 :cyan          : 4 # Fourth trace color
#   0   0  255  :blue          : 5 # Fifth trace color
#  255  0  255  :magenta       : 6 # Sixth trace color
#  192 192 192  :gray          : 7 # Eighth trace color
#  255 255 255  :white         : 8 # Eighth always white
```

## NOTE

Although not recommended, you can change the default colors in the *iccolor.cfg* file. The *iccolor* example above shows the lines that set the color for trace 1 through 6 and for trace 8. Not shown is that line 88 sets the trace 7 color, line 32 sets the Y2 trace color, and line 54 sets the Plot Optimizer region box color. For an example, see the *icap.cfg.adv* file located in *\$ICCAP\_ROOT/iccapi/lib/cust\_advanced*.

If the IC-CAP configuration file cannot be found or the *hpeesof* configuration does not contain an *HPEESOF\_COLOR* variable (which determines the location of the IC-CAP color definition file), a set of ten basic default server colors are automatically loaded as follows:

|            |           |             |                  |
|------------|-----------|-------------|------------------|
| 1 = black  | 4 = green | 7 = magenta | 10 = medium blue |
| 2 = red    | 5 = cyan  | 8 = gray    |                  |
| 3 = yellow | 6 = blue  | 9 = white   |                  |

## Fill Pattern Configuration, icfill.cfg

Besides colors, plotters also use the fill patterns defined by the *icfill* configuration. By default, these patterns are read from `{$ICCAP_ROOT}/config/icfill.cfg`, but can be overwritten at the working directory or user directory (any of which can have an *icfill* file).

The *icfill* file format differs from the *variable=value* syntax. Each line contains two major fields.

- Path and filename of the fill pattern
- HPGL/2-pattern-specification

The syntax for each line is as follows:

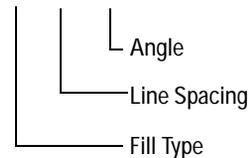
```
<Bitmap_file_location> : <Fill type> <Line spacing> <Angle>
```

where

- Fill type—is the pattern inside an object's border
- Line spacing—is the distance between the hatched lines in plotter units (where a plotter unit is typically 1/72-inch).
- Angle—is the angle of hatch lines in the fill pattern, expressed in degrees (for fill type 3 or 4 only).

The following example illustrates the format of a typical fill pattern definition file:

```
/fill/pat/path/pat1.pattern : 3 50 15
/fill/pat/path/pat2.pattern : 3 50 30
/fill/pat/path/pat3.pattern : 4 60 45
/fill/pat/path/pat4.pattern : 4 60 90
```



Fill patterns use standard X-bitmap files that can be easily created with the *X bitmap* utility. The first field specifies the path to the X-bitmap file, which is used for pattern fills, while the remaining fields are the HPGL/2 fill pattern specification.

| Fill type description | Fill type number |
|-----------------------|------------------|
| Solid bidirectional   | 1                |
| Solid unidirectional  | 2                |
| Hatched               | 3                |
| Cross hatched         | 4                |

**NOTE**

Solid bidirectional fill is faster than solid unidirectional fill, but is not supported by all plotters.

An *icfill* configuration file is shown in the following example:

```
#=====
#EESof Fill Pattern Definition File:
#=====
#X Bitmap Filename : Type Spacing Angle (Hardcopy output)
#-----
#path/pattern_file1 : 3 70 15
#path/pattern_file2 : 4 50 45
#path/pattern_file3 : 4 45 90
#=====
#0
{$HPEESOF_DIR}/de/fill_patterns/pat1.pattern : 3 25 15
{$HPEESOF_DIR}/de/fill_patterns/pat2.pattern : 3 25 30
{$HPEESOF_DIR}/de/fill_patterns/pat3.pattern : 3 25 45
{$HPEESOF_DIR}/de/fill_patterns/pat4.pattern : 3 25 60
{$HPEESOF_DIR}/de/fill_patterns/pat5.pattern : 3 25 75
{$HPEESOF_DIR}/de/fill_patterns/pat6.pattern : 3 25 90
{$HPEESOF_DIR}/de/fill_patterns/pat7.pattern : 4 25 15
{$HPEESOF_DIR}/de/fill_patterns/pat8.pattern : 4 25 30
```

If the IC-CAP configuration file cannot be found or the *hpeesof* configuration does not contain an `HPEESOF_FILL` variable (which determines the location of the IC-CAP fill definition file), a single, unidirectional, solid fill pattern is automatically loaded.

## IC-CAP Configuration Files

This section describes the configuration variables found in the IC-CAP configuration files.

### Variables in the File *iccap.cfg*

This configuration file is used to define several of the directory paths used by IC-CAP, such as paths for examples and model libraries, as well as other program features. The file is located in *\$ICCAP\_ROOT/config*.

The following table shows variables that exist by default in the *iccap.cfg* file.

An additional set of variables for customizing advanced features exist in the file *iccap.adv*. These variables are described in [Table 14](#) and can be added to your *iccap.cfg* file as needed. The *iccap.adv* file is located in *\$ICCAP\_ROOT/iccap/lib/cust\_advanced*.

**Table 13** Variables in the file *iccap.cfg*

| Variable name, description, and example   | Value(s)  |
|---|-----------|
| AEL_PATH<br>Example:<br>AEL_PATH={ <i>\$ICCAP_ROOT</i> }/ael/iccap:{ <i>\$ICCAP_ROOT</i> }/ael/icstat:{ <i>\$ICCAP_ROOT</i> }/ael/api                           | Directory |
| BUILTINSIMPATH<br>Example: BUILTINSIMPATH={ <i>\$ICCAP_ROOT</i> }/bin   | Directory |
| ICCAP_PC_UNIX_CMDS<br>This is the directory IC-CAP uses to find UNIX style commands on the PC.<br>Example: ICCAP_PC_UNIX_CMDS={ <i>\$ICCAP_ROOT</i> }/tools/bin | Directory |
| MARKER_FILE_NAME<br>Search path and filename for plot marker file.<br>Example:<br>MARKER_FILE_NAME={ <i>\$ICCAP_ROOT</i> }/config/markers                       | Filename  |

**Table 13** Variables in the file *iccap.cfg* (continued)

| Variable name, description, and example  | Value(s)  |
|--|-----------|
| FONT_FILE_NAME<br>Search path and filename for plot font file.<br>Example: FONT_FILE_NAME=\${ICCAP_ROOT}/config/usascii  | Filename  |
| ICCAP_EXAMPLE_DIRECTORY<br>Search path and directory for example files. Accessed by selecting <b>File &gt; Examples</b> from the Main window.<br>Example:<br>ICCAP_EXAMPLE_DIRECTORY=\${ICCAP_ROOT}/examples                       | Directory |
| ICSTAT_EXAMPLE_DIRECTORY<br>Search path and directory for Statistics example files. Accessed by selecting <b>File &gt; Examples</b> from the Statistics window<br>Example: ICSTAT_EXAMPLE_DIRECTORY=\${ICCAP_ROOT}/examples/icstat | Directory |
| ICCAP_MODEL_DIRECTORY<br>Search path and filename for model library files.<br>Example:<br>ICCAP_MODEL_DIRECTORY=%ICCAP_EXAMPLE_DIRECTORY   | Directory |
| USERSIMFILE<br>Search path and filename for user simulator files.<br>Example:<br>USERSIMFILE=\${ICCAP_ROOT}/iccap/lib/usersimulators   | Filename  |
| INSTRALIASFILE<br>Search path and filename for the instrument aliases file, instraliases<br>Example:<br>INSTRALIASFILE=\${ICCAP_ROOT}/iccap/lib/instraliases   | Filename  |
| ABOUT_FILE<br>Search path and filename for restricted rights and copyright file.<br>Example: ABOUT_FILE=\${ICCAP_ROOT}/config/about.txt  | Filename  |
| TECH_SUPPORT_FILE<br>Search path and filename for technical support contact file.<br>Example:<br>TECH_SUPPORT_FILE=\${ICCAP_ROOT}/config/support.txt   | Filename  |

**Table 13** Variables in the file *iccap.cfg* (continued)

| Variable name, description, and example  | Value(s) |
|--|----------|
| ICCAP_FUNCTION_BROWSE_DATA<br>Search path and filename for help text displayed in Function Browser.<br>Example:<br>ICCAP_FUNCTION_BROWSE_DATA=\${ICCAP_ROOT}/iccap/lib/functions.hlp | Filename |
| PULSECFG<br>Search path and filename for pulse driver configuration.<br>Example: PULSECFG=\${ICCAP_ROOT}/iccap/lib/hp85124.cfg   | Filename |
| PULSECAL<br>Search path and filename for pulse driver calibration configuration.<br>Example: PULSECAL=\${ICCAP_ROOT}/iccap/lib/hp85124.cal   | Filename |
| ICCAP_WHATS_NEW_FILE<br>Search path and filename for what is new in IC-CAP file.<br>Example:<br>ICCAP_WHATS_NEW_FILE=\${ICCAP_ROOT}/config/new.txt                                   | Filename |
| TCPTRANSEX<br>Example: TCPTRANSEX=\${ICCAP_ROOT}/bin/tcptrans  | Filename |
| ICCAP_IM_CONVERT<br>Example: ICCAP_IM_CONVERT=\${ICCAP_ROOT}/bin/ImageMagick/convert   | Filename |
| ICSTATUS_EXECUTABLE<br>Example:<br>ICSTATUS_EXECUTABLE=\${ICCAP_ROOT}/bin/hpeesoficstatus  | Filename |
| ICCAP_CPP_PATH<br>Search path and filename for CPP.<br>Example: ICCAP_CPP_PATH=\${ICCAP_PLATFORM_DIR}/cpp  | Filename |
| ICCAP_BUILTIN_GROUPS_TEXT<br>Search path and filename for creating built-in groups<br>Example: ICCAP_BUILTIN_GROUPS_TEXT=\${ICCAP_ROOT}/config/builtin_groups.txt                    | Filename |

**Table 13** Variables in the file *iccap.cfg* (continued)

| Variable name, description, and example  | Value(s)  |
|--|---|
| DRAW_PAGE_DEFAULT_MAGNIFICATION<br>Control default magnification setting for drawing areas. (Smaller number means larger text.)<br>Example: DRAW_PAGE_DEFAULT_MAGNIFICATION=1.8  | Positive real number                                    |
| DRAW_PAGE_DEFAULT_FONT<br>Control default font type for drawing area.<br>Example: DRAW_PAGE_DEFAULT_FONT=Arial For CAE   | Font type   |
| ICCAP_LICENSE_TIMEOUT<br>Controls time until acquired licenses are automatically released. Reusing a license during time period resets timer. Disabling the auto-release requires manual release of license, or exit IC-CAP.<br>Example: ICCAP_LICENSE_TIMEOUT=300 (Default) | Seconds<br><br>300 or higher<br>0 disables auto-release |
| API_DOUBLE_CLICKS_TIME_OUT<br>Milliseconds before second click must occur. (Larger number is slower duration.)<br>Example: API_DOUBLE_CLICKS_TIME_OUT=500  | Milliseconds  |
| ICCAP_NUM_RECENT_FILES<br>Controls the number of files the system remembers from history.<br>Example: ICCAP_NUM_RECENT_FILES=5 (Default)   | Positive integer  |
| ICCAP_MAX_RECENT_CHARS<br>Controls the width of the menu pick(s) for recent files.<br>Example: ICCAP_MAX_RECENT_CHARS=40 (Default)   | Positive integer  |
| ICCAP_MAX_VIS_TUNERS<br>Sets the maximum number of parameters visible in a tuner window. A scroll bar appears if the number of parameters exceed this number.<br>Example: ICCAP_MAX_VIS_TUNERS=8 (Default)   | Positive integer  |
| ICCAP_CPP_ARGS<br>Extra argument to pass to cpp when performing simulations. This should rarely need to be reset.<br>Example: ICCAP_CPP_ARGS=-H32000   | Arguments   |

To use the variables listed in the following table, add them to the file *iccap.cfg*. For a graphical description of the color variables, see the figures following the table.

**Table 14** Variables in file *.iccap.adv*

| Variable name, description, and example  | Value(s)   |
|--|--|
| ICCAP_ICON_SIZE<br>Size of toolbar icons.<br>Example: ICCAP_ICON_SIZE=LARGE  | LARGE or SMALL   |
| ICCAP_MAIN_PAGE_COLOR<br>Background color of Main window.<br>Example: ICCAP_MAIN_PAGE_COLOR=9  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_MEAS_PAGE_COLOR<br>Background color of Measurement window.<br>Example: ICCAP_MEAS_PAGE_COLOR=10  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_PLOT_PAGE_COLOR<br>Background color of Plots window.<br>Example: ICCAP_PLOT_PAGE_COLOR=11  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_ICON_BG_COLOR<br>Background color of model symbol icons.<br>Example: ICCAP_BG_COLOR=12   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_ICON_FG_COLOR<br>Foreground color of model symbol icons.<br>Example: ICCAP_ICON_FG_COLOR=16  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_ICON_EDIT_BG_COLOR<br>Background color of editable label of model symbol icons in Main window<br>Example:<br>ICCAP_ICON_EDIT_BG_COLOR=29 | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_ICON_EDIT_FG_COLOR<br>Foreground color of editable label of model symbol icons in Main window<br>Example:<br>ICCAP_ICON_EDIT_FG_COLOR=30 | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_ICON_EDIT_HI_COLOR<br>Highlight color of editable label of model symbol icons in Main window<br>Example: ICCAP_ICON_EDIT_HI_COLOR=31     | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_INPUT_BG_COLOR<br>Background color of input tiles.<br>Example: ICCAP_INPUT_BG_COLOR=13   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |

**Table 14** Variables in file *.iccap.adv*

| Variable name, description, and example   | Value(s)   |
|---|--|
| ICCAP_OUT_BG_COLOR<br>Background color of output tiles.<br>Example: ICCAP_OUT_BG_COLOR=14   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_PLOT_BG_COLOR<br>Background color of Plots window.<br>Example: ICCAP_PLOT_BG_COLOR=15   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_SELECT_COLOR<br>Color of highlight box that surrounds Model window icons when they are selected<br>Example: ICCAP_SELECT_COLOR=17 | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_SELECT_COLOR<br>Color of highlight of selected input, output, and plot tiles<br>Example: ICCAP_TILE_SELECT_COLOR=18          | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_BORDER_COLOR<br>Border color of input, output, and plot tiles<br>Example: ICCAP_TILE_BORDER_COLOR=19                         | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_TITLE_BG_COLOR<br>Background color of input, output, and plot tile labels<br>Example:<br>ICCAP_TILE_TITLE_BG_COLOR=20        | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_TITLE_FG_COLOR<br>Foreground color of input, output, and plot tile labels<br>Example:<br>ICCAP_TILE_TITLE_FG_COLOR=21        | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_TITLE_EDIT_BG_COLOR<br>Background color of input, output, and plot names<br>Example: ICCAP_TILE_EDIT_BG_COLOR=23             | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_TITLE_EDIT_FG_COLOR<br>Foreground color of input, output, and plot names<br>Example: ICCAP_TILE_EDIT_FG_COLOR=22             | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |

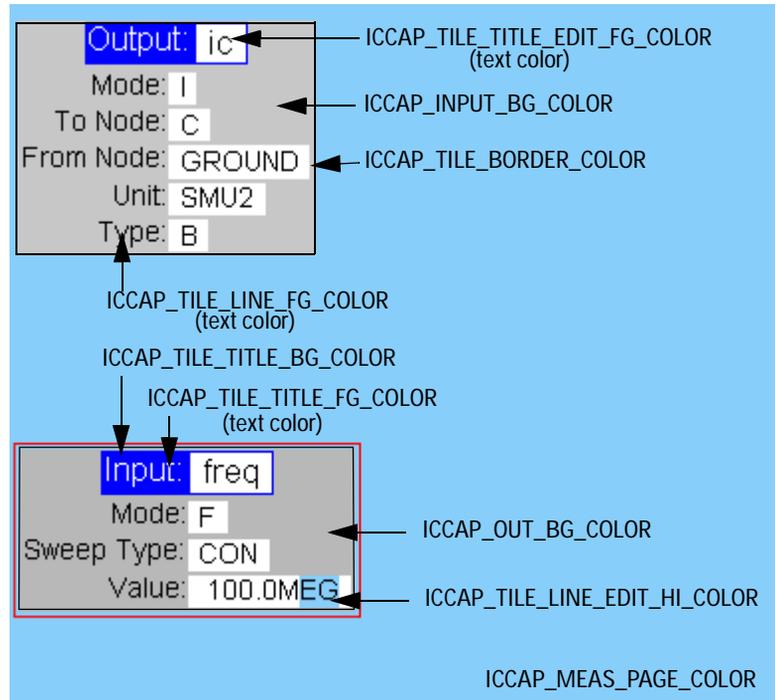
**Table 14** Variables in file *.iccap.adv*

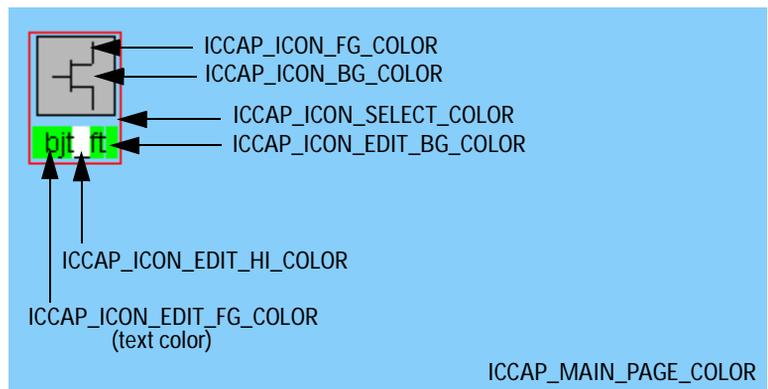
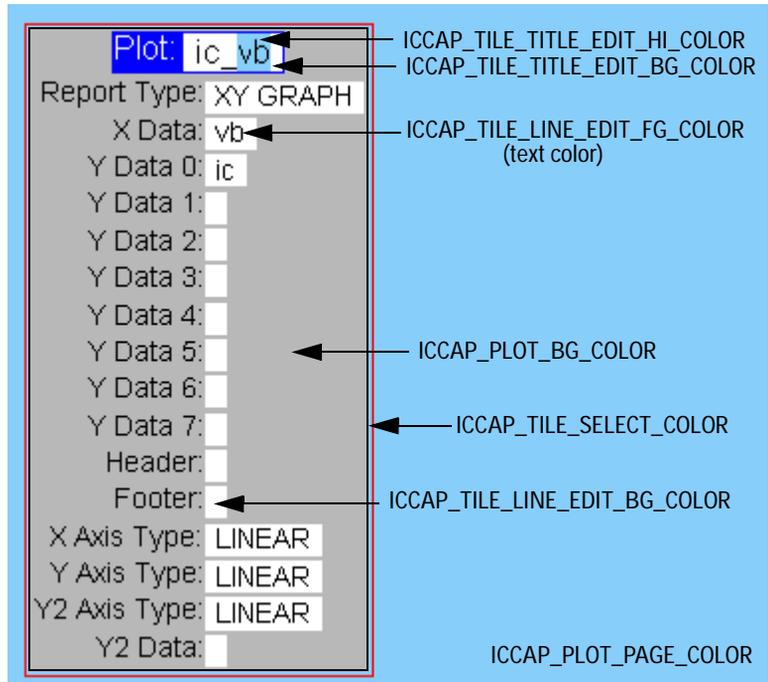
| Variable name, description, and example  | Value(s)   |
|--|--|
| ICCAP_TILE_TITLE_EDIT_HI_COLOR<br>Highlight color of the input, output, or plot names when highlighted for editing<br>Example: ICCAP_TILE_EDIT_HI_COLOR=24   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_LINE_FG_COLOR<br>Foreground color of text of individual line items of inputs, outputs, and plots<br>Example: ICCAP_TILE_LINE_FG_COLOR=25  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_LINE_EDIT_FG_COLOR<br>Foreground color of associated text of line item<br>Example: ICCAP_TILE_LINE_EDIT_FG_COLOR=26   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_LINE_EDIT_BG_COLOR<br>Background color of associated text of line item<br>Example: ICCAP_TILE_LINE_EDIT_BG_COLOR=27   | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICCAP_TILE_LINE_EDIT_HI_COLOR<br>Highlight color of associated text of line item<br>Example: ICCAP_TILE_LINE_EDIT_HI_COLOR=28  | Range allowed (1 to the number of colors specified in <i>eecolor.cfg</i> ) |
| ICSTATUS_WINDOW_TO_TOP<br>Sets the default behavior of the Status window, where On means the Status window pops to the front of the screen anytime new messages are displayed in it, and Off means it does not pop forward automatically.<br>Example: ICSTATUS_WINDOW_TO_TOP=1 | 0=Off<br>1=On  |

**Table 14** Variables in file *.iccap.adv*

| Variable name, description, and example   | Value(s)        |
|---|-----------------|
| <p>BACKUP_FILES_WHEN_ASKED</p> <p>Controls prompt for file backup when using File &gt; Save As.</p> <p>YES always creates backup of file without a prompt.</p> <p>NO saves file without creating backup or prompting for backup.</p> <p>ASK prompts to overwrite existing file, and create backup.</p> <p>Example:<br/>BACKUP_FILES_WHEN_ASKED=ASK</p>  | YES, NO, or ASK |
| <p>OVERWRITE_FILES_WHEN_ASKED</p> <p>Controls prompt for overwriting files when saving.</p> <p>YES always overwrites files without a prompt.</p> <p>NO prevents overwrite of any file; you must save to a new name or remove existing file.</p> <p>ASK prompts to overwrite existing file.</p> <p>Example:<br/>OVERWRITE_FILES_WHEN_ASKED=ASK</p>   | YES, NO, or ASK |
| <p>ICCAP_USER_FUNCTION_BROWSE_DATA</p> <p>Search path and filename for user defined help text displayed in Function Browser in addition to the functions.hlp file. The default is blank. Separate multiple filenames with a semicolon (;) on Windows and a colon (:) on UNIX.</p> <p>Example:<br/>ICCAP_FUNCTION_BROWSE_DATA=<br/>{\${ICCAP_OPEN_DIR}/user_funcs.hlp;<br/>{\${HOME}/myfuncs.hlp</p> | Filename(s)     |

## 7 Customizing the IC-CAP Environment





## Customizing the Default Size and Location of Windows

This section lists additional variables that can be added to the configuration file *iccap.cfg* to customize the default size and location of many IC-CAP program windows. One or more of the following specifications can be added to the variables shown in Table 15.

- `_X`, the X-coordinate (left-right) for the default position of a window (0 is the left edge of the screen)
- `_Y`, the Y-coordinate (up-down) for the default position of a window (0 is the top edge of the screen)
- `_WIDTH`, the default, in pixels, for the width of a window
- `_HEIGHT`, the default, in pixels, for the height of a window
- `_MIN_WIDTH`, the minimum width, in pixels, to which you can shrink the window
- `_MIN_HEIGHT`, the minimum height, in pixels, to which you can shrink the window

Example:

```
HARDWARE_WINDOW_X=75
HARDWARE_WINDOW_Y=5
HARDWARE_WINDOW_WIDTH=950
HARDWARE_WINDOW_HEIGHT=700
HARDWARE_WINDOW_MIN_WIDTH=690
HARDWARE_WINDOW_MIN_HEIGHT=540
```

**Table 15** Default Window Size and Location Variables

| Variable        | Description  |
|-----------------|--|
| HARDWARE_WINDOW | The Hardware Manager Window                                  |
| MODEL_WINDOW    | The window displaying any currently open model file          |
| STATUS_WINDOW   | The window that displays status, warning, and error messages |
| SIMDEB_WINDOW   | Simulation Debugger Window                                   |
| SYSVAR_WINDOW   | System Variables Window                                      |
| PLOT_OPTIMIZER  | Plot Optimizer Window  |

**Table 15** Default Window Size and Location Variables (continued)

| Variable               | Description  |
|------------------------|--|
| DETACH_SETUP_WINDOW    | The detachable window that appears when you select a setup from the DUT/Setup pane and click Detach  |
| DETACH_MACRO_WINDOW    | The detachable window that appears when you select a macro from the Select Macro list box (in the Macros folder) and click Detach  |
| DETACH_VARIABLE_WINDOW | The detachable window that appears when you select Tools > System Variables and click Detach   |
| DETACH_PARAM_WINDOW    | The detachable window that appears when you click Detach in the Model Parameters folder  |
| ICSTAT_MAIN_WINDOW     | The main Statistics window (Statistical Analysis)  |
| ICSTAT_ANALYSIS_WINDOW | The Statistics window that appears when you choose Analysis Data from the Analysis menu  |
| ICSTAT_SUMMARY_WINDOW  | The Statistics window that displays statistical data   |
| ICSTAT_BOUNDARY_WINDOW | The Statistics window in which boundary analysis data is displayed   |
| ICSTAT_RESIDUAL_WINDOW | The Statistics window in which residual correlation data is displayed  |
| ICSTAT_FACTOR_WINDOW   | The Statistics window that displays a summary table showing the dominant parameter for each factor and its value, as well as the factor group data ( <i>Analysis &gt; Factor/Parameter Groups</i> ). |

## Variables in the File `hpeesofhelp.cfg`

This configuration file is used by the Help Server to locate the Online Help documents. The file is located in `$ICCAP_ROOT/config`.

**Table 16** Variables in the file `hpeesofhelp.cfg`

| Variable, description, and example   | Value(s)  |
|--|-----------|
| TOPLEVEL_DOC<br>Top level index document location.<br>Example: TOPLEVEL_DOC = \$ICCAP_ROOT/doc | Directory |

## Variables in the File `hpeesof.cfg`

All IC-CAP programs read the `hpeesof` configuration file, which includes a variety of important configuration variables. The file is located in `$ICCAP_ROOT/config`.

**Table 17** Variables in the file `hpeesof.cfg`

| Variable, description, and example   | Value(s)  |
|--|-----------|
| HPEESOF_LM_LICENSE_FILE<br>Complete path to FLEXnet <i>license.lic</i> file.<br>Example: HPEESOF_LM_LICENSE_FILE =<br>\${ICCAP_ROOT}/license/license.lic | Filename  |
| HPEESOF_COLOR<br>Complete path to system-wide <i>iccolor</i> configuration file.<br>Example:<br>HPEESOF_COLOR=\${ICCAP_ROOT}/config/iccolor.cfg          | Filename  |
| HPEESOF_FILL<br>Complete path to system-wide <i>icfill</i> configuration file.<br>Example: HPEESOF_FILL=\${ICCAP_ROOT}/config/icfill.cfg                 | Filename  |
| HPEESOF_FONT_FILE<br>Directory where font index files are located.<br>Example: HPEESOF_FONT_FILE=\${ICCAP_ROOT}/config                                   | Directory |

**Table 17** Variables in the file *hpeesof.cfg* (continued)

| Variable, description, and example  | Value(s)  |
|---|---|
| <p>HPEESOF_OCCIDENTAL_FILE<br/>           Complete path to specify European foreign language fonts.<br/>           (For future use.)<br/>           Example: HPEESOF_OCCIDENTAL_FILE=<br/>           \${ICCAP_ROOT}/config/heresh.oc</p>                          | Filename  |
| <p>HPEESOF_ORIENTAL_FILE<br/>           Complete path to specify Asian foreign language fonts.<br/>           (For future use.)<br/>           Example:<br/>           HPEESOF_ORIENTAL_FILE=\${ICCAP_ROOT}/config/heresh.or</p>                                  | Filename  |
| <p>HPEESOF_LANGUAGE<br/>           Specifies the default language.<br/>           Example: HPEESOF_LANGUAGE=english</p>   | Language name   |
| <p>HPEESOF_BUFFER<br/>           Size of graphics buffer.<br/>           Example: EESOF_BUFFER=5000</p>   | Number of bytes (0 to 500K)   |
| <p>HPEESOF_EEHCOPIY_FILE<br/>           Specifies location where the hardcopy configuration file .eehcopy will be written to.<br/>           Example: EESOF_EEHCOPIY_FILE=home</p>  | Location of eehcopy:<br>system<br>home<br>cwd (current working directory) |
| <p>HPEESOF_EEHCOPIY_SETUP<br/>           File where you customize the printing of plot files, text files, and screen dump files for any system configuration.<br/>           Example:<br/>           EESOF_EEHCOPIY_SETUP=\${ICCAP_ROOT}/config/eehcopy.setup</p> | Filename  |

**7 Customizing the IC-CAP Environment**

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