ERDAS IMAGINE®
Installation Guide

ERDAS IMAGINE V8.4

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Section One
Windows Installation and Configuration

Preface to Windows Installation

About this Manual

The ERDAS IMAGINE® V8.4 *Installation Guide* provides step-by-step instructions for installing ERDAS IMAGINE software, security codewords, the hardware key and its driver, and configuring peripherals. Sections regarding viewer preferences and adding fonts to annotation are also included for your reference.

The sections about configuring peripherals tell you how to set up a tape drive and/or a tablet digitizer so that each can be accessed by ERDAS IMAGINE software. The sections are not intended to provide every detail about installing and configuring an input or output device. You should still refer to the manufacturer's documentation for each device.

Documentation

This manual is part of a suite of printed and on-line documentation that you receive with ERDAS IMAGINE software.

Printed Documentation

Following is a list of printed documentation that is available with ERDAS IMAGINE software. These may have been delivered in printed form or as digital .pdf files:

- ERDAS Field Guide™
- ERDAS IMAGINE Tour Guides™
- ERDAS IMAGINE Installation Guide
- ERDAS IMAGINE V8.4 Release Notes and important information

On-Line Documentation

Following is a list of on-line manuals that can be found in the On-Line Help in ERDAS IMAGINE software:

- Introduction to ERDAS IMAGINE On-Line Manual

- Annotation On-Line Manual

- AOI On-Line Manual

- Classification On-Line Manual

- C_Tools On-Line Manual

- DLL On-Line Manual

- EML On-Line Manual

- Expert Classifier On-Line Manual

- Graphical Models On-Line Manual

- HyperSpectral On-Line Manual

- IMAGINE Command and Function Syntax On-Line Manual

- IMAGINE Interface On-Line Manual

- Image Catalog On-Line Manual

- Image Interpreter On-Line Manual

- Import/Export On-Line Manual

- Map Composer On-Line Manual

- OrthoBASE On-Line Manual

Documentation Functions

The following table details the different types of information you can extract from ERDAS IMAGINE documentation.

If you want to...	Read...
Install ERDAS IMAGINE	ERDAS IMAGINE V8.4 Facts to Know and Known Problems in the *"Release Notes"* document, then "CHAPTER 2: Server/Local Installation" or "CHAPTER 3: Client Installation" of this document
Set up hardware for use with ERDAS IMAGINE	See "Configure Tape Drive" on page 57 and/or *"Configure Tablet Digitizer" on page 47* of this document
Learn about new features in the latest release	New Features: ERDAS IMAGINE V8.4
Learn to use ERDAS IMAGINE	ERDAS IMAGINE Tour Guides
Learn about GIS and image processing theory	ERDAS Field Guide
See what a particular dialog does	On-Line Help
Get quick information about a button or function	On-Line Help or Status Bar Help
Learn more about the Image Interpreter functions	ERDAS IMAGINE Tour Guides
Use the Spatial Modeler Language to write models	On-Line Spatial Modeler Language manual
Customize the ERDAS IMAGINE graphical user interface	On-Line ERDAS Macro Language (EML) manual
Write custom application programs within IMAGINE	On-Line IMAGINE Developers' Toolkit™ manual

Conventions Used in This Book

In ERDAS IMAGINE, the names of menus, menu options, buttons, and other components of the interface are shown in bold type. For example:

"In the Raster dialog, select the **Fit to Frame** option."

Raster is the name of a specific dialog and **Fit to Frame** is an option within that dialog.

When asked to use the mouse, you are directed to click, shift-click, middle-click, right-click, hold, drag, etc.

- click — designates clicking with the left mouse button
- shift-click — designates holding the Shift key down on your keyboard and simultaneously clicking with the left mouse button
- middle-click — designates clicking with the middle mouse button
- right-click — designates clicking with the right mouse button
- hold — designates holding down the left (or right, as noted) mouse button
- drag — designates dragging the mouse while holding down the left mouse button

Certain characters and font styles have special meaning in ERDAS IMAGINE documentation.

<words>

When you see words enclosed in **< >**, substitute the proper information for these words. For example, when you see <IMAGINE_HOME> in this document, replace it with the name of the drive and directory where ERDAS IMAGINE is installed on your system.

```
Prompts
```

Words that appear in the above font style represent program prompts that appear on the screen.

Commands, Entries

Words that appear in the above font style are used to show commands that you need to enter, and examples of data that you may enter as a response to a program prompt. A word enclosed in brackets **[ ]** at the end of a prompt is the default answer for that prompt. Press the Return key to accept the default answer.

The following paragraphs are used throughout the ERDAS IMAGINE documentation:

These paragraphs contain strong warnings or important tips.

These paragraphs direct you to the ERDAS IMAGINE software function that accomplishes the described task.

These paragraphs lead you to other sections of this manual or other specified manuals for additional information.

CHAPTER 1
Preparation for Installation under Windows

Introduction

This document provides updates to installation and configuration instructions for ERDAS IMAGINE V8.4 for Microsoft Windows NT 4.0 and Windows 98.

NOTE: This manual contains important updated information that is crucial to the successful installation and operation of your software. Please read this manual before trying to install or run ERDAS IMAGINE.

You must have Administrator privileges to install ERDAS IMAGINE on a Windows NT 4.0 operating system.

System Requirements

As with any advanced software, greater system resources result in greater performance. The following tables detail the minimum system requirements to run ERDAS IMAGINE V8.4.

Requirements - Windows NT 4.0	
System:	Intel Pentium (Pentium II or higher recommended)
Operating System:	Windows NT 4.0
Service Pack:	Service Pack 4 (or better)
Memory:	64 MB (128 MB highly recommended)
Hard Disk Space:	660 MB
Display:	Super VGA 800 x 600 x 256 colors (1024 x 768 x 64K colors recommended)
Install Media:	Microsoft Windows compatible CD-ROM drive
Mouse:	Microsoft Windows compatible mouse (Microsoft Intellimouse recommended)
Parallel Port:	Centronics parallel port

Requirements - Windows 98	
System:	Intel Pentium (Pentium II or higher recommended)
Operating System:	Windows 98

Requirements - Windows 98	
Memory:	64 MB (128 MB highly recommended)
Hard Disk Space:	660 MB
Display:	Super VGA 800 x 600 x 256 colors (1024 x 768 x 64K colors recommended)
Install Media:	Microsoft Windows compatible CD-ROM drive
Mouse:	Microsoft Windows compatible mouse (Microsoft Intellimouse recommended)
Parallel Port:	Centronics parallel port

Disk Space

Several processes in ERDAS IMAGINE create temporary files. On a system with multiple disk drives, the drive that contains the default directory (**c:\temp**) may not have enough space. Be sure to set the **Temporary File Directory** in the **User Interface and Session** category of the **Preference Editor** to a directory with sufficient disk space (the actual amount you need depends on the size of the files and applications you use with ERDAS IMAGINE).

Some temporary files may not be deleted automatically, causing the temporary directory to become overloaded. If this happens, exit ERDAS IMAGINE and delete the files in the temporary directory.

If the **Temporary File Directory** in the **Preference Editor** specifies a nondirectory file or a nonexistent directory, no error message is reported and the **c:\temp** directory is created and used for temporary files.

Refer to the "Microsoft Windows NT System Guide" for information on configuring spool directories.

Differences Between Windows NT 4.0 and Windows 98

ERDAS IMAGINE has different functionalities depending on which kind of system, Microsoft Windows NT 4.0 or Windows 98, you use. The following is a general overview of the differences between the two systems.

Windows NT 4.0

• To properly install ERDAS IMAGINE on a Windows NT 4.0 system, you must have Administrator privileges.

• The Administrator must create a user account for each user. This gives each user a username and password for logging into the system. A unique home directory for each user is highly recommended in order to make use of ERDAS IMAGINE's user-specific preference capabilities.

Refer to the "Microsoft Windows NT System Guide" for information on setting up user accounts.

Windows 98

• The Hardware Security Key Driver is always present in a Windows 98 installation of ERDAS IMAGINE, whether Server/Local or Client. To remotely license an installation of ERDAS IMAGINE on a Windows 98 system, you must physically remove the hardware key from the computer.

• Windows 98 does not support the use of the Erdmaster program. Therefore, a Windows 98 machine cannot be used as the license broker for floating licenses.

See "Erdmaster" on page 43. for an explanation of Erdmaster functionality.

• Windows 98 does not support some vector import/export functions including ARC Interchange format, ESRI Shapefile format, ARC GRID, GRIDStack, etc.

• Windows 98 does not support some utilities such as clean and build vector layer topology, subset vector layers, mosaic polygon layers, transform vector layer, etc.

See the "ERDAS IMAGINE Vector™ Capabilities Checklist" for more information on vector capabilities.

• Windows 98 does not support local tape drive access.

• Windows 98 does not support deferred batch processing. A batch file can be created to run multiple processes but it cannot be scheduled to execute at a later date or time.

ERDAS Software Security

This section gives you an overview of the ERDAS IMAGINE software security system.

Hardware Key

The hardware key is a device that attaches to a parallel port on the computer. It is installed between the computer and any other peripheral device which may be connected to that port. It does not interfere with the normal use of the parallel port. The function of the hardware key is to provide a unique ID for the computer to which it is attached in order to generate unique codewords.

Codewords

For each unique ID, there is a set of security codewords provided by ERDAS. These codewords protect the software against unauthorized use and determine which modules you can use, the number of users, and when, or if, the modules expire. If the codewords generated for a unique ID specify multiple users, then Erdmaster can be used to "float" licenses around a network.

Erdmaster

In the case of a remotely licensed installation of ERDAS IMAGINE, Erdmaster acts as a license broker by allowing multiple licenses to be "floated" from a single computer.

Setting Up Your Machine for SDE

This topic is for the Database Access extension.

Before you can create database themes and database tables, find out if you have to set up your machine. After following the instructions below, you should be able to connect to SDE to create database themes and database tables.

To set up your machine for SDE you need to edit its Hosts and Services files. You can do this in any text editor. (Warning for PCs: Notepad is known to sometimes store hidden characters in text files. If you have trouble connecting, check these files in the DOS editor.)

File Locations

    Windows NT: <winnt root>\system32\drivers\

    Windows 95: <win95 root>

    UNIX: /etc

Services

This file must contain the SDE database instance name and its service number. For each instance that you want to access, add the following line to the Services file:

    <instance name>   <service number>/tcp

For example, the default instance name is esri_sde and the default service number is 5150:

    esri_sde   5150/tcp

Machines can be sensitive to the order in which entries appear in the services file. If you have trouble connecting, try changing the order in which the SDE database instances are listed.

Hosts

For each SDE server that you want to access, add the following line to the Hosts file:

    <hostname>   <IPaddress>

For example,

    stout   198.102.46.225

After editing the Hosts file, make sure you can "ping" the SDE server. You can ping a machine by typing **ping <host name>** at your prompt. You are able to connect if you get a reply from the server. If you don't get a reply, then you likely spelled the server's name wrong or typed the IP address incorrectly in the Hosts file.

PCs only:

If your PC doesn't have a Hosts file, you must create a new one. A sample Hosts file is often provided, called Hosts.sam. When saving the new Hosts file, some text editors automatically attach a .txt extension to it; rename the file to eliminate the .txt extension. If you don't have a ping utility to check communication with the server, you need to open a DOS window.

Yellow Pages

Networks often have yellow pages Hosts and Services files. Depending on how your network is set up, your machine may use the yellow pages files in addition to the local Hosts and Services files. Suppose you can't connect to SDE unless you edit the local Services file, but you can connect without editing the local Hosts file. This happens because your machine knows to check the yellow pages Hosts file, which has an entry for that server; however, the database instance wasn't in the yellow pages Services file, so you had to edit the local Services file.

Sometimes UNIX machines are set up to read the yellow pages files instead of the local files. If you've changed your local files correctly and you still can't connect, talk to your system administrator; they need to change a file so your local Hosts and Services files are not ignored.

We recommend that you do not rely on the yellow pages files. You should always edit your local Hosts and Services files to contain the correct information. Yellow pages files are often incomplete. There are usually different yellow pages files for different subnetworks in a large network environment; an SDE server may appear in one yellow pages Hosts file but not in another. To change the yellow pages files you need to contact your system administrator.

Installation

ERDAS IMAGINE can be installed in two ways: Server/Local installation or Client installation. The installation process also may include add-on modules. Regardless of the type of installation, licensing using a hardware key or Erdmaster is required.

Server/Local Installation

Server/Local installation copies all necessary files and configures a machine to run ERDAS IMAGINE independently. It copies executable files to disk. All of the ERDAS IMAGINE modules and components reside only on the designated machine; network access is not required.

Client Installation

Client installation configures a machine to run ERDAS IMAGINE from a preinstalled location (e.g., a network share, or a local hard drive in a dual-booted system). No files, other than required system files, are copied to the client machine.

Add-on Modules

You can also incorporate add-on modules into an existing installation of ERDAS IMAGINE software.

In some cases, the module is included in the list of module components you access during installation. For example, you can choose VirtualGIS™ from the components list. If you have selected the add-on module during installation of ERDAS IMAGINE, then you can also incorporate its codewords as you do IMAGINE's.

If you did not choose the module at the time of ERDAS IMAGINE installation, you can reinsert the CD into the CD-ROM drive and begin again. This time, select only the module you wish to install. You also enter the codewords separately.

Other add-on modules to ERDAS IMAGINE come on separate CD. In this case, simply insert the CD-ROM into the appropriate drive, and follow the installation instructions provided with the module. You can input your codewords at the end of the installation process.

Licensing

For either installation, the licensing can be local (via the hardware key) or remote (via Erdmaster). The remote option requires a network connection.

See "Erdmaster" on page 43. for instructions on how to use Erdmaster as a license broker.

The ERDAS IMAGINE CD-ROM

The ERDAS IMAGINE CD-ROM master panel provides access to different components of ERDAS IMAGINE. Following is a description of what each one of the icons does.
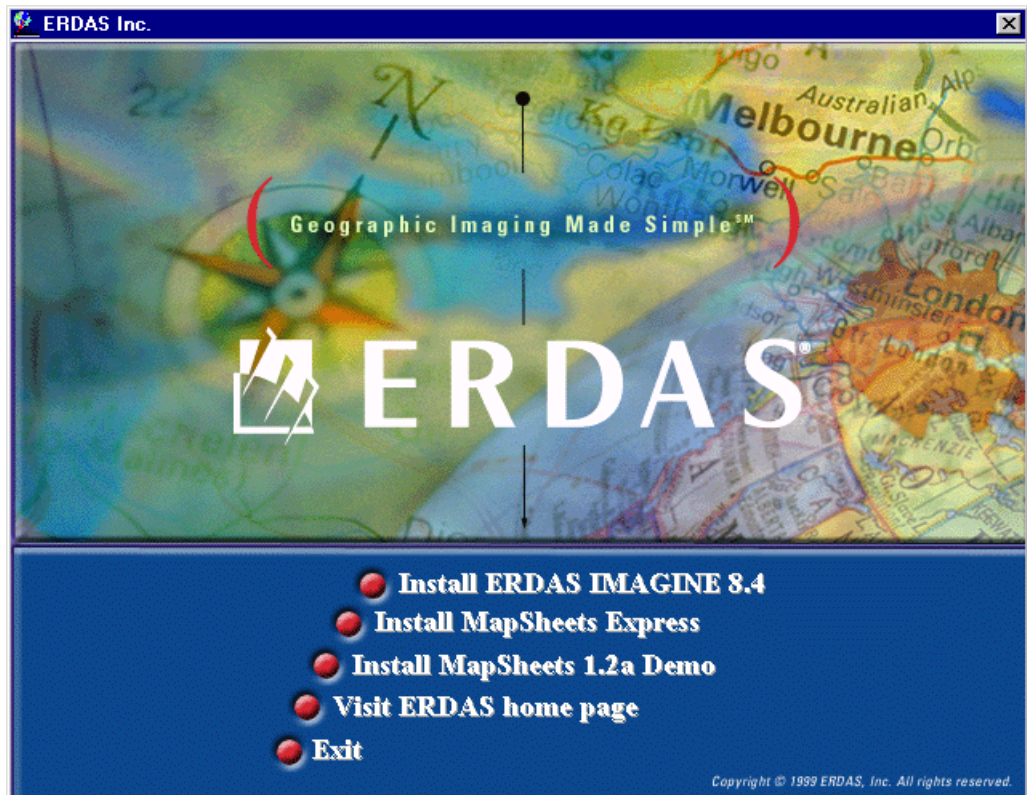
The **Install ERDAS IMAGINE 8.4** accesses the setup dialogs to perform a Server/Local or Client installation of ERDAS IMAGINE.

The Install Mapsheets Express installs ERDAS Mapsheets Express™1.2, a free viewer and mapping tool from ERDAS for working with imagery and vector map data. This viewer can be freely distributed with your data.

The Install Mapsheets 1.2a Demo installs a demo version of ERDAS MapSheets™ 1.2a, which can be purchased from ERDAS; see **Install ERDAS IMAGINE 8.4** for further details.

The Visit ERDAS Home Page takes you directly to the ERDAS home page on the Web (www.erdas.com). If you are not connected to Microsoft Internet Explorer, or it is not your default browser, a message prompts you to change browsers. This message can be disabled after the first occurrence.

Running ERDAS IMAGINE V8.3.1 and 8.4

ERDAS IMAGINE V8.3.1 codewords cannot be used to secure ERDAS IMAGINE V8.4 software. If you wish to run ERDAS IMAGINE V8.3.1 and ERDAS IMAGINE V8.4 at the same time, you may choose one of the following options:

- install and license ERDAS IMAGINE V8.3.1 and ERDAS IMAGINE V8.4 independently

- use the license broker, Erdmaster, to secure both the ERDAS IMAGINE V8.3.1 and the ERDAS IMAGINE V8.4 licenses.

If you choose to use Erdmaster to secure licenses for both ERDAS IMAGINE V8.3.1 and ERDAS IMAGINE V8.4, enter your ERDAS IMAGINE V8.3.1 codewords (after the ERDAS IMAGINE V8.4 codewords) while setting up ERDAS IMAGINE V8.4 security. Also, make sure that the ERDAS IMAGINE V8.4 license broker gets started before running ERDAS IMAGINE V8.3.1 software.

For more information on running both ERDAS IMAGINE V8.3.1 and 8.4, see See "Erdmaster" on page 43.

CHAPTER 2
Server/Local Installation

Description

This section contains the steps for completing a Server/Local installation of ERDAS IMAGINE software on a Windows NT 4.0 or Windows 98 system. The dialogs used in the setup look the same regardless of system.

A server or local installation is one in which the program files are copied to the machine on which the installation is being performed. A server installation is one which serves ERDAS IMAGINE program files to a remote client machine usually via a network connection. A local installation is one in which the ERDAS IMAGINE program files are run from the machine on which they are installed. Both of these types of installation are the same.

> *You must have Administrator privileges to install ERDAS IMAGINE on a Windows NT 4.0 operating system.*

If you attempt to install ERDAS IMAGINE on a Windows NT 4.0 system without Administrator privileges, a dialog opens instructing you that you are not able to install the hardware security key driver.

Server/Local Installation

Follow these instructions to perform a Server/Local installation of ERDAS IMAGINE.

> *As with any hardware installation, it is recommended that you turn your computer off before inserting the hardware security key.*

1. If this installation of ERDAS IMAGINE is going to act as the license broker for other machines, or if this installation of ERDAS IMAGINE is locally licensed, install the ERDAS-provided hardware security key on a parallel port.

   This hardware device does not interfere with normal use of the parallel port. Simply insert it between the computer and any peripheral device using that port.

2. Start Microsoft Windows NT 4.0 or Windows 98.

> *You should close all running applications before installing ERDAS IMAGINE.*

3. Insert the ERDAS IMAGINE installation CD into the CD-ROM drive.

The ERDAS IMAGINE CD-ROM master panel opens automatically.

NOTE: If your preference settings deactivate the autorun, you can also access this panel by selecting **Start | Run** *from the Microsoft application bar and entering* **<CD-ROM>:\autorun** *in the text box (where <CD-ROM> represents the drive letter of your CD-ROM drive).*

4. From the ERDAS IMAGINE CD-ROM master panel, click on the **Install ERDAS IMAGINE 8.4** to launch the setup options.

The ERDAS IMAGINE CD-ROM master panel remains active in the background and the ERDAS IMAGINE V8.4 Setup window opens and fills the screen. The Welcome dialog opens, which directs you to close running applications.
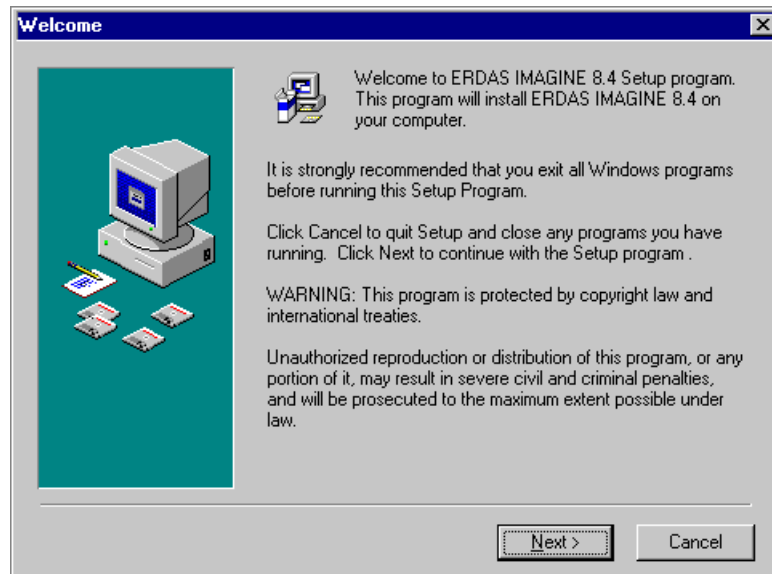
NOTE: If, at any time, you wish to terminate the ERDAS IMAGINE Setup, click on the **Cancel** *button located at the bottom of the dialogs, select* **Exit Setup***, and then click the* **Exit** *button located on the ERDAS IMAGINE CD-ROM master panel.*
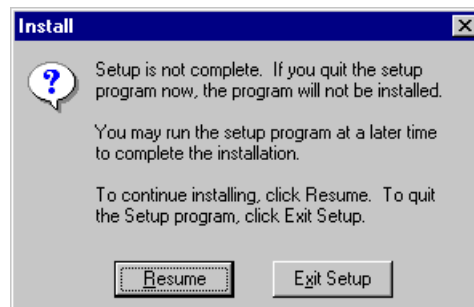
5. Click **Next** in the Welcome dialog.

The License Agreement dialog opens. You can use the arrows or Page Down to view all of the ERDAS Software License and Limited Warranty Agreement.

6.   If you agree to the terms and conditions set forth in the ERDAS Software License and Limited Warranty Agreement, click **Yes** (if not, click **No** to cancel installation).

To aid you in completing your setup of ERDAS IMAGINE, an information dialog opens listing System Requirements. You can click the arrows or Page Down to scroll through all of the system requirements.

7.   If your system meets or exceeds the requirements, click **Next** in the Information dialog.

The Registration Information dialog opens. This dialog records your name and the name of your company.
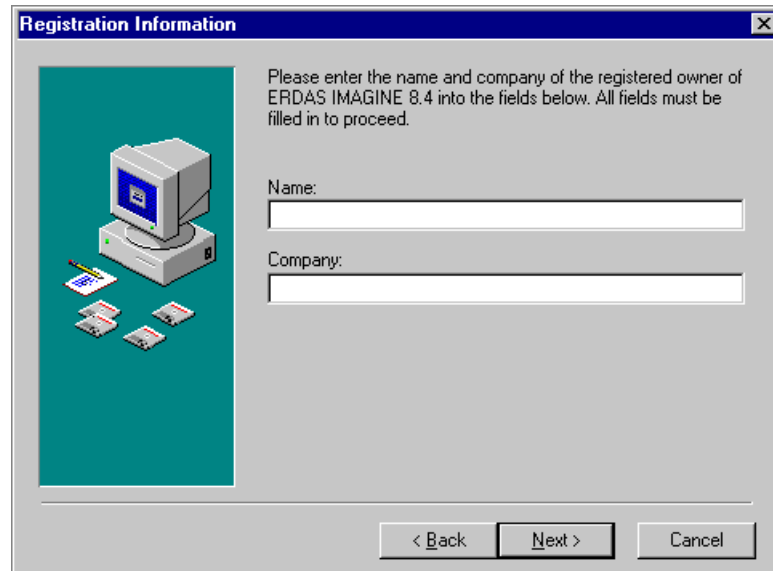
8.   Enter your name (or the Administrator's name) in the **Name** text box.

9.   Press the Tab key to move the cursor into the **Company** text box. Enter your Company name.

10.   Click the **Next** button at the bottom of the Registration Information dialog.

The Setup Type dialog opens. This dialog allows you to select the kind of installation you are going to perform.
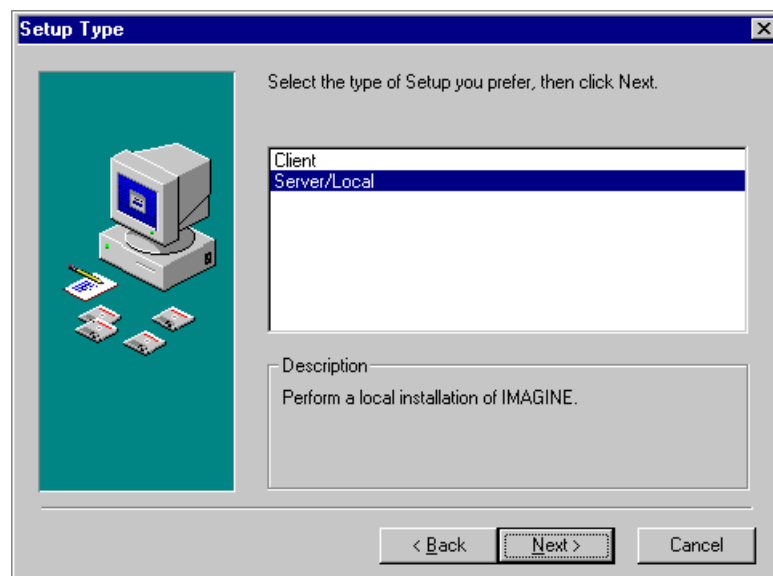
11.   Click on the **Server/Local** installation type.

12. Click the **Next** button at the bottom of the Setup Type dialog.

The Choose Destination dialog opens. This dialog allows you to specify the name of the installation directory on a server or a local computer. All files required to run ERDAS IMAGINE are installed in this directory.
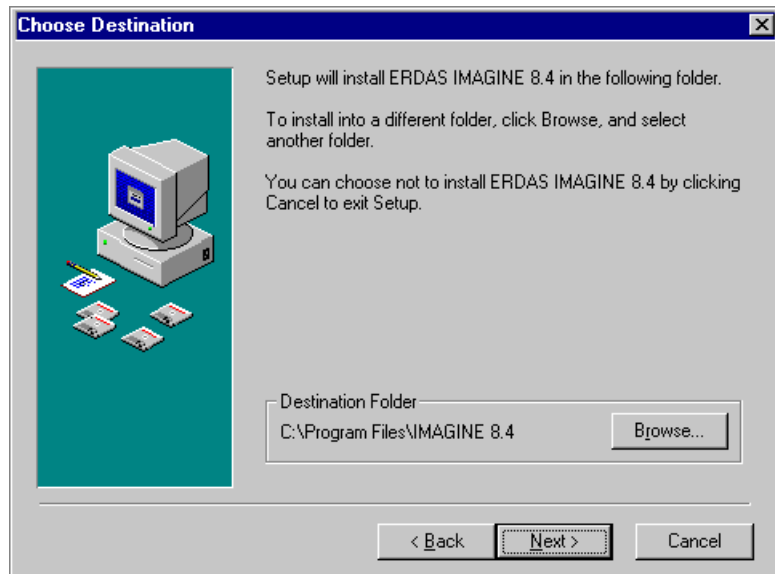
13. If you would like to change the installation directory, click the **Browse** button to access the Choose Folder dialog.

Enter new directory here

Select folder here

Select drive here
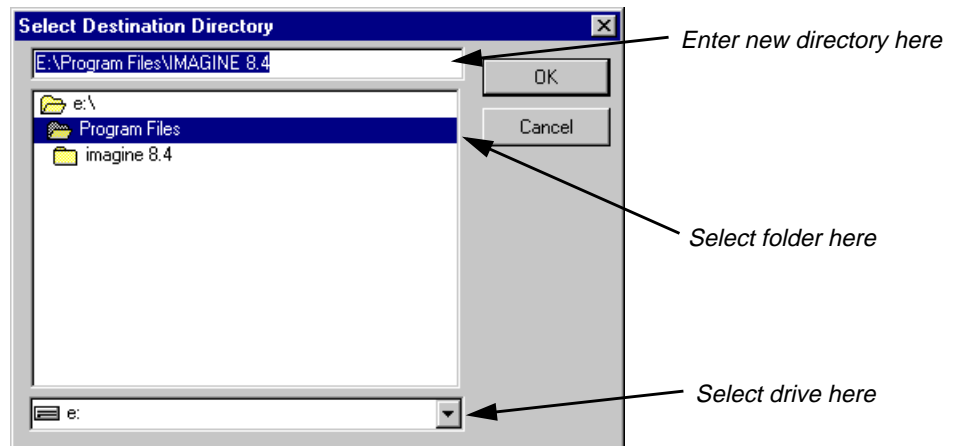
NOTE: If you would like to create a new directory in which to install ERDAS IMAGINE, type the path in the text box.

14. Click to select or type the directory in which you would like to install ERDAS IMAGINE.

15. Click the **OK** button to return to the Choose Destination dialog.

16. Click the **Next** button at the bottom of the Choose Destination dialog.

17. The Backup Replaced Files dialog opens. This dialog allows you to choose a location for the storage of files that are replaced by the current installation. This provides a means of returning to a previous version if needed.
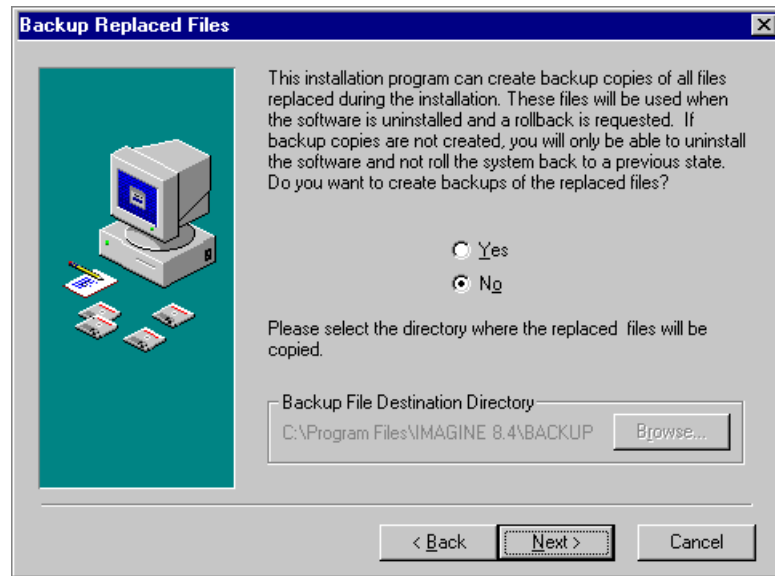
18. If you would like to change the backup directory, click the **Browse** button to access the Choose Folder dialog.

19. Click to select the directory in which you would like to save replaced files.

20. Click the **OK** button to return to the Backup Replaced Files dialog.

21. Click the **Next** button at the bottom of the Backup Replaced Files dialog.

    The Select Components dialog opens. This dialog enables you to select ERDAS IMAGINE modules and their components.

Select modules you wish to install from this list

Select the desired module components from this list

Program Files is a required component for a module to function
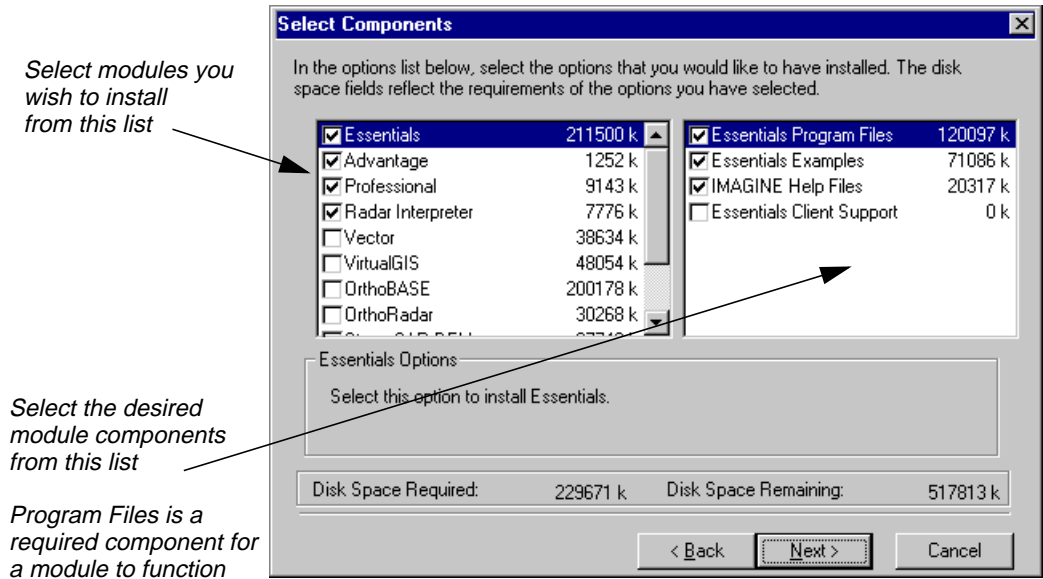
22. Click to select the ERDAS IMAGINE modules you want to install in the left selection box.

23. Click to select the optional components of each module in the right selection box.

NOTE: Optional components vary depending on which modules you select. The Program Files component is required for a module to function. The **Disk Space Required** *and* **Disk Space Remaining** *fields also change based on your selections.*

For example, if you have purchased ERDAS IMAGINE Professional and Vector modules, and this is a new installation, you need to select at least the Program Files components of Essentials™, Advantage™, Professional™, Radar Interpreter, and Vector™ modules.

The following table is provided to assist you when selecting install modules.

To Install These Modules...	... You Must Select These (or they must already be installed).										
	Ess.	Adv.	Pro.	Radar Int.	Vector	Virtual-GIS	Ortho-BASE	Ortho-Radar	Stereo-SAR DEM	IFSAR DEM	LZW
Essentials	*										
Advantage	*	*									
Professional	*	*	*	*							
Radar Interpreter	*			*							

To Install These Modules...	... You Must Select These (or they must already be installed).										
	Ess.	Adv.	Pro.	Radar Int.	Vector	Virtual-GIS	Ortho-BASE	Ortho-Radar	Stereo-SAR DEM	IFSAR DEM	LZW
Vector	*				*						
VirtualGIS	*					*					
OrthoBASE™	*	*					*				
OrthoRadar™	*	*						*			
StereoSAR DEM™	*	*							*		
IFSAR DEM™	*	*								*	
LZW	*										*

*The Radar Interpreter may be installed as an add-on module or as part of IMAGINE Professional. Either way, it must be selected explicitly.

24. Click the **Next** button at the bottom of the Select Components dialog.

The Security Information dialog opens. This dialog contains the name and port number of the ERDAS license broker. If this is a remotely licensed installation, you must change the name in the Computer field to the name of the license broker.
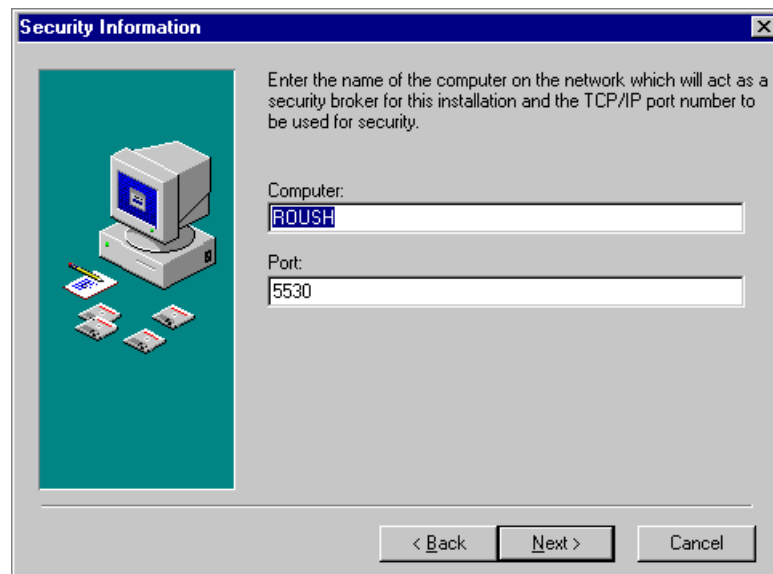
25. If the name displayed in the **Computer** text box is different than the name of the server or local machine which provides security (license broker), enter the name of the license broker.

26. Do not change the number in the **Port** text box unless you know that it <u>must</u> be changed.

NOTE: If this installation of ERDAS IMAGINE is going to serve as the license broker, the number in the **Port** *text box must also be assigned to the other computers secured by this machine.*

⚠ _____

Use port number 5532 to serve ERDAS IMAGINE V8.2 and other previous versions of ERDAS IMAGINE.

27. Click the **Next** button at the bottom of the Enter Security Information dialog.

The Installation Settings dialog opens. In this dialog, you can use the arrows or Page Down to scroll and confirm that the options you selected are accurate. To make changes, click the **Back** button to access previous dialogs.

Installation Settings

You are now ready to install ERDAS IMAGINE 8.4.

If the installation settings below are correct, click Next to begin the installation process. If you want to change any settings, click Back.

Current Installation Settings:

```
User Information:
    sparky
    ERDAS

Components to be installed:
    Essentials
        Program Files
        Examples
        Help Files
    Advantage
        Program Files
```

`< Back` `Next >` `Cancel`
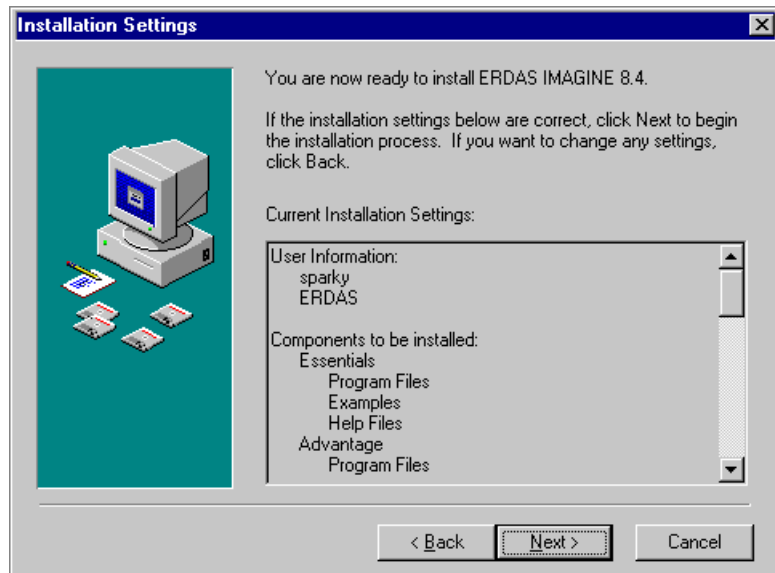
28. If your selections are accurate, click the **Next** button at the bottom of the Installation Settings dialog to begin the actual installation.

A status bar displays, tracking the progress of the installation:

When finished, the Installation Complete dialog opens:
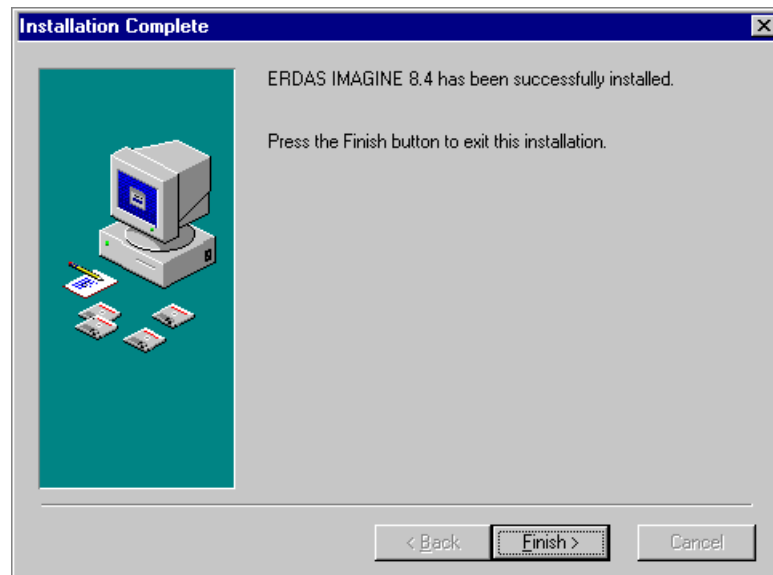
29. Click **Finish** in the Installation Complete dialog. The following Install message is displayed:
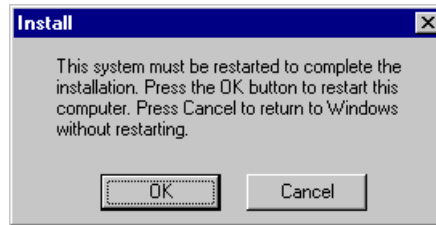
30. Click the **OK** button to restart your computer.

31. Verify security information as described under "Server/Local Installation" on page 27.

32. Install codewords as described under "Server/Local Installation" on page 28.

33. If this machine is the license broker for remote machines, install erdmaster as described in "Erdmaster" on page 43.

34. To start ERDAS IMAGINE, use the Microsoft task bar to select **Start | Programs | ERDAS IMAGINE 8.4** and click the ERDAS IMAGINE 8.4 icon.

   This runs the eml.exe program in <IMAGINE_HOME>\Bin\NTx86. As an alternate, a shortcut can also be made to ERDAS IMAGINE and placed on the desktop.

SysID Information   Start the IMAGINE Properties tool from the Windows Start menu. Select **Programs | ERDAS IMAGINE 8.4 | IMAGINE Properties**.
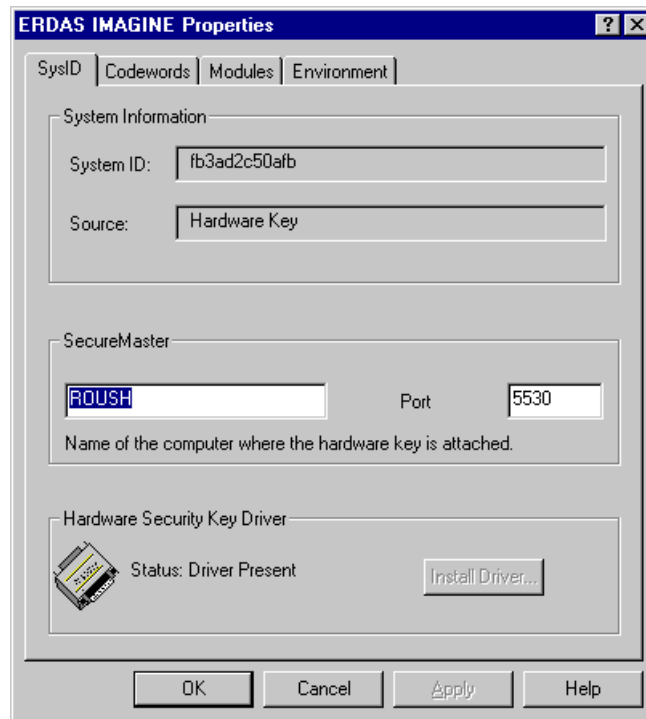
The **SysID** tab reflects options you select during the installation process. This tab and the **Codewords** tab are designed to give you direct access to all the security options you need to run ERDAS IMAGINE software.

The **System ID** text box states either the ID of the hardware key, or that the driver or hardware key is not installed. If the driver is installed, its status is listed as present in the **Hardware Security Key Driver** section. If the hardware key is installed, the **Source** text box indicates that is the case.

The **Source** text box indicates what type of licensing the ERDAS IMAGINE installation requires. If licensing is local, the text box shows **Hardware Key**. If licensing is remote, the text box shows **System**.

The **Secure Master** section of the **SysID** tab has a text box which names the computer where the hardware key is attached (license broker) as well as the port number. (This information corresponds to that which you provided in the Security Information dialog, page 23.)

The **Hardware Security Key Driver** section of the **SysID** tab details whether or not the hardware key driver is present. If the driver is not present, click the **Install Driver** button and follow the instructions given under "Server/Local Installation" on page 30.

Codewords   If this is a new installation, there are no stored codewords. In this case, from the Windows Start menu select **Programs | ERDAS IMAGINE 8.4 | IMAGINE Properties**. Click the **Codewords** tab in the ERDAS IMAGINE Properties dialog.
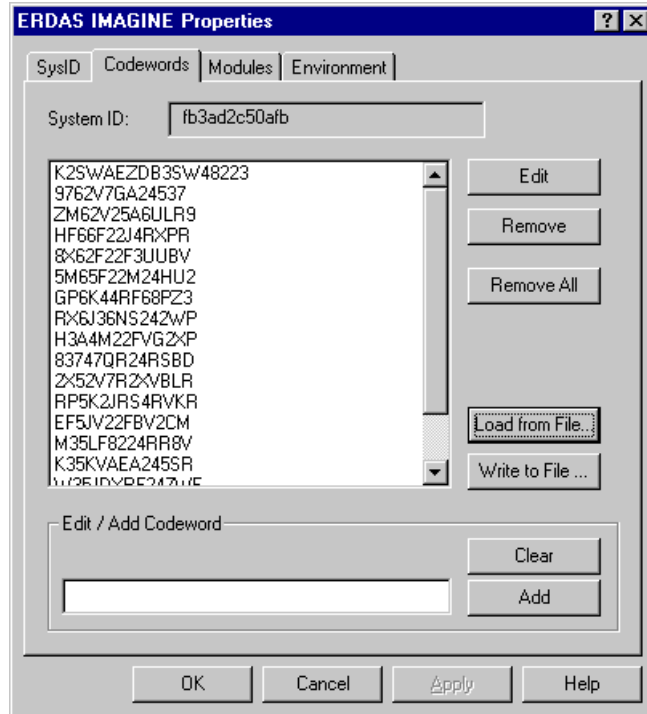
1.   Enter the ERDAS-supplied codewords in the **Edit/Add Codeword** text box at the bottom of the dialog, clicking the **Add** button after each codeword.

If you make a mistake when typing your codewords, click the **Clear** button or press the Backspace key. Invalid codewords are not accepted by the system.

NOTE: Codewords must be entered in the order that they appear on the ERDAS-supplied list.

If you prefer, you can enter the codewords into a text file for safe keeping and use the **Load from File** button to read them in.

CAUTION: When read from a file, the system does not notify you of a bad codeword until you attempt to run IMAGINE.

For information on adding codewords for add-on modules, see Codewords for Add-on Modules on page 29.

For information on entering codewords to run both ERDAS IMAGINE V8.3.1 and 8.4, see "Using V8.4 Security with Previous Versions of ERDAS IMAGINE Software" on page 45

2.   After you have successfully added your codewords, click the **Apply** button.

3.   Click the **OK** button in the ERDAS IMAGINE Properties dialog.

NOTE: If you have not restarted your computer since installing ERDAS IMAGINE, you must do so after installing the hardware key and driver for the installation to take effect.

Codewords for Add-on Modules

Add-on modules for ERDAS IMAGINE also require codewords to execute the software. In some cases, add-on modules can be chosen from the components list during the installation of ERDAS IMAGINE. Add-on modules may also be supplied on a separate CD.

Adding Modules During ERDAS IMAGINE Installation

After you have selected the ERDAS IMAGINE components including add-on modules during the installation process, you can add both types of codewords at the same time. Simply add the codewords to the **Codewords** tab of the ERDAS IMAGINE Properties dialog at the end of the installation process.

Adding Modules After ERDAS IMAGINE Installation

If you did not select add-on modules during the ERDAS IMAGINE installation, you must install them separately. Follow the appropriate steps for Server/Local or Client installation, selecting only the add-on module(s) from the Select Components dialog. Then, add the add-on module's codewords to the **Codewords** tab of the ERDAS IMAGINE Properties dialog at the end of the installation process.

Adding Modules from a Separate CD

Some add-on modules to ERDAS IMAGINE are provided on separate CD-ROMs. In this case, insert the CD into the appropriate drive and proceed with the installation instructions provided with the add-on module. Then, input the codewords provided with the add-on module into the **Codewords** tab of the ERDAS IMAGINE Properties dialog.

Security Key Driver   If the ERDAS IMAGINE installation is new and not an upgrade of an existing system, the Security Key Driver must be activated via the Sentinel Driver Setup Program. This process is automatic during installation of ERDAS IMAGINE. However, if you wish, this program may be accessed from the IMAGINE install directory.

1. To access the Sentinel Driver Setup Program, navigate to <IMAGINE_HOME>\install\skey\<system>\ and run Sentw95.exe or Setupx86.exe depending upon your system.

    Where <IMAGINE_HOME> is the install directory and <system> is either Win_98 or Win_NT.

2. Select the **Functions** menu of the Sentinel Driver Setup Program, and choose **Install Sentinel Driver**.

    The following dialog opens:
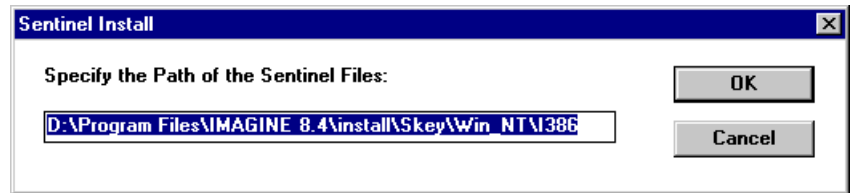
3. Type in the correct path, if required, and click **OK**.

    The following message opens:
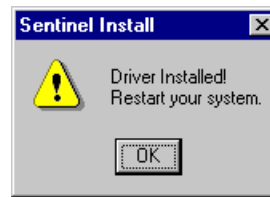
4. Click **OK** in the Sentinel Install dialog and restart your system.

Security Error Messages

The following messages may display when ERDAS IMAGINE programs check security:

```
The <MODULE> expires in <n> days.

Please call ERDAS, Inc. to resecure.
```

This message applies to demo licenses and evaluation copies. It indicates that <MODULE> has been secured for a predefined time period, which expires in <n> days. Only programs that are secured for demonstration should display this message and only during the last 5 days of the demo period. If you have any questions, please contact the ERDAS Sales Department or your local distributor.

```
The <MODULE> is not authorized for this installation.

Please contact ERDAS, Inc. for authorization.
```

The requested <MODULE> has not been secured by the proper codeword

```
This module is not secured for this program version.

Please call ERDAS, Inc. to resecure.
```

The program that was run has a higher version number than the license broker is authorized to permit. Either the program is wrong or the codeword is obsolete.

CHAPTER 3
Client Installation

Description

This section contains the steps for completing a Client installation of ERDAS IMAGINE software on a Windows NT 4.0 or Windows 98 system. The setup dialogs look the same regardless of system.

A client installation is one in which the IMAGINE program files reside on a server and only a few necessary files are installed on the local machine. This decreases performance somewhat but requires minimal disk space.

You must have Administrator privileges to install ERDAS IMAGINE on a Windows NT 4.0 operating system.

If you attempt to install ERDAS IMAGINE on a Windows NT 4.0 system without Administrator privileges, a dialog opens instructing you that you are not able to install the hardware security key driver.

Client Installation

Use these instructions to perform a Client installation of ERDAS IMAGINE on a computer connected to a server.

As with any hardware installation, it is recommended that you turn your computer off before inserting the hardware security key.

1. If this installation of ERDAS IMAGINE is locally licensed, install the ERDAS-provided security hardware key on a parallel port.

    This hardware device does not interfere with normal use of the parallel port. Simply insert it between the computer and any peripheral device using that port.

2. Start Microsoft Windows NT 4.0 or Windows 98.

    You should close all running applications before installing ERDAS IMAGINE.

3. Insert the ERDAS IMAGINE installation CD into the CD-ROM drive.

The ERDAS IMAGINE CD-ROM master panel opens automatically.

NOTE: *If your preference settings deactivate the autorun, you can also access this panel by selecting* **Start | Run** *from the Microsoft application bar and entering* **<CD-ROM>:\autorun** *in the text box (where <CD-ROM> represents the drive letter of your CD-ROM drive).*

4. From the ERDAS IMAGINE CD-ROM master panel, click on the **Install ERDAS IMAGINE 8.4** to launch the setup options.

The ERDAS IMAGINE CD-ROM master panel remains active in the background and the ERDAS IMAGINE V8.4 Setup window opens and fills the screen. The ERDAS IMAGINE V8.4 Welcome dialog opens, which directs you to close running applications.
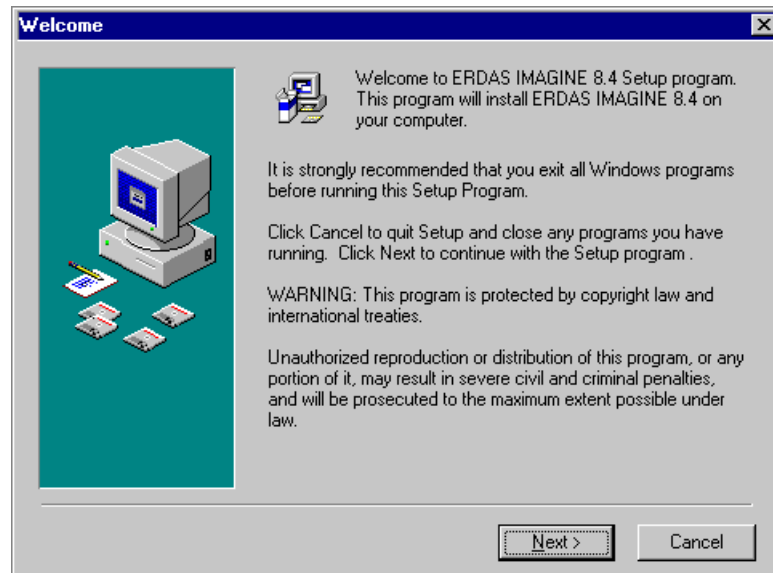
NOTE: If, at any time, you wish to terminate the ERDAS IMAGINE Setup, click on the **Cancel** *button located at the bottom of the dialogs, select* **Exit Setup**, *and then click the* **Exit** *button located on the ERDAS IMAGINE CD-ROM master panel.*
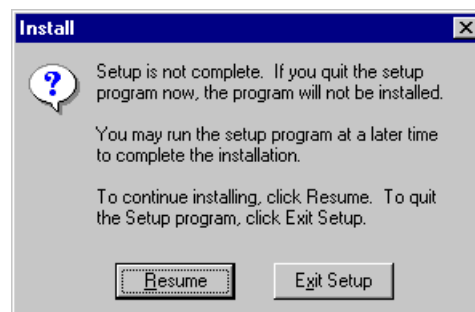
5. Click **Next** in the ERDAS IMAGINE V8.4 Installation dialog.

The Software License Agreement dialog opens. You can use the arrows or Page Down to view all of the ERDAS Software License and Limited Warranty Agreement.

6.   If you agree to the terms and conditions set forth in the ERDAS Software License and Limited Warranty Agreement, click **Yes** (if not, click **No** to cancel installation).

To aid you in completing your setup of ERDAS IMAGINE, an Information dialog opens listing system requirements. You can click the arrows or Page Down to scroll through all of the **System Requirements**.
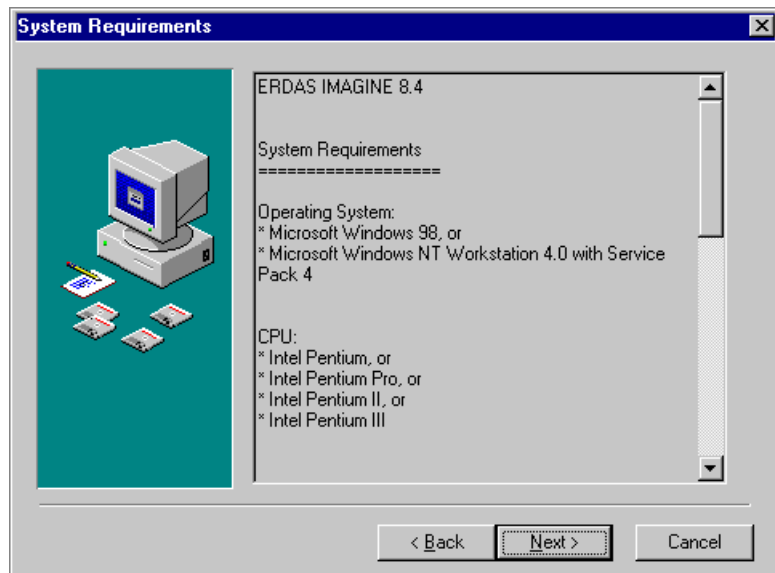
7.   If your system meets or exceeds the requirements, click **Next** in the Information dialog.

Next, the Registration Information dialog opens. This dialog records your name and the name of your company.
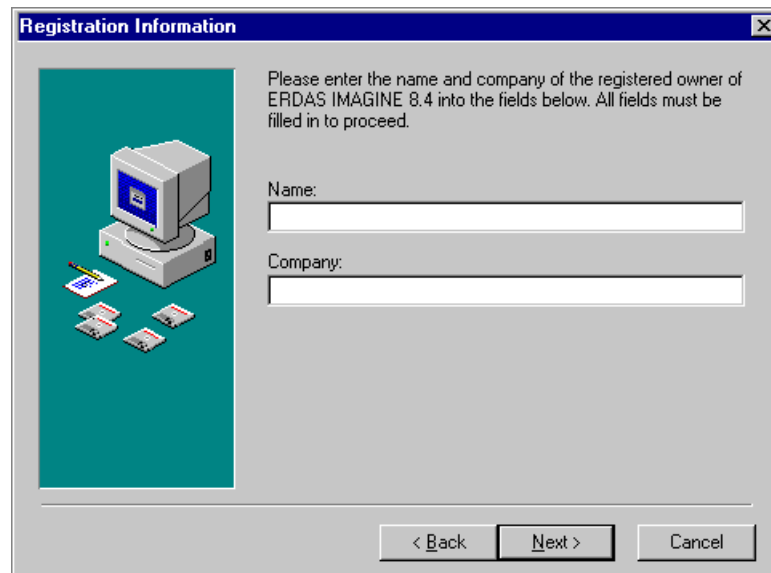
8.   Enter your name (or the Administrator's name) in the **Name** text box.

9.   Press the Tab key to move the cursor into the **Company** text box. Enter your company name.

10. Click the **Next** button at the bottom of the Registration Information dialog.

The Setup Type dialog opens next. This dialog allows you to select which kind of installation you are going to perform.
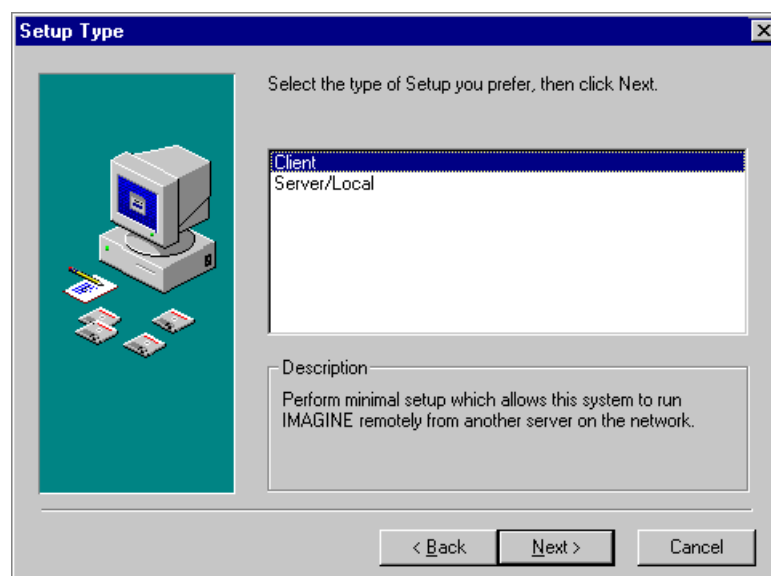
11. In the Setup Type dialog, click to select the **Client** installation type.

12. Click the **Next** button at the bottom of the Setup Type dialog.

    In a Client installation, the Choose Existing Installation dialog opens. This folder already contains all of the files required to run ERDAS IMAGINE.
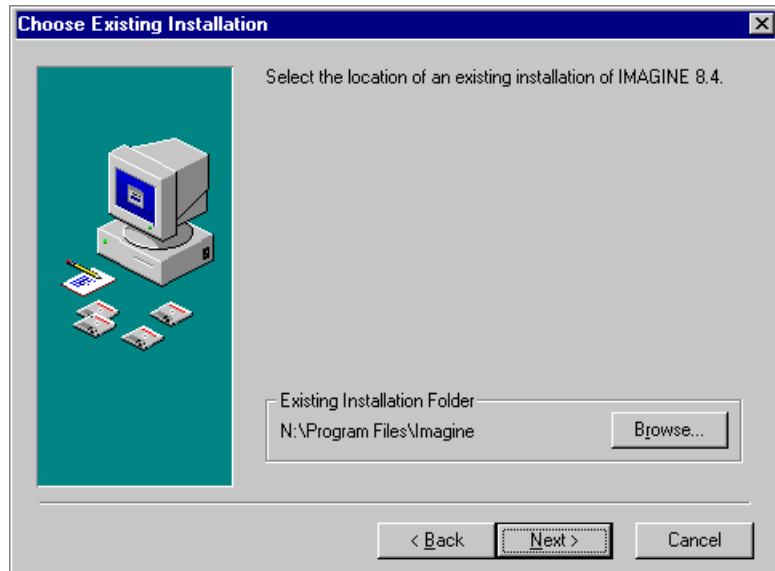
13. Confirm that the location of the existing folder is accurate. If necessary, click **Browse** to select another location. Click **OK**.

14. If you would like to change the installation directory, click the **Browse** button to access the Choose Folder dialog.
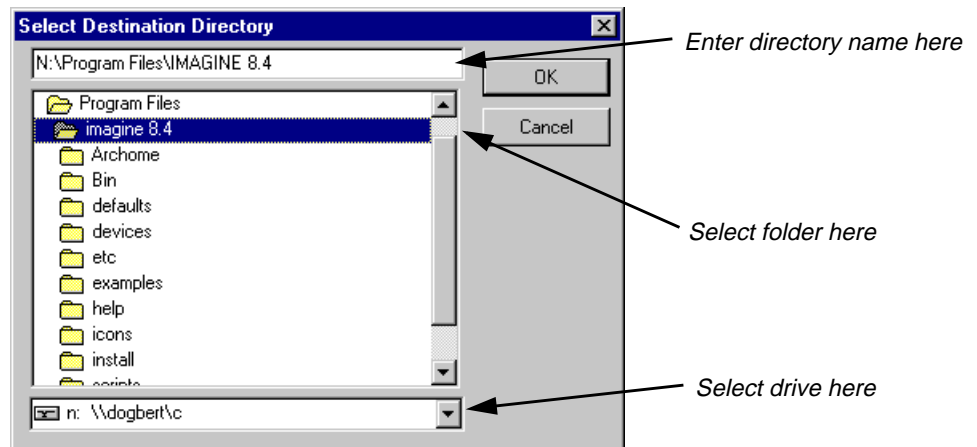
15. Click to select the directory from which you would like to install ERDAS IMAGINE.

16. Click the **OK** button to return to the Choose Existing Installation Folder dialog.

17. Click the **Next** button at the bottom of the Choose Existing Installation Folder dialog.

Because this is a Client installation, the Select Components dialog is bypassed. The Client installation does not allow you to select modules and components; it inherits those from an installation that has already been performed.

The Enter Security Information dialog opens. This dialog contains the name and port number of the ERDAS license broker. If this is a remotely licensed installation, you must change the name in the Computer field to the name of the license broker.
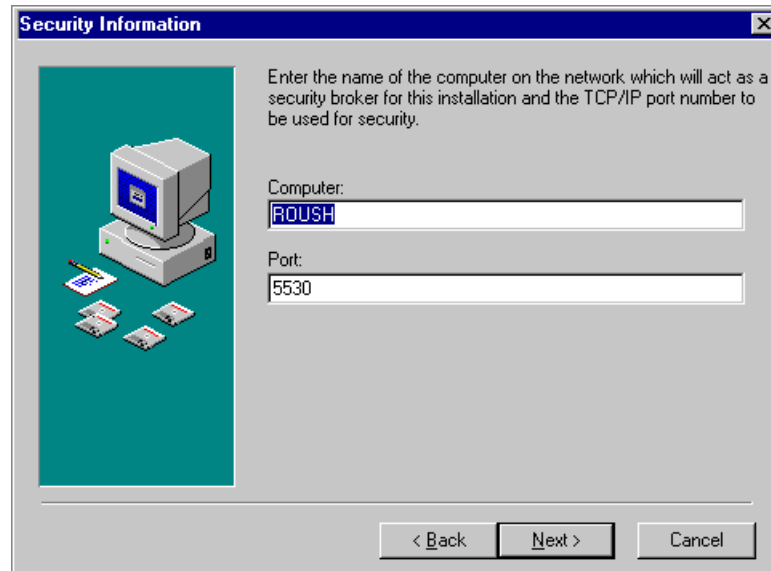
18. If the name of the server or local machine which provides security (license broker) is different than the name displayed in the **Computer** text box, enter the correct name.

19. Do not change the number in the **Port** text box unless you know that it <u>must</u> be changed. For example, if this is a remotely licensed installation, the port number must match the port number of the license broker.

20. Click the **Next** button at the bottom of the Enter Security Information dialog.

The Start Installation dialog opens, displaying the settings you have selected. In this dialog, you can use the arrows or Page Down to scroll and confirm that the options you selected are accurate. To make changes, click the **Back** button to access previous dialogs.
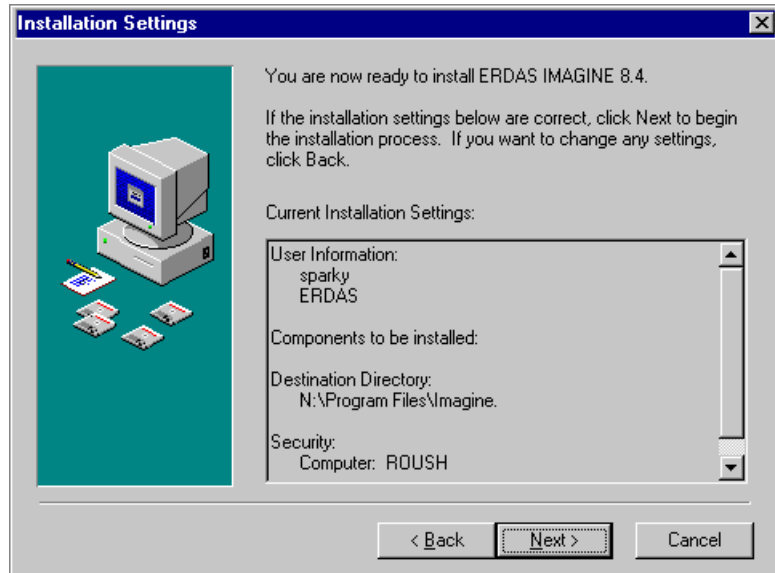
21. If your selections are accurate, click the **Next** button at the bottom of the Start Installation dialog to begin the actual installation.

A status bar displays, tracking the progress of the installation:
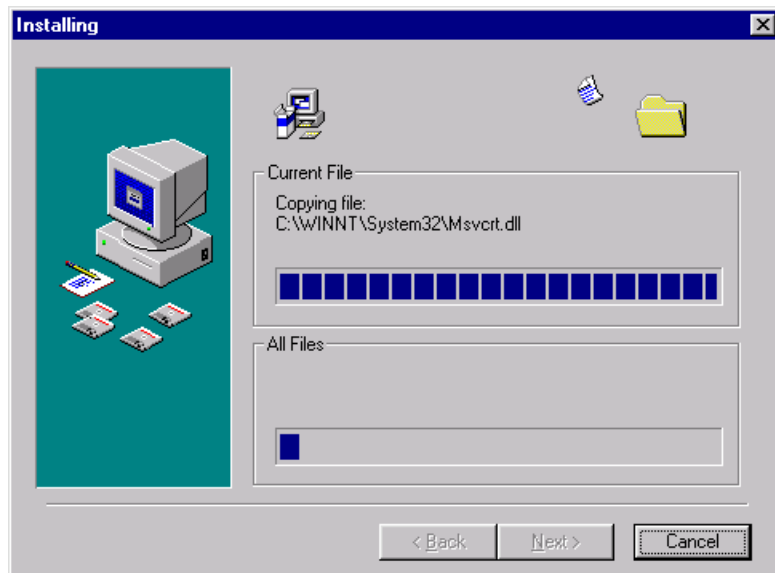
When finished, the Installation Complete dialog opens.
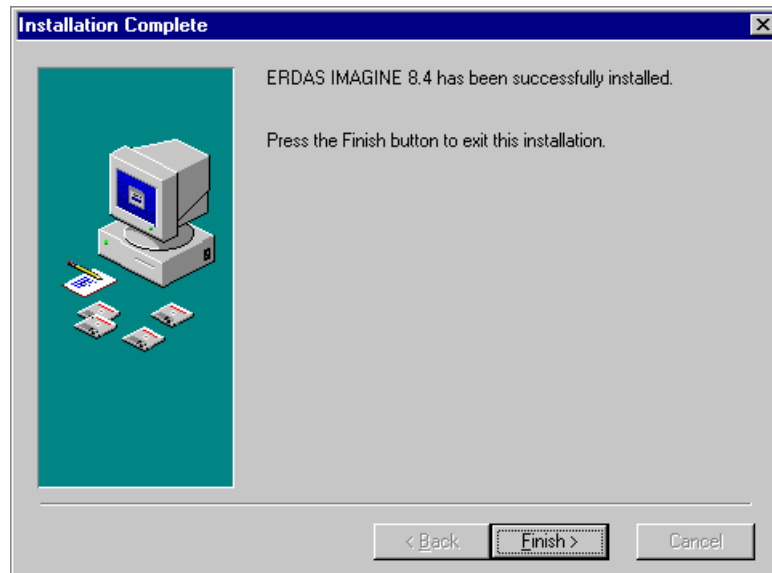
22. Click **Finish** in the Installation Complete dialog. The following Install message is displayed.
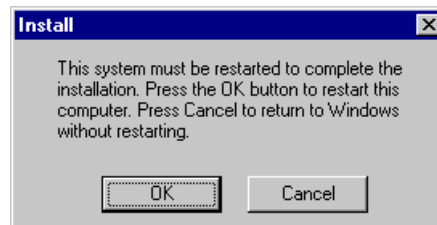
23. Click the **OK** button to restart your computer.

24. Verify security information as described under "SysID Information" on page 27.

25. Install codewords as described under "Codewords" on page 28.

26. To start ERDAS IMAGINE, use the Microsoft task bar to select **Start | Programs | ERDAS IMAGINE 8.4** and click the ERDAS IMAGINE 8.4 icon.

This runs the eml.exe program in <IMAGINE_HOME>\Bin\NTx86. As an alternate, a shortcut can also be made to ERDAS IMAGINE and placed on the desktop.

Security Error Messages

The following messages may display when ERDAS IMAGINE programs check security:

```
1.The <MODULE> expires in <n> days.
```

Please call ERDAS, Inc. to resecure.

This message applies to demo licenses and evaluation copies. It indicates that <MODULE> has been secured for a predefined time period, which expires in <n> days. Only programs that are secured for demonstration should display this message and only during the last 5 days of the demo period. If you have any questions, please contact the ERDAS Sales Department or your local distributor.

    2.The <MODULE> is not authorized for this installation.

Please contact ERDAS, Inc. for authorization.

The requested <MODULE> has not been secured by the proper codeword.

    3.This module is not secured for this program version.

Please call ERDAS, Inc. to resecure.

The program that was run has a higher version number than the license broker is authorized to permit. Either the program is wrong or the codeword is obsolete.

CHAPTER 4
Erdmaster

Description

This section explains the steps for preparing your Windows NT 4.0 system to install the ERDAS IMAGINE license broker program, Erdmaster. If you are performing a Server/Local or Client installation with local licensing, you do not need the Erdmaster license broker.

The system setup and the software installation should be performed by an Administrator who is familiar with the Windows system and its documentation.

You must have Administrator privileges to install ERDAS IMAGINE on a Windows NT 4.0 operating system.

ERDAS Software Security

When performing a Server/Local or Client installation with local licensing, security is built-in and automatic. Each computer is individually secured with its own hardware key. If circumstances dictate, as in the case of a Server/Local or Client installation with remote licensing, you can secure all copies of the software from a single computer, called the license broker.

ERDAS IMAGINE software security is optionally controlled through the use of the license broker program that is always running on at least one computer in the network. This program is called Erdmaster. It secures all copies of ERDAS IMAGINE software that operate on the network. Each license broker must have a hardware key and a set of codewords.

If you wish to use remote licensing, you must determine which workstation(s) the ERDAS IMAGINE security program, Erdmaster, is going to reside on before you begin installing ERDAS IMAGINE software.

All ERDAS IMAGINE programs communicate with Erdmaster using Transport Control Protocol/Internet Protocol (TCP/IP). TCP/IP must be configured on each machine that relies on Erdmaster for security.

See your Windows documentation or on-line help for more information on TCP/IP.

Installation

Two tasks must be performed prior to accessing a remote license broker:

- Start TCP/IP services on all ERDAS IMAGINE workstations.
- Start the license broker program (Erdmaster).

If you are installing the ERDAS IMAGINE license broker software on a computer that is connected to a network with other computers running ERDAS IMAGINE, perform the procedures below.

Start TCP/IP Services

Make sure that the TCP/IP services are started on each computer running ERDAS IMAGINE in the system. Use the following procedure to install TCP/IP services on these machines.

1. Select **Start | Settings | Control Panel** from the Microsoft task bar.

2. Double-click the Network icon.

3. Click the **Protocols** tab in the Network dialog.

4. If **TCP/IP Protocol** is not listed under **Network Protocols**, add it using the **Add** button.

5. The hostname and the IP address of each computer on which ERDAS IMAGINE runs must be listed in your hosts file or be accessible through a Domain Name Server (DNS). To edit the hosts file, use Notepad to open (or create) the directory called **<WindowsDir>\system32\drivers\etc\hosts** for Windows NT 4.0, or the directory called **<WindowsDir>\hosts** for Windows 98.

Start the License Broker

During the installation of ERDAS IMAGINE, you are asked for the name of the computer where Erdmaster is installed.

See the Security Information dialog.

NOTE: The port number you assign in the Security Information dialog must be assigned to all machines which use Erdmaster for security.

1. Install ERDAS IMAGINE on the computer which is going to act as the license broker, as described in "CHAPTER 2: Server/Local Installation".

2. If you specified the local machine, use the Microsoft task bar to select **Start | Programs | ERDAS IMAGINE 8.4 | Install Erdmaster Service**. Select this menu option to start Erdmaster services.

    If you specified a remote machine, Erdmaster must be installed and started on that system as described above.

Autostart the License Broker

If you want Erdmaster to start automatically on reboot, login as Administrator and use the following procedure.

1. Use the Microsoft task bar to click **Start | Settings | Control Panel**.

2. Double-click the Services icon and select **Erdmaster** from the **Service** list.

3. Click the **Startup** button.

4. In the Service dialog, select the **Automatic** radio button in the **Startup Type** group.

5. Click **OK**.

Stop the License Broker   To stop Erdmaster, click **Start | Programs | ERDAS IMAGINE 8.4 | Stop Erdmaster Service**.

Remove the License Broker   To remove Erdmaster, click **Start | Programs | ERDAS IMAGINE 8.4 | Remove Erdmaster Service**.

Using V8.4 Security with Previous Versions of ERDAS IMAGINE Software

To run ERDAS IMAGINE V8.4, you must obtain a new set of key codes.

You can use the ERDAS IMAGINE V8.4 license broker for running previous versions of ERDAS software. It is recommended that you use only a single license broker for all of your ERDAS software.

NOTE: When you enter your ERDAS IMAGINE V8.4 codewords, also enter all of your codewords for all previous versions of ERDAS IMAGINE. First, enter your V8.4 codewords, then enter your V8.3.1 codewords. If you have older versions of ERDAS IMAGINE, continue to enter the codewords in descending order.

Use port number 5532 to serve ERDAS IMAGINE V8.2 and previous versions of ERDAS IMAGINE.

CHAPTER 5
Configure Tablet Digitizer

Description

This section explains how to set up a tablet digitizer so that it can be accessed by ERDAS IMAGINE programs and utilities. These instructions are not included with the documentation which accompanies the hardware listed below.

The tablet digitizers that can be used by ERDAS IMAGINE are as follows:

- Altek Series Model AC32 Moveable Menu
- Altek Series Model 33240 Tablet
- CalComp 9100 and 9500 Series
- CalComp Drawing Board II and III
- GTCO Accutab Series Custom Configuration Menu
- GTCO DIGI-PAD Series

The system setup and configuration should be performed by an Administrator who is familiar with the tablet digitizer, the computer you are using, and their documentation.

Select a Serial Line

Most computers have at least two serial lines, called COM1 and COM2. Select a serial line that you can permanently dedicate to the digitizing tablet.

Connect Tablet Digitizer

The proper RS232 cable is required to connect the digitizing tablet to the computer. Below is a list of the connections that need to be made between two 25-pin ports. The cable you use varies depending upon the genders of the ports.

Workstation End	Tablet Digitizer End
pin 1	pin 1
pin 2	pin 3
pin 3	pin 2
pin 7	pin 7

Switch Settings and Formats

When you are using ERDAS IMAGINE with the supported tablet digitizers, we recommend the specified switch settings and data formats.

Altek Series Model AC32 Moveable Menu

Serial Speed	9600 bps
Serial Misc.	1 stop bit / 8 data bits / No parity
Emulation	ALTEK
Format F12[a]	F XXXXX YYYYY
Rate	50 pts/sec
Resolution	.001 inch
Run Type	Type 1
Mode	Point
Miscellany	CR on / LF on / CTS off

[a] This format corresponds with the ALTEK format number 4.

Altek Series Model 33240 Tablet

Switch Settings for the Left Bank

ERDAS IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	on	off	on	on	on	on	on	off
2	on	off	on	on	on	on	on	off
3	on	off	on	on	on	on	on	off
4*	on	off	on	on	on	on	on	off
5	on	off	on	on	on	on	on	off
6	on	off	on	on	on	on	on	off
7	on	off	on	on	on	on	on	off

Switch Settings for the Right Bank

ERDAS IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	on	off	off	off	on	on	on	on
2	on	off	off	off	on	on	on	off
3	on	off	off	off	on	on	off	on
4*	on	off	off	off	on	on	off	off
5	on	off	off	off	on	off	on	on
6	on	off	off	off	on	off	on	off
7	on	off	off	off	on	off	off	on

Format 4 is the default. ERDAS IMAGINE does not support format 6. You may need to use a swap cable.

CalComp 9100 Series

Switch Settings for SB1

ERDAS IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7[a]	Switch 8[a]
1	close	open	close	close	close	close	close	open
2	close	open	close	open	close	close	close	open
3	close	open	open	close	close	close	close	open
4*	close	open	open	open	close	close	close	open

[a] These settings are set at the factory and should not be changed.

Format 4 is the default.

Switch Settings for SW1

	SW1 Switch 1	SW1 Switch 2	SW1 Switch 3	SW1 Switch 4	SW1 Switch 5	SW1 Switch 6	SW1 Switch 7	SW1 Switch 8
All ERDAS IMAGINE Formats	open	open	close	close	open	close	close	open

Switch Settings for SW2

	SW2 Switch 1	SW2 Switch 2	SW2 Switch 3	SW2 Switch 4	SW2 Switch 5	SW2 Switch 6	SW2 Switch 7	SW2 Switch 8
All ERDAS IMAGINE Formats	close	open	close	open	close	close	close	close

CalComp 9500 Series

Operating Mode and Resolution Switch Settings for Area 1

Operating Mode	Switch
Point	on
Run	off
Track	off
Line	off
INC	off
Prompt	off

Resolution (1000 LPI)	Switch
1	off
2	on
3	on

Soft Switch Settings for Area 1

ERDAS IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
1	off	off	on	off	off
2	off	off	on	off	on
3	off	off	on	on	off
4*	off	off	on	on	on

Format 4 is the default.

Switch Settings for Area 2 (Port A) Only

Baud Rate (9600)	Switch
1	off
2	off
3	on

Data Bits	Switch
7	off
8	on

Parity (none)	Switch
1	on
2	off
3	off

Stop Bit	Switch
Stop 1	off
Stop 2	off

Transmit/ Receive	Switch
TX 2/3	on

Line Feed	Switch
LF	off

Port A	Switch
Port	on

Echo	Switch
Echo	Off

The switch settings for CalComp 9500 areas 3 (Port B), 4, and 5 are not applicable.

CalComp Drawing Board II and III

Soft Switch Settings for A

ERDAS IMAGINE Format	Switch 1	Switch 2	Switches 3-5	Switches 6-10	Switches 11-13	Switch 14	Switch 15	Switch 16	Switch 17	Switch 18
1	off	on	off	on	off	on	off	off	off	on
2	off	on	off	on	off	on	off	on	off	on
3*	off	on	off	on	off	on	on	off	off	on
4	off	on	off	on	off	on	on	on	off	on

Soft Switch Settings for B

	Switches 1-2	Switches 3-4	Switches 5-7	Switch 8	Switches 9-17	Switch 18
All ERDAS IMAGINE Formats*	off	on	off	on	off	on

Soft Switch Settings for C (Drawing Board III Only)

	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7
All ERDAS IMAGINE Formats	off	off	off	off	off	N/A	off

*Format 3 is the default.

**GTCO Accutab Series
Custom Configuration
Menu**

Communication Options	
Baud	9600
Data Bits	8
Stop Bits	1
Parity	None

Mode Options	
Mode	Point
Resolution	1000 lpi

Menu Codes	
ERDAS IMAGINE 8.X	04[*]

Output Format Options	
GTCO	ASCII

Format 4 is the same as ERDAS IMAGINE format 7.

GTCO DIGI-PAD Series   *Switch Settings for S1*

	S1 Switch 1	S1 Switch 2	S1 Switch 3	S1 Switch 4	S1 Switch 5	S1 Switch 6	S1 Switch 7	S1 Switch 8
All ERDAS IMAGINE Formats	off	off	on	on	off	off	off	on

Switch Settings for S2

ERDAS IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	off	off	on	on	off	off	off	off
2	off	on	on	on	off	off	off	off
3	on	off	on	on	off	off	off	off
4	on	on	on	on	off	off	off	off
5	off	off	on	on	on	off	off	off
6	off	on	on	on	on	off	off	off
7[*]	on	off	on	on	on	off	off	off
8	on	on	on	on	on	off	off	off

*Format 7 is the default. You may need to use a swap cable with port B, but not with port A.

Switch Settings for S3

	S3 Switch 1	S3 Switch 2	S3 Switch 3	S3 Switch 4	S3 Switch 5	S3 Switch 6	S3 Switch 7	S3 Switch 8
All ERDAS IMAGINE Formats	off	off	off	off	on	off	off	off

Connect to HyperTerminal

Once you connect the tablet digitizer to a COM port on your computer, perform the following procedures to ensure that the two are communicating.

From the Microsoft task bar, select **Start | Programs | Accessories | Hyperterminal | HyperTerminal.** For Windows 98, select **Start | Programs | Accessories | Communications | HyperTerminal**.

NOTE: If this is the first time you have accessed the HyperTerminal, you are instructed to enter information regarding location and modem. Follow the instructions, then proceed as directed below. If you do not have a modem, click **No** *in the HyperTerminal message box.*

The HyperTerminal dialog opens along with the Connection Description dialog.

6. In the Connection Description dialog, enter a name for the connection, and click **OK**.
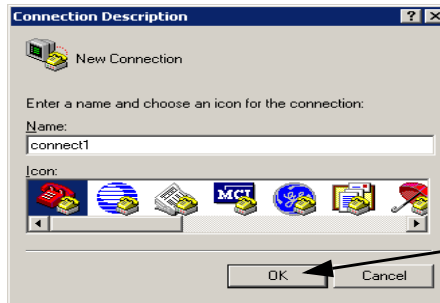
Click OK

7. In the Connect To dialog, confirm that the **Connect using** field correctly identifies the port to which the tablet digitizer is attached, and click **OK**.

Click OK

The COM1 Properties (or COM2 if you selected it in the **Connect using** field) dialog opens:

Bits per second
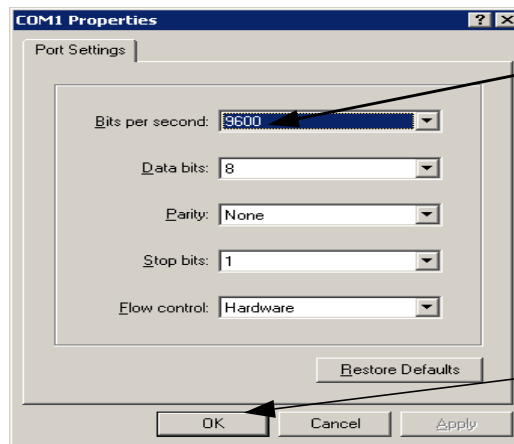
Click OK

8. Change the **Bits per second** to **9600**, and then click **OK**.

To confirm that the tablet digitizer is functioning correctly, use the pointing device to click various areas on the tablet digitizer. The data is presented in the HyperTerminal window as depicted below:
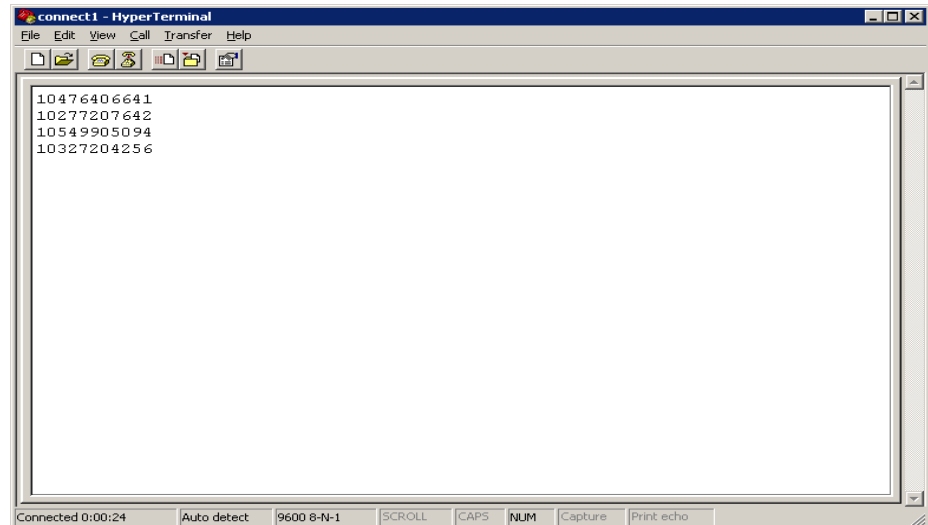
9.   Close the HyperTerminal.

Configuring the Tablet Digitizer

From within ERDAS IMAGINE, you are prompted to specify the type of tablet digitizer, the data format and the port name that you want to access for output. After you complete this setup, the tablet digitizer is operational with ERDAS IMAGINE for use with various applications which can use the tablet, such as vector editing, the GCP editor, etc. Following is an example of connecting to a tablet from an ERDAS IMAGINE application.

1.   With a Viewer open and an image displayed, select **File | New | AOI**.

2.   Select **AOI | Tablet Input | New Configuration**.

The Tablet Setup dialog opens:
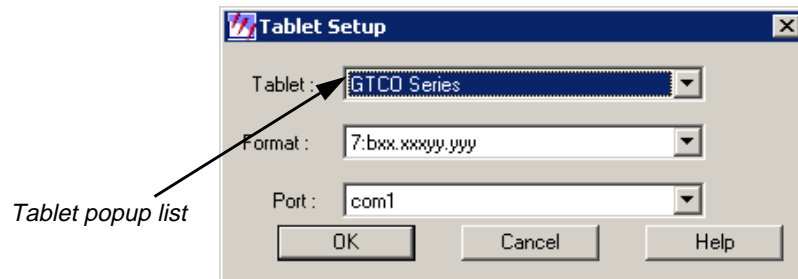
Tablet popup list

3.   In the Tablet Setup dialog, select the name of the digitizing tablet from the **Tablet** popup list.

4.   Select the tablet digitizer format from the **Format** popup list. This is the format number from the tables in the section See "Switch Settings and Formats" on page 48..

5.   Select the serial port to which the tablet digitizer is connected from the **Port** popup list.

6.   Click the **OK** button.

For further help, see the ERDAS IMAGINE On-Line Help for more information on setting up the tablet digitizer within ERDAS IMAGINE.

CHAPTER 6
Configure Tape Drive

Description

This section explains how to set up a tape drive so that it can be accessed by ERDAS IMAGINE programs and utilities.

> *You must have Administrator privileges to configure peripherals on a Windows NT 4.0 operating system.*

Local Tape Drive (Windows NT only)

Use these instructions to configure a tape drive on a local machine with a Windows NT 4.0 operating system. The tape drive and SCSI adaptor should already be installed on your local machine.

> *There is no local tape support for Windows 98.*

1. From the **Start** button on the Microsoft task bar, select **Settings | Control Panel**.

2. From the **Control Panel**, select the Tape Devices icon by double-clicking on it.

   The Tape Devices dialog opens, stating that a tape device is not found.
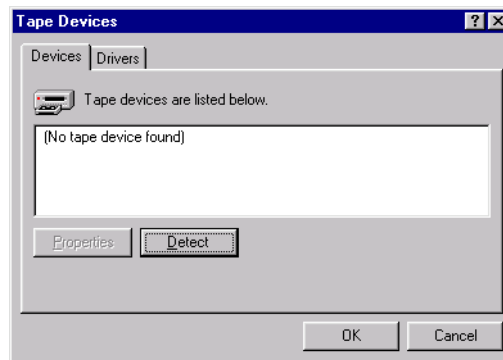
3. In the **Devices** tab of the Tape Devices dialog, click the **Detect** button.

   A status bar displays as the system scans for tape devices.

Once the tape device is located, it is listed in the window of the **Devices** tab as shown below.
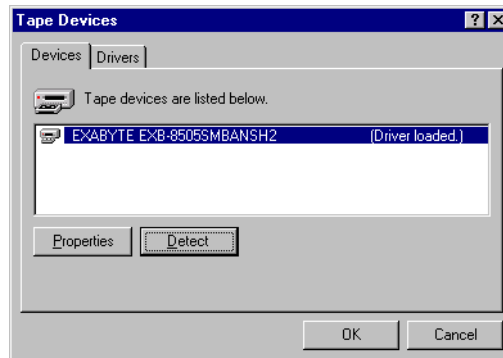
4. Click the **Properties** button to confirm that both the **Device Status** and **SCSI Adapter Information** are correct, then click **OK** in the Properties dialog.

5. Click the **Drivers** tab.

    A status bar opens briefly as the system creates a list of installed drivers. The **Drivers** tab of the Tape Devices dialog should now look similar to the one pictured below:
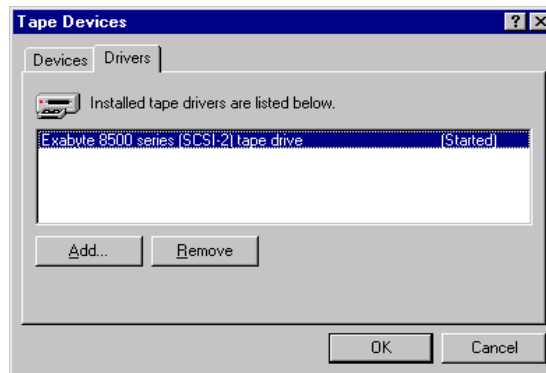
6. Click **OK** in the Tape Devices dialog. The Tape Devices dialog closes.

    For help with installing, detecting, and viewing information about a tape device, see Windows on-line help.

Configuring a Remote Tape Drive

You must use the ERDAS IMAGINE Configuration Editor to define a remote tape drive for ERDAS IMAGINE.

1. Select **Session | Configuration** in the ERDAS IMAGINE menu bar. The Configuration Editor opens:
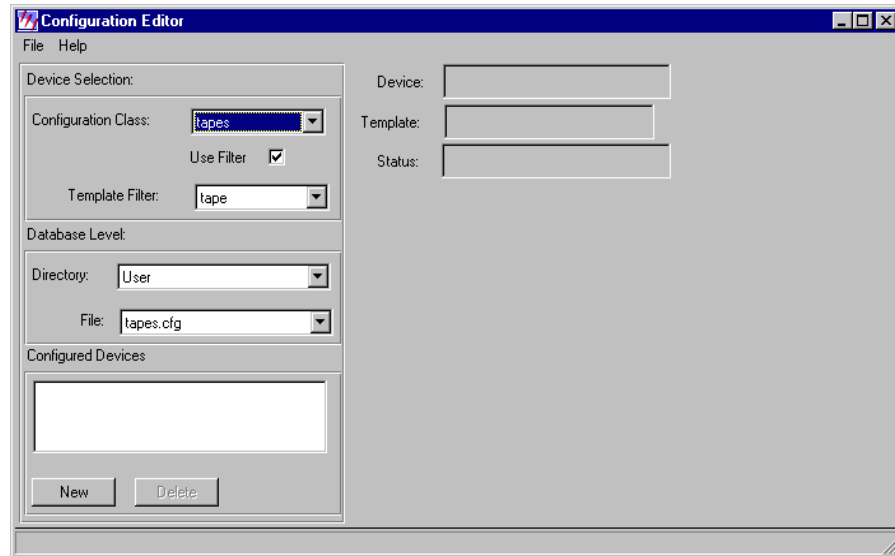
2. From the **Configuration Class** popup list, select **tapes**.

3. Click the **Directory** popup list and select one of the following options:

    Global = <IMAGINE_HOME>/etc
    The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same ERDAS IMAGINE installation. You cannot save to the global environment unless you are the Administrator who installed the ERDAS IMAGINE software.

    When you have the Global directory option selected for a configuration class, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this configuration class. This allows an Administrator to test only the global changes and it prevents the Administrator's User preferences from inadvertently being saved to the global database.

User = <HOMEPATH>/.imagine840
The setup and preferences for the current device are accessible only by you (whenever you are logged into the same account). Your User preference changes to a globally configured device take precedence over the Global preference settings for your ERDAS IMAGINE sessions.

NOTE: The changes you make in the Configuration Editor take effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

If all of your User preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the **User** *option is selected in the* **Directory** *popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

The **File** window shows you the file name to be used when you save the setup and preferences for the current configuration class. The default is **tapes.cfg**.

4. Click the **New** button to add a new tape drive using the tape template filter. The Create new device dialog opens.
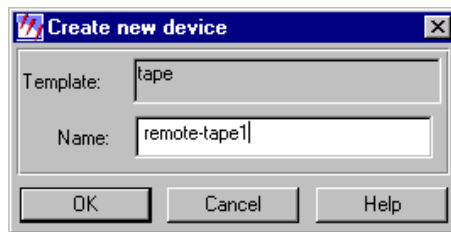
5. In the **Name** text box of the Create new device dialog, enter a name for the device. This is the name that appears in the ERDAS IMAGINE dialogs as an I/O device option. After you enter the name, press the Return key for the name to be accepted, then click **OK**.

6. Click in the **Tape Model** text box and enter the model name of the tape drive you wish to add. This is for your information only.

7. Click in the **Tape drive host** text box and enter the hostname of the workstation to which the tape drive is actually attached.

8. Click in the **Tape drive device file** text box and enter the tape drive number you wish to add.

Enter the tape drive device file for that tape device. For example, you might enter **/dev/rst0** for a QIC/150 tape drive connected to a Sun workstation.
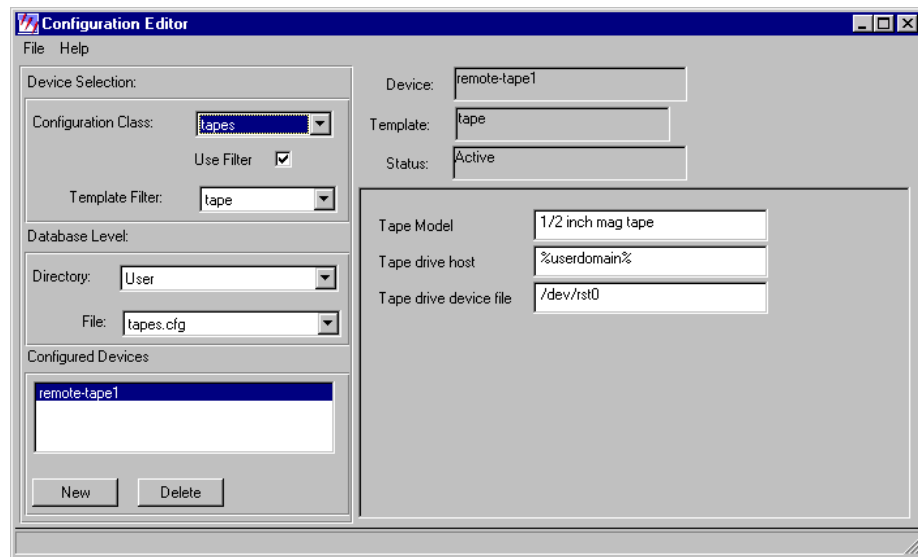
If the host to which the tape device is attached is running Sun OS version 5.6 (Solaris 2.6 or 2.7) or greater, the tape drive device file must include the "b" flag, indicating that BSD compatibility is desired (e.g. **/dev/rmt/0b***).*

9. When you have finished filling in the information, select **File | Close.**

The following message displays:
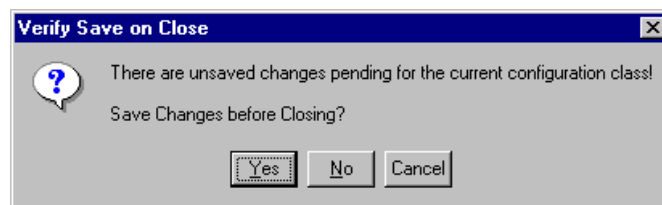
10. To save your changes to the Configuration Editor, click **Yes**.

Configuring a Remote Tape Drive on a UNIX Machine

The ERDAS IMAGINE Configuration Editor enables you to access a tape drive across a network. The following steps must be performed before you can load data to or from a remote tape drive.

NOTE: You cannot access a remote tape drive connected to a UNIX machine if the UNIX machine does not have IMAGINE Essentials™ configured.

The **remote workstation** refers to the workstation to which the tape drive is attached. The **local workstation** refers to the workstation where you are currently running ERDAS IMAGINE software.

Automatic Tape Server Start-up at Time of System Boot

1. In order to have the tape server start on a remote workstation every time the remote system boots, ERDAS IMAGINE software must either be installed on the remote workstation or it must be NFS-mounted at boot time. ERDAS IMAGINE software does not necessarily have to be accessible on the remote workstation from the same directory as the local workstation.

2. The tape server must be invoked from a system start-up script (e.g., /etc/rc.3 on Sun Solaris 2.6 or 2.7 systems) at boot time on the remote workstation with the following command:

    ```
    <IMAGINE_HOME>/bin/emta_start
    ```

    Replace <IMAGINE_HOME> with the directory from which ERDAS IMAGINE software is accessible on the remote workstation. The change to the system start-up scripts generally requires root user authority.

3. Proceed to See "Set Up Tape Drive" on page 62.

Set Up Tape Drive

Use the Configuration Editor to set up and configure the tape drive for the remote workstation.

NOTE: The configuration can be performed from either the local or remote workstation.

CHAPTER 7
Adding Fonts to Annotation

Introduction

This section describes how to add new fonts to ERDAS IMAGINE annotation.

Create an .fdb File

To add True Type system fonts to the ERDAS IMAGINE annotation package, you must add the new fonts to a font data base (.fdb) file in any of the directories specified in the ERDAS_FONT_PATH, which is, by default, the <IMAGINE_HOME>/etc/fonts directory where ERDAS IMAGINE is installed on your system.

You can create a new file or edit an existing file. You may use <IMAGINE_HOME>/etc/fonts/fontlist.fdb as an example, but be aware that the contents of the fields may look different for the OTL fonts that are distributed with ERDAS IMAGINE, and that your file should only have entries for your fonts.

If you create a new file, you can give it any name as long as it is in one of the directories mentioned above. User-defined directories may be used by adding them to the ERDAS_FONT_PATH environment variable in the Environment tab of the ERDAS IMAGINE Properties dialog. Note that a file named "a.fdb" in the current directory overrides a file named "a.fdb" in the directory from which you started ERDAS IMAGINE, which in turn overrides a file named "a.fdb" in the etc/fonts directory.

*The first line of the .fdb file must be **version 3**.*

You must have a seven-field entry in your .fdb file for every font you want the annotation package to know about. All of the name and string fields in the entry should be in quotes.

The following chart lists these fields and the information they specify.

Field Number	Field Name	Font Information[1]
One	Font Name	Use the Font File Name below (without variations) or use another name of your choice. This is the name you see in the scrolling list of available fonts in the Text Style Chooser, plus any special weight and/or slant attributes. [2]
Two	Font File Name	This field is the Font Name as shown in Fonts Control Panel.

Field Number	Field Name	Font Information[1]
Three	ASCII PostScript File Name	This is a printer-downloadable file that goes with the selected font. It is the font file that is included in the EPS file that is created when you output your Map Composition to an EPS file. When you transfer the EPS file to another application (e.g., Microsoft Word) and print the document, this file is actually downloaded to your PostScript printer. If you do not specify a PostScript file in this field, you are not able to create a usable file.[3]
Four	Windows Font Name	When a font is selected, the Windows font specified here is used in the annotation text entry fields, where text is entered or displayed. If you just want the standard ERDAS IMAGINE text font to be used, use the word "default" If you want the font that you are adding to be displayed in the text entry fields, use the same name here that you used for the font file name (**Field Number Two**).
Five	Font Language Flag	This is the only field that must not be in quotes. It is the flag that indicates whether the language for which this font is used is written left-to-right or right-to-left. If the language is written left-to-right, use LEFT_TO_RIGHT for this field. If the language is written right-to-left, use RIGHT_TO_LEFT for this field.
Six	Sample String	This is the string that you want to use for the text style sample in the Text Style Chooser. For English, something like "AaBbCc" or Abc123" is commonly used, but you may wish to use some other string, particularly for other alphabets.
Seven	Font Server Name	This is the name of the font server to be used to read the font. Use "MSW" for this field.

[1] This information is not an actual description of the fields in the .fdb, files, but instructions on where to find the information for the True Type fonts you are adding.

[2] Weight attributes that are recognized in the Text Style Chooser are "Extra-Bold," "SemiBold," "Bold," "Heavy," "Medium," "Light" and "Thin;" the only slant attribute that is recognized is "Italic."

[3] This file must be in the $IMAGINE_HOME/etc/fonts directory. If you do not have a downloadable ASCII PostScript font file for this font, use the word "none."

Example .fdb Entries   Below is an example of an entry in an .fdb file for a font that uses the standard ERDAS IMAGINE font in the text entry fields.

>   Arial Thin
>
>   Arial Narrow
>
>   arial.ps
>
>   "default"
>
>   LEFT_TO_RIGHT
>
>   "AaBbCc"
>
>   "MSW"

The fields are printed on separate lines for space reasons. They should all be on one line in the .fdb file.

Below is an example of an entry for a font for which there is no downloadable PostScript file. This example uses the same font for the text entry fields as for the annotation itself.

>   "Suu kyi"
>
>   "Suu kyi"
>
>   "none"
>
>   "Suu kyi"
>
>   LEFT_TO_RIGHT
>
>   "AaBbCc"
>
>   "MSW"

See $IMAGINE_HOME/etc/fonts/fontlist.fdb for other examples.

CHAPTER 8
Windows Printing

Introduction   This chapter provides information about how to set up your map composition for printing.
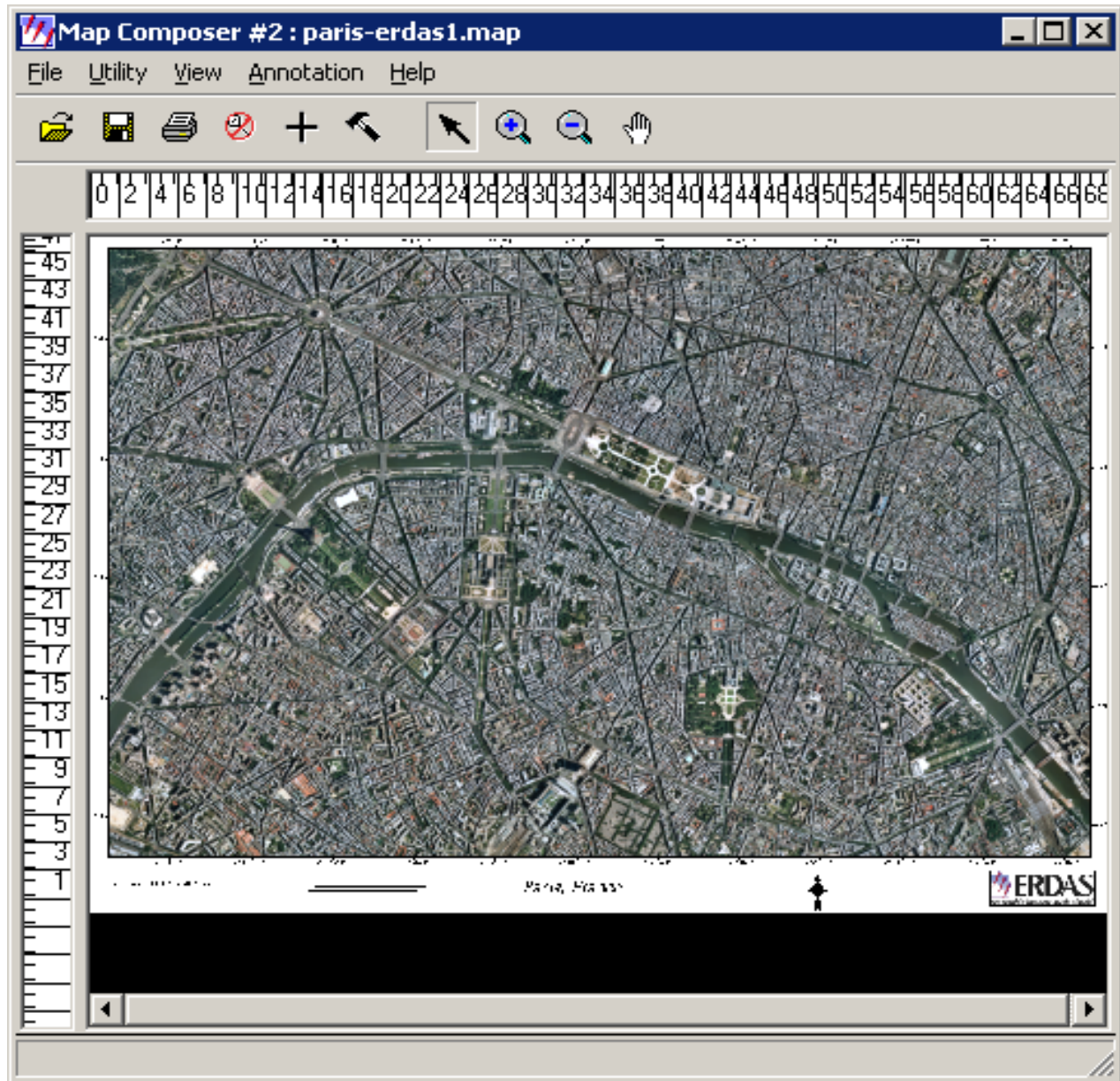
This is the map composition used in the following example. The map composition measures 48" × 68".

NOTE: This map composition is not included in the <IMAGINE_HOME>/examples directory.

This document is based on the premise that the printing to be done can be executed on an HP plotter using an HPRTL print driver on either Windows NT or Windows 98 (preferably Windows NT).

Troubleshooting

Sometimes when you are trying to print a map, system resources are consumed by the printing process, and the attempt to plot fails. There are several ways in which a printing failure might manifest itself. Depending on the type of print device being used, the indications of failure vary. The most common, of course, is that you do not successfully print the desired map. The symptoms of failure shown below are common for HP 600 to 3500 plotters. This includes the 1055 series.

Out of Memory/Data Lost

This is a printer panel message that is displayed when the printing application overwhelms the printer memory with data. This commonly occurs when postscript print drivers are used to attempt a print job that sends more data to the print device than the print device has memory to handle.

In ERDAS IMAGINE V8.4, this situation can also occur if you do not choose to **Rasterize before printing**. In the case where the you do not choose to **Rasterize before printing**, the map composition should be processed using the **In computer** memory option. Commonly, when the system runs out of memory, the composition is partially printed. It is not unusual that whole elements of the map composition might be missing.

Nothing Prints

In another example, you send your map composition to print, and the process initiates successfully. However, as soon as the print job switches from spooling to printing, the job is deleted from the queue. There are no results to speak of. The only potential error message is from the NT OS: `Your system is running low on virtual memory. Please close some applications`. This is dependent on your system's virtual memory settings.

It is advisable that you increase the default NT virtual memory settings. On Microsoft NT systems, there are initial and maximum size settings for the virtual memory that are made available to applications.   The default minimum memory is acceptable, but the overall may need to be increased.

Changing Memory Settings

Increasing overall memory can be accomplished by:

*   increasing the maximum on the existing paging file.

*   creating an additional paging file (if there is not sufficient free disk space on the drive or partition where the other paging has been created).

It is also common that, when the Commit Charge value on the Windows NT Task Mangler exceeds ~ 1 GB, nothing prints. Eventually, this occurs when processing without **Rasterize before printing** and **In computer** memory.

Preferences

Strip Height

The Strip Height is set to 64 by default. This is an acceptable strip height. This is the height of each strip of data that is sent to the plotter.

Printing Data Transfer Compression

Printing Scale Factor is the scaling factor at which the output data is created. This scale applies to the output frame size. For example:

none = 1x

low = 2x

medium = 4x

high = 8x

For example, if the image that is being put into a frame is 5000×6000 pixels, and the frame in which the image data is going to be printed is 17"$\times$ 20", and you are plotting at 600 dpi, then there are 5000 pixels with which to fill 10200 dots.

Scaling is always constrained to the smaller of the dimensions to maintain geometric fidelity. In the example above, a scaling factor of 2 would be appropriate. If a scaling factor of one were used, ERDAS IMAGINE would create a file big enough to fill the output map frame. This is, in essence, quadrupling the size of the raster data needed to be sent to the plotter.

Moreover, a scale factor of two is a good trade-off in that little annotation degradation occurs. If the Printing Scale Factor is too high, text annotation can become pixelated.

Spool RAW Data

In order to print successfully in ERDAS IMAGINE, data must be spooled to the printer as the RAW datatype. These steps show you how to set your printer driver to always spool the RAW datatype.

1. From the Windows **Start** button, click **Settings | Printers** to display the Windows Printers dialog:
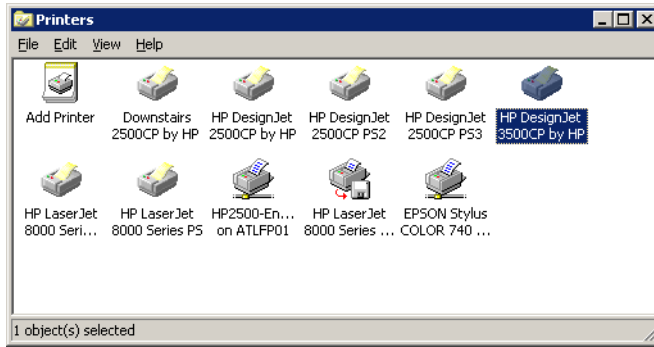
2.   Right-click on the icon for the desired printer, and click **Properties** to display the Printer Properties dialog:

General tab

Click the Processor button
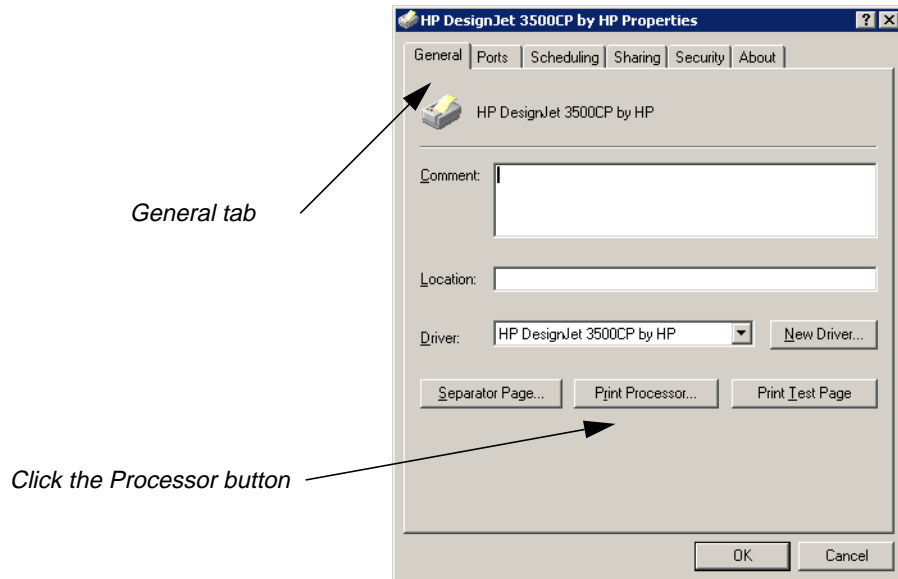
3.   From the **General** tab, click on the **Print Processor** button to open the Print Processor dialog:

Check the Always spool RAW datatype checkbox
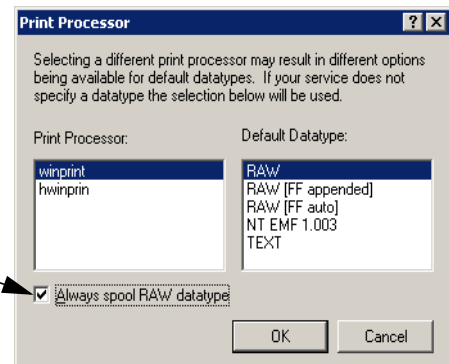
4.   Check the **Always spool RAW dataype** checkbox.

Changing the Location of the Spool Folder   In Windows NT, the default spool folder is in C:\WINNT\System32\spool\PRINTERS. This is only applicable if Windows NT is installed on drive C. It is common that the drive on which Windows NT is installed may not have sufficient free disk space for spooling large print jobs. In order to successfully print large print jobs, it is sometimes necessary to change the location of the spool folder. This can be accomplished as follows:

1.   From the Windows **Start** button, click **Settings | Printers** to display the Windows Printers dialog.

2.   Select **File | Server Properties** from the Printers dialog. The Print Server Properties dialog opens. Click on the **Advanced** tab:

The Advanced Tab
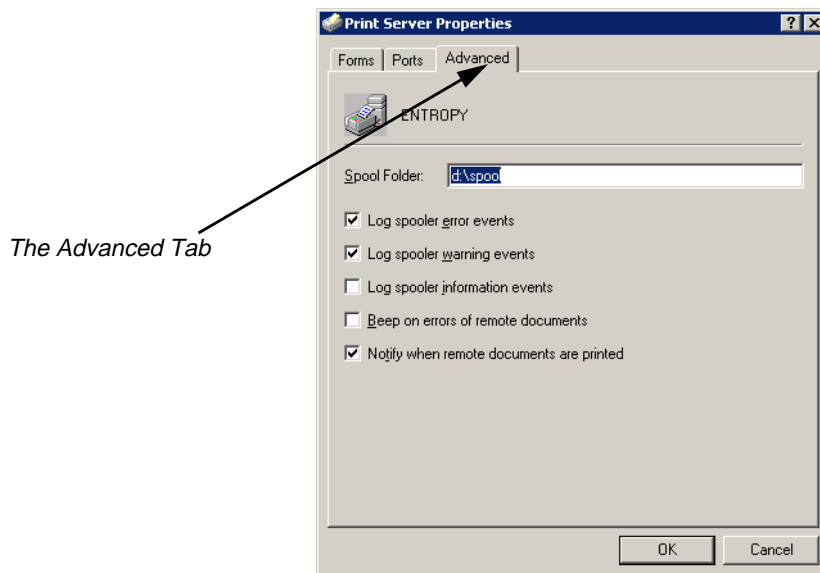
3.   In the Spool Folder field, change the path of the spool folder to a folder on a drive that has adequate free disk space, such as: C:\WINNT\System32\spool\PRINTERS.

Scenarios	You may encounter the following scenarios when printing:
No Pre-Rasterize	These steps work for a moderate size map composition (e.g., 24″ × 36″ at 600 dpi). The no pre-rasterize scenario does not create a temporary file: all processing is handled in memory. This scenario can lead to the situation where nothing prints when the limits of system memory are exceeded. (There appears to be a 1 GB limit in Windows NT 4.0.) Any time the Commit Charge exceeds 1 GB, the print job is removed from the queue.

Preparation

ERDAS IMAGINE must be running.

You must have a map composition displayed.

NOTE: The map composition displayed in this scenario is not supplied with the examples data. You may want to use the following steps to print the map composition you created in "CHAPTER 3: Map Composer", in the ERDAS IMAGINE Tour Guides.

The following picture shows a Map Composition ready to print:
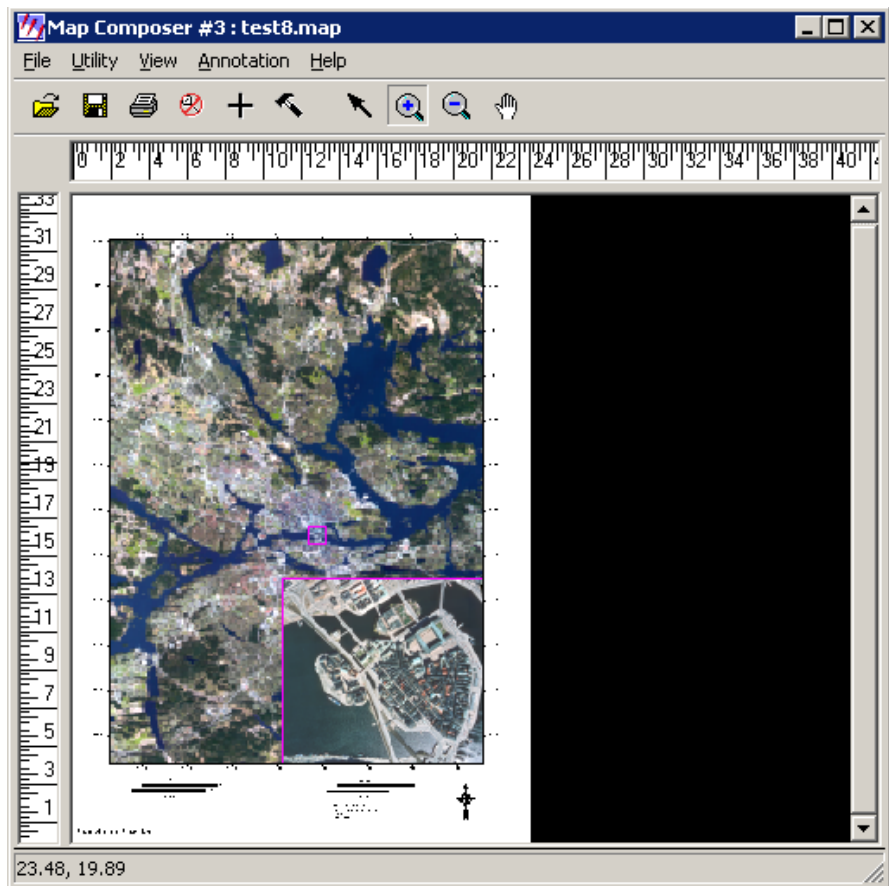
Open the Map Composition Dialog

1. In the Map Composer dialog, click the Print icon.

This brings up the Print Map Composition dialog. The Print Map Composition dialog opens on the **Printer** tab. In this tab, you can select a printer you have configured.

For information about how to configure a printer, see the most recent ERDAS IMAGINE Installation Guide.

The Printer tab allows you to select a configured printer that can print the map composition
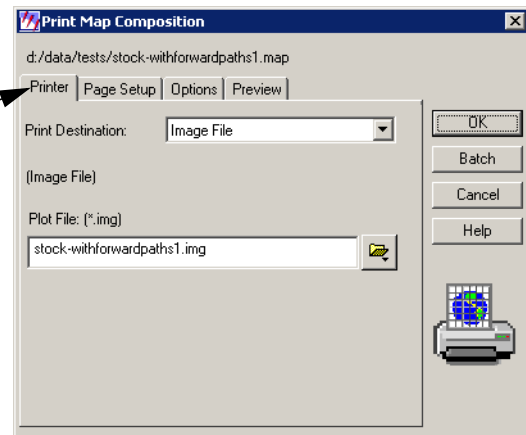
2.   Click the **Print Destination** dropdown list and choose an appropriate printer.

NOTE: If you do not have any printers configured on your computer, then the only options that appear are Image File and EPS File.

In this example, the HP DesignJet 2500CP by HP printer is chosen as the Print Destination
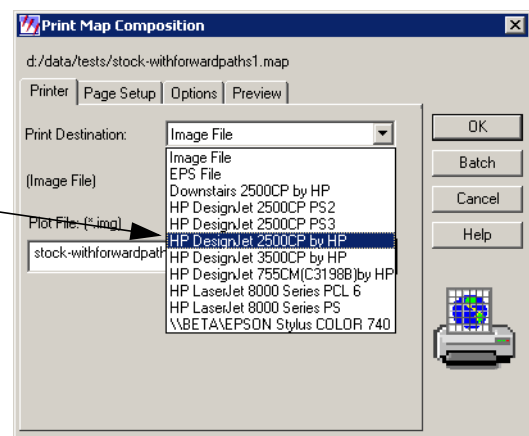
The **Print Destination** you select displays in the Print Map Composition dialog. Now, you can set configuration parameters.

The printer you chose
displays in the Print
Destination window

Click the Change printer
configuration button
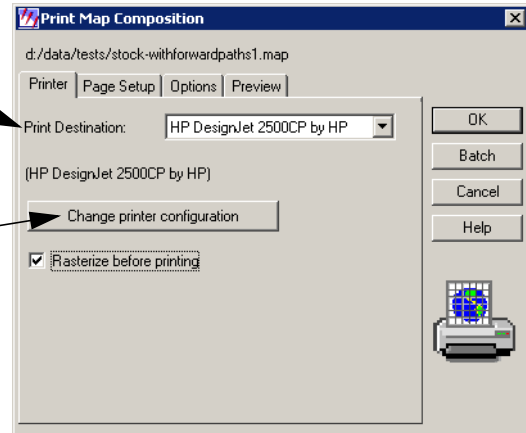
3. Click on the **Change printer configuration** button.

The Properties dialog for the printer you select displays. In this case, the title of the dialog is HP DesignJet 2500CP by HP.
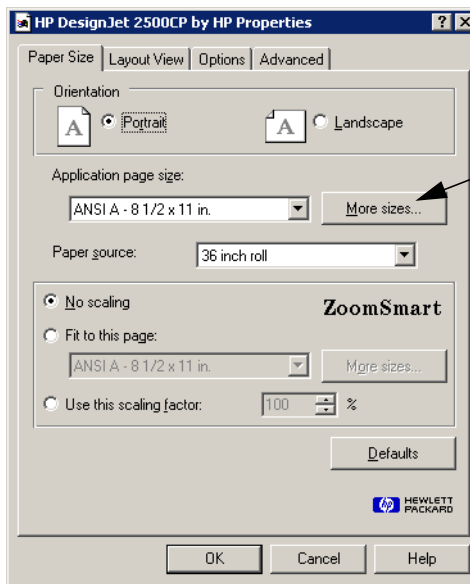
In the Properties dialog,
click on the More sizes
button

4. Click on the **More sizes** button.

The Paper Sizes dialog opens. In this dialog, you can set the paper size required for your particular map composition.

Set custom paper size in this area
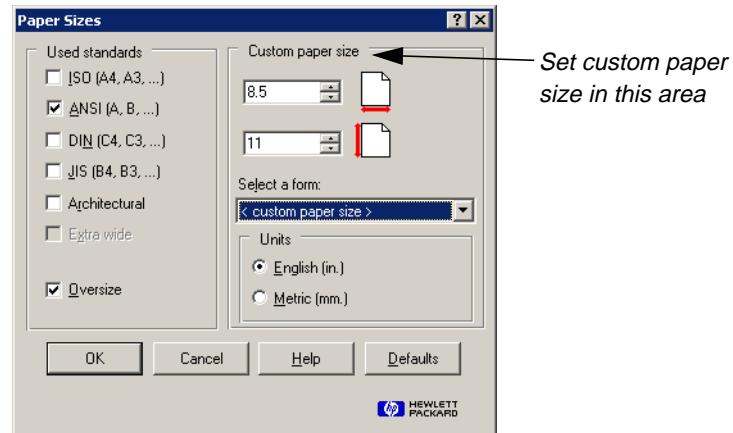
5. Click in the **Custom paper size** section of the Paper Sizes dialog and type the size of the paper. In this case, the appropriate size is **36″ × 26″**.

6. Click **OK** in the Paper Sizes dialog.

   You are returned to the **Paper Size** tab of the Properties dialog.

Choose the Landscape orientation
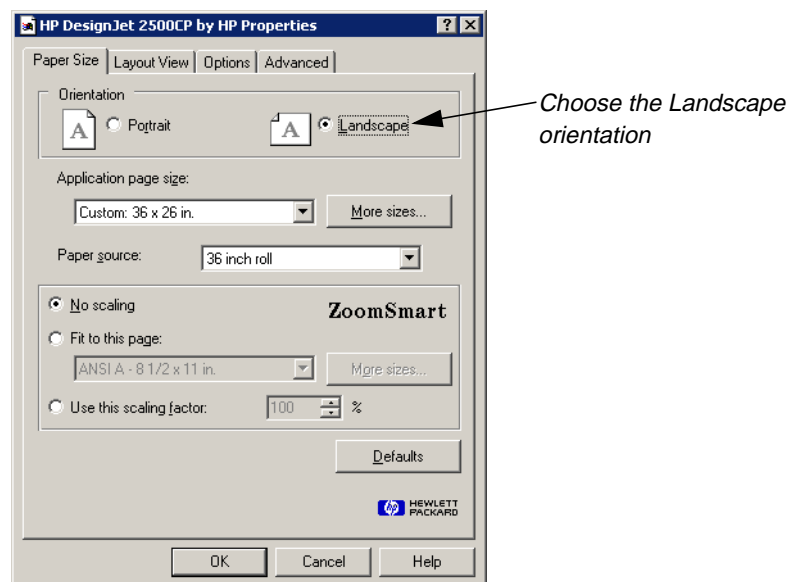
7. In the **Paper Size** tab of the Properties dialog, click the **Landscape** orientation radio button. This option conserves paper.

8. Click the **Layout View** tab in the Properties dialog.

   The **Layout View** information displays.
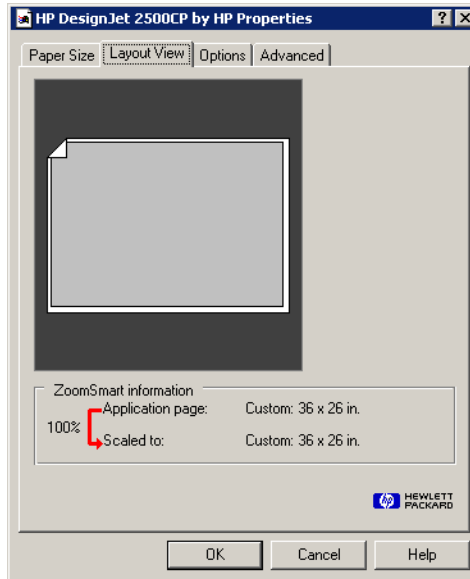
The **Layout View** tab shows that the width is **36**″, and the height is **26**″. The **36**″ dimension runs across the **36**″ width of the roll of paper.

9. Click the **Options** tab in the Properties dialog.

The options display. In this tab you make color and paper selections.
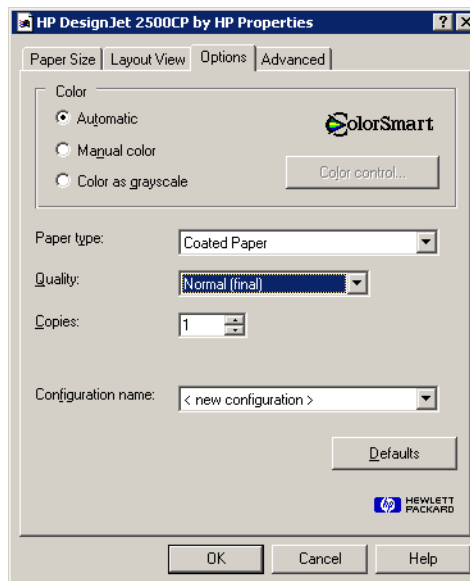
10. In the **Options** tab, click the checkbox for **Manual color**.

You are going to come back to the **Color control** setting in a moment.

ERDAS IMAGINE

11. Click the **Paper type** dropdown list, and select the type of paper.

The **Quality** setting controls the dots per inch (dpi) that is used to plot the map. There are different quality designations used by different printer drivers. Some common HP quality designations are:

- Fast (draft) (300 dpi)

- Normal (final) (300 dpi)

- Best (enhanced) (600 dpi)

- Economy (300 dpi)

- Productivity (300 dpi)

- Photo (600 dpi)

So far, you have selected the Manual color radio button as well as the Paper type
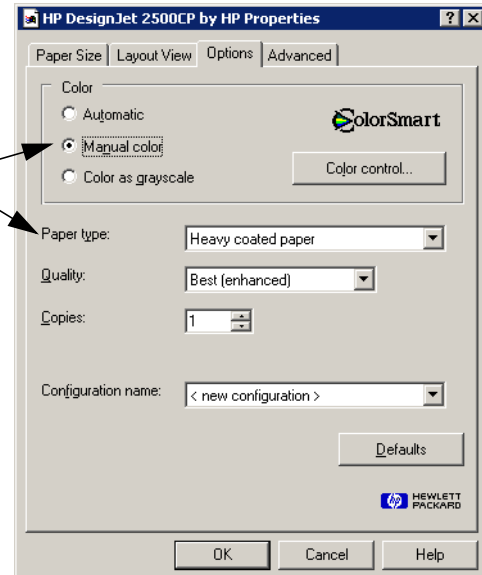
12. Click on the **Advanced** tab in the Properties dialog.

The advanced options display in the Properties dialog.
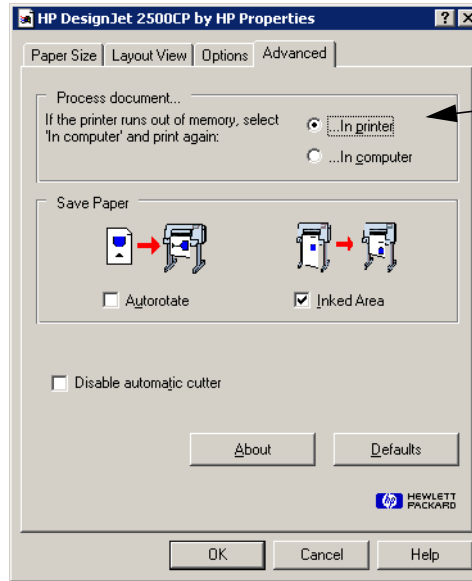
Select the process document setting in this area

13. In the **Process document** section of the **Advanced** tab, click the **In computer** radio button.

You need to select the **In computer** option in order to successfully print the color calibration pages which follow.

A Hint dialog opens that warns of slower printing. You are going to process the document in the computer memory when you do not pre-rasterize anyway.
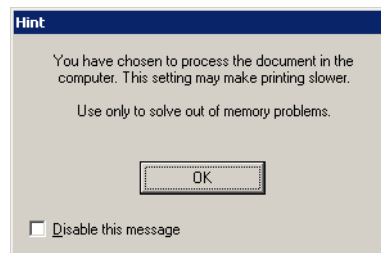
14. Click **OK** in the Hint dialog.

15. Click the **Inked Area** checkbox.

Your **Advanced** tab should now look like the following:

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Select the In computer option
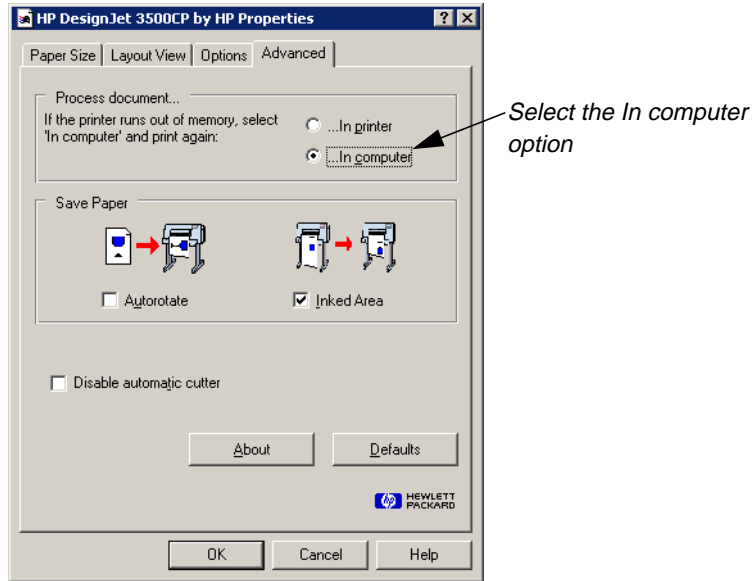
Color control

1. Click the **Options** tab in the Properties dialog.

2. Click on the **Color control** button in the **Options** tab.

   The Color Control dialog opens.

Select User defined color correction

Start the Color Correction Wizard
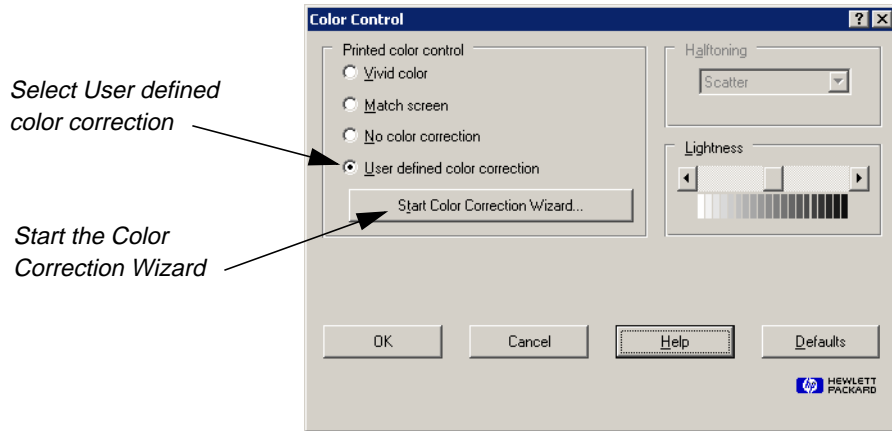
3. In the **Printed color control** section of the Color Control dialog, click on the **User defined color correction** radio button.

4. Click on the **Start Color Correction Wizard** button.

   The Start Color Correction Wizard dialog opens.

Select Use the current document in your application

5. Click the **Use the current document in your application** radio button.

    The next Start Color Correction Wizard dialog opens. It provides information about using the current document as the basis for the Color Correction Wizard.

Click OK
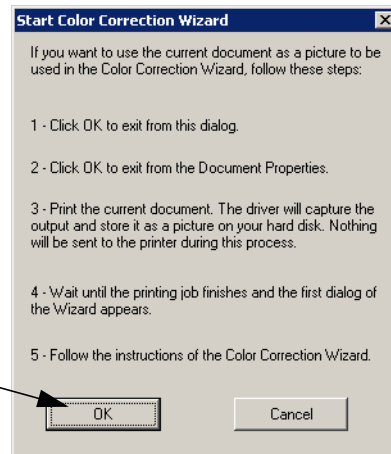
6. Click **OK** in the Start Color Correction Wizard dialog.

    A Job Status dialog opens to show the progress of the document capture.

7. Click **OK** in the Color Control dialog and the Map Composition dialog.

8. Depending on your preference settings, you may need to click **OK** in the Job Status dialog to close it.

    The Color Correction Wizard welcome dialog opens.
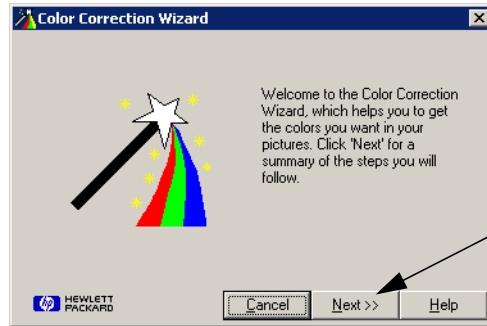
Click Next to advance to the next panel of the Color Correction Wizard

9. Click **Next** in the Color Correction Wizard dialog.

The next Color Correction Wizard dialog suggests a series of steps.
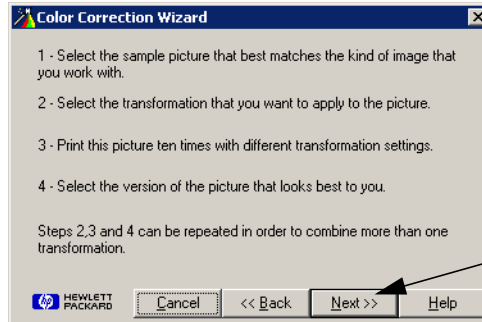
Click Next

10. Click **Next** in the Color Correction Wizard dialog.
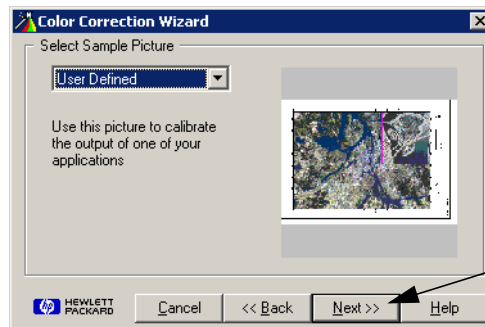
Click Next

11. Click **Next** when the No transformation message is displayed above the document preview.

The Brightness is adjusted in this step.

Choose the
Brightness option in
the Select
Transformation
section
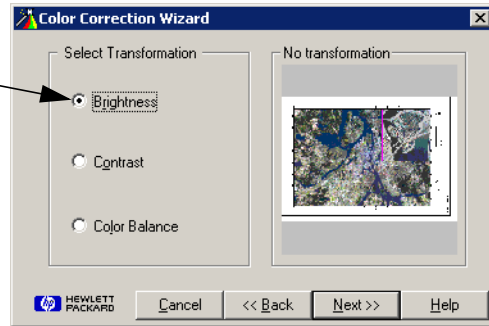
The next dialog advises you to prepare the printer. Next, the sample pictures are going to be printed.
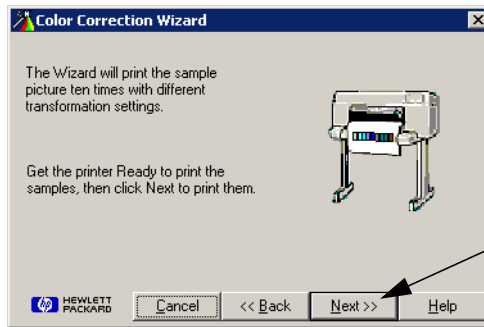
Click Next to print
the sample images

12. Click **Next** to print the sample images.

13. Once you get the sample images from the printer, compare the sample image printout to the map on your screen.

14. In the **Picture Selected** section, type the number of the image that best represents the brightness of the map. In this example, **9** is the best.
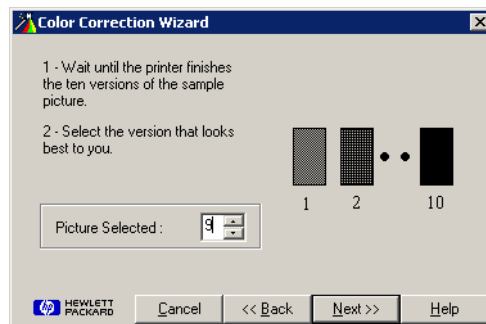
15. Click **Back** twice to define the contrast setting.

Click Back again
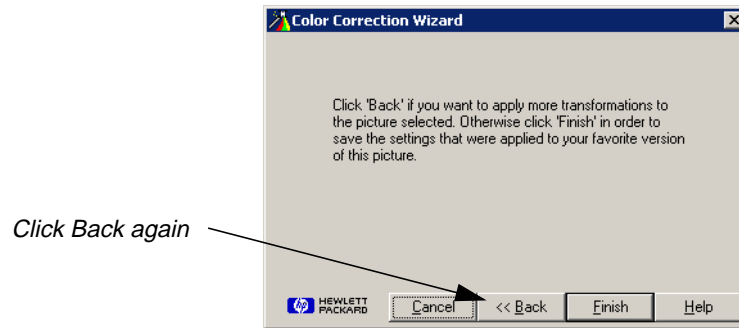
The Color Correction Wizard dialog that follows allows you to set Contrast:

Select the Contrast option
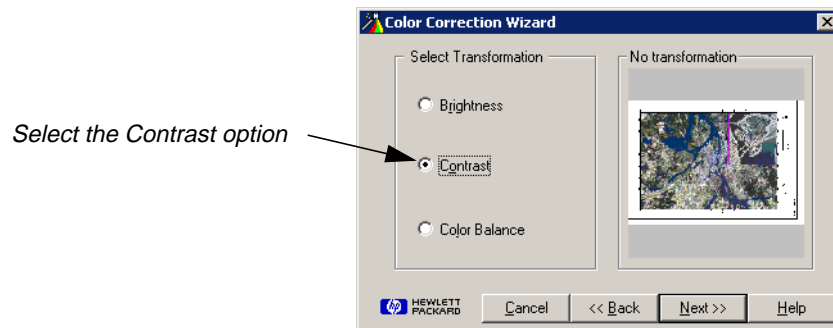
16. Click on the **Contrast** radio button.

17.   Click **Next** when the No transformation message is displayed above the document preview.

18. Click **Next** to print the sample images.

19. In the **Picture Selected** section, type the number of the image that best represents the brightness of the map. In this case, **8** is best.

Select the picture you
like best in the Picture
Selected field

20. Click **Back** twice to define the **Color Balance** setting.

21. Click **Back** again.

Click Back
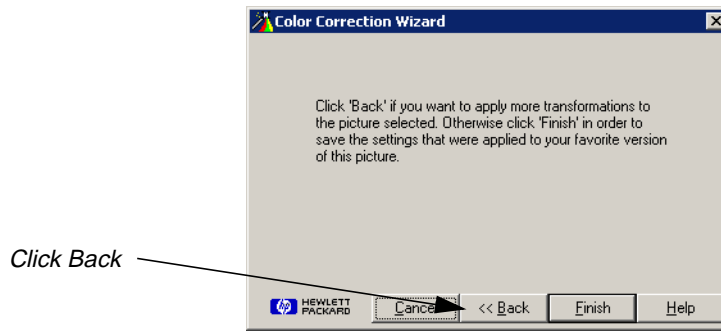
Now, you can select the Color Balance option.

Select the Color Balance radio button
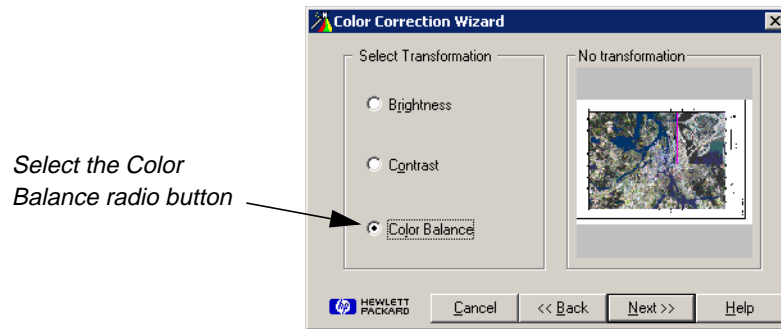
22. Click on the **Color Balance** radio button.

23. Click **Next** when the No transformation message is displayed above the document preview.

24. Click **Next** to print the sample images.

25. In the **Picture Selected** section, type the number of the image that best represents the brightness of the map. In this case, **6** is best.

The picture number 6 is the best for Color Balance
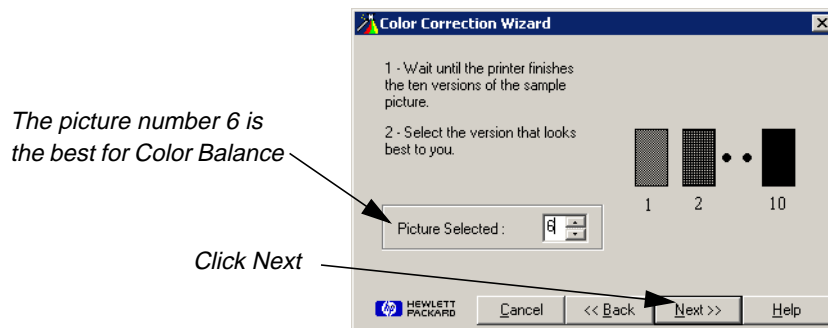
Click Next

26. Click **Next** in the Color Correction Wizard dialog.

Now, you have defined all three elements of the Color Correction Wizard: **Brightness**, **Contrast**, and **Color Balance**.
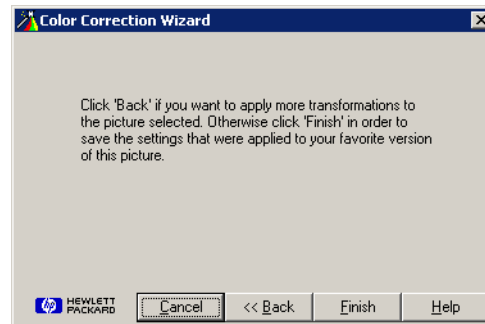
27.   Click on **Finish** in the Color Correction Wizard.

A dialog opens advising you that the color calibration was a success.
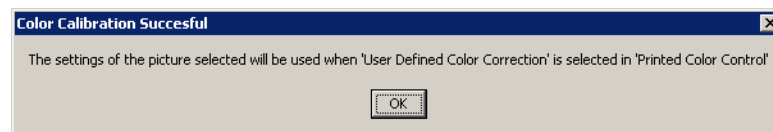
28.   Click on **OK** in the Color Calibration Successful dialog.

You are returned to the Properties dialog. If you have the **User Defined Color Correction** selected, it uses your color calibration.

29.   Click the **Advanced** tab in the Properties dialog.
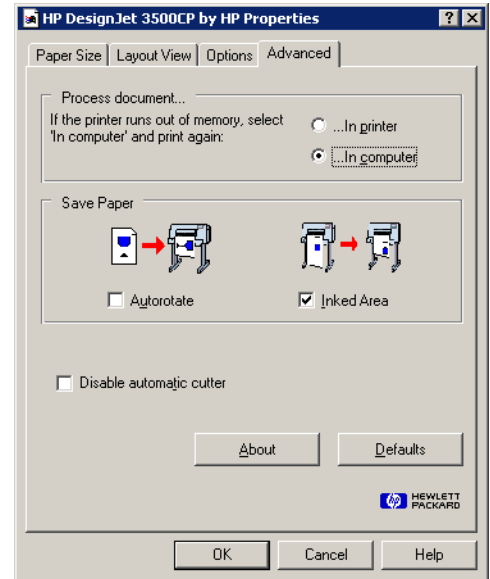
30. Click **OK** in the Properties dialog.

Return to the Print Map Composition Dialog

1. Click the **Page Setup** tab in the Print Map Composition dialog.

Your Print Map Composition dialog Page Setup tab should look like this.
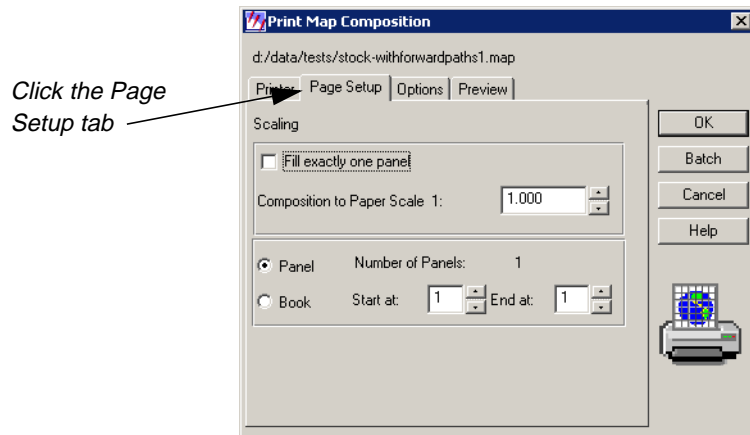
Click the Page Setup tab

2. Click the **Options** tab of the Print Map Composition dialog.

The **Options** tab looks like this:
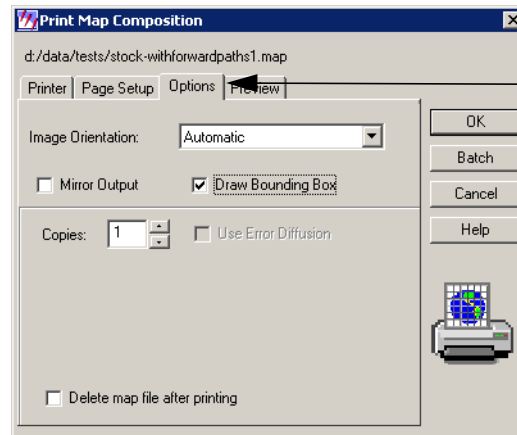
Click the Options tab

3. Click the **Preview** tab of the Print Map Composition dialog.

Finally, your **Preview** tab should look like this:
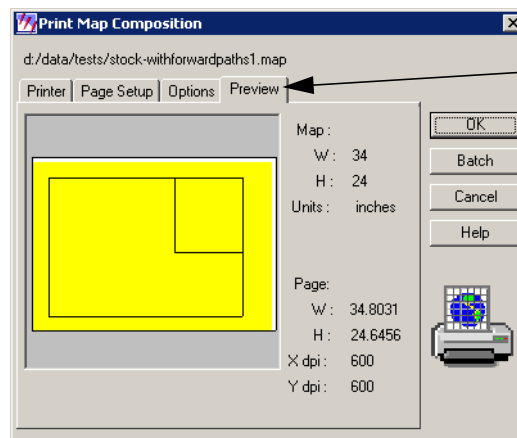
Click the Preview tab

4. Click **OK** to print your map.

Pre-Rasterize   Another scenario involves the **Pre-Rasterize** option. If you want to print large maps or print to higher resolution print devices, it is probably necessary to utilize the **Pre-Rasterize** option in ERDAS IMAGINE in conjunction with an HPRTL driver. There are similar languages that can be utilized with plotters sold by other printer manufacturers.
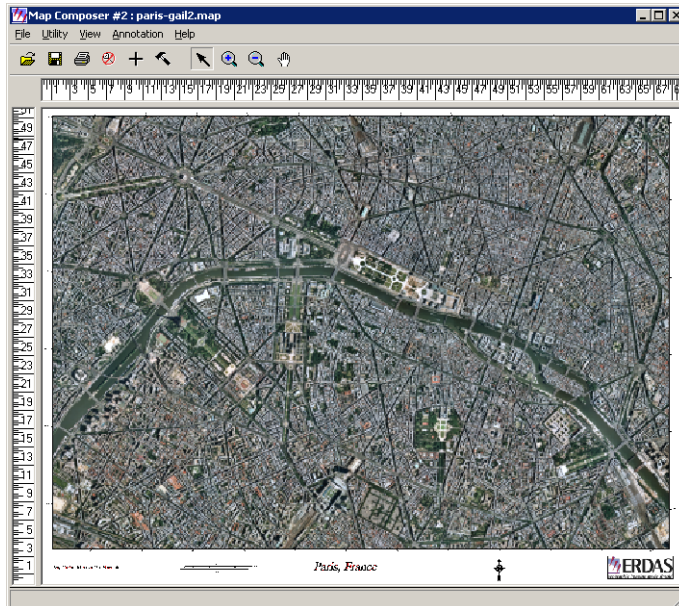
This map is large. It is 52" x 68". It is printed at 600 dpi, and would easily exceed the system limits for successful printing. This map cannot print without pre-rasterization unless the Printer Data Transfer Compression preference is set to high. Even then, the raster data that is printed appears highly degraded as no higher than a compression factor of low or 2 can be effectively used with this data. Consequently, the **Pre-Rasterize** option is used in order to print successfully.

The 52" height of the map corresponds with the 54" width of the paper for the HP 3500. There are effectively 31200 pixels, or dots, available for plotting at 600 dpi. The image in the map frame is 37000 pixels high. This map would be best processed with the **Printer Data Transfer Compression** preference set to **none**, but that would also quadruple the amount of data that is sent to the plotter. So, you are going to use the default **Printer Data Transfer Compression** preference **low**. This generally provides acceptable results.

Preparation

ERDAS IMAGINE must be running.

You must have a map composition displayed.

NOTE: The map composition displayed in this scenario is not supplied with the examples data. You may want to use the following steps to print the map composition you created in "CHAPTER 3: Map Composer" in the ERDAS IMAGINE Tour Guides.

1.   In the Map Composer dialog, click the Print icon.

This brings up the Print Map Composition dialog. The Print Map Composition dialog opens on the **Printer** tab. In this tab, you can select a printer you have configured.

*For information about how to configure a printer, see the most recent ERDAS IMAGINE Installation Guide.*

2. In the Print Map Composition dialog, select the printer from the **Print Destination** dropdown list.

Select the printer from the dropdown list
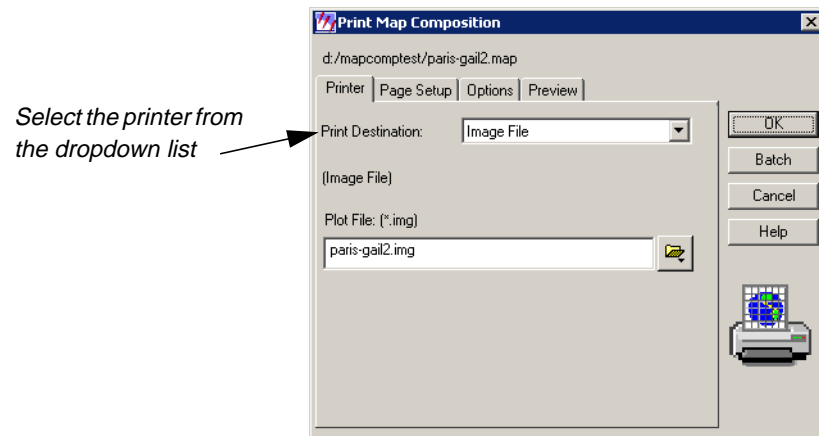
Once you choose your printer, the **Rasterize before printing** option displays.

Click the Change printer configuration button

Click to select the Rasterize before printing option
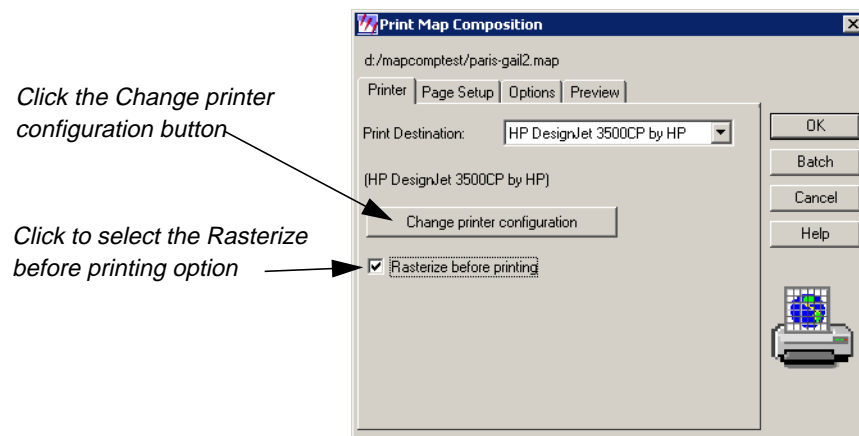
3. Click the **Rasterize before printing** checkbox.

4. Click on the **Change printer configuration** button.

The Properties dialog opens. It has the name of the printer you selected as the **Print Destination**.

Set the page size here
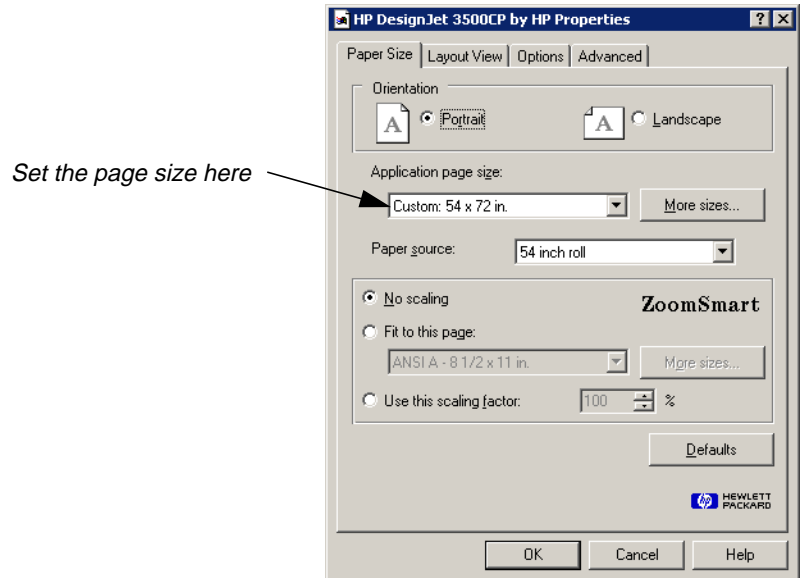
5.   In the **Application page size** section of the Page Size tab, set the paper size to 54" x 72".

6.   Click on the **Layout View** tab of the Properties dialog.

Click the Layout View tab
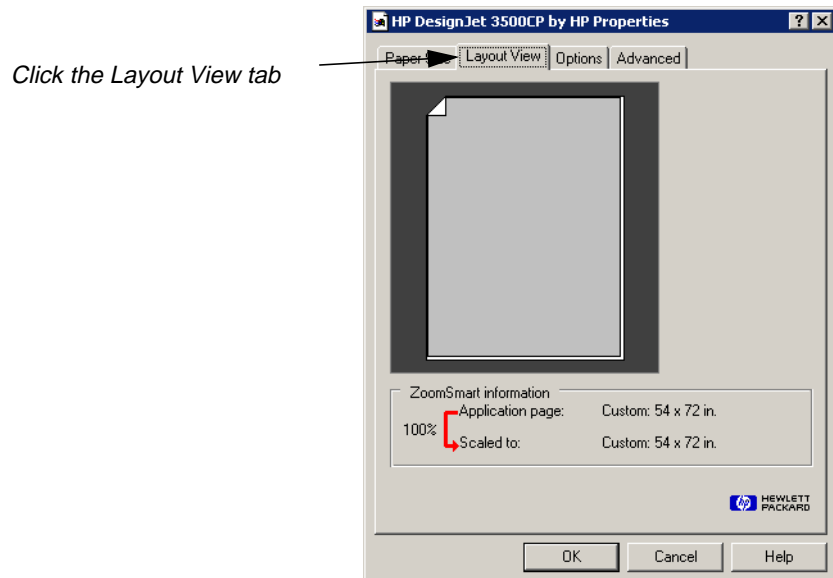
7.   Look at the **Layout View** to verify the parameters.

8.   Click on the **Options** tab of the Properties dialog.

The Options display.

Select Manual color

Click the Color control button

Set the Paper type and Quality
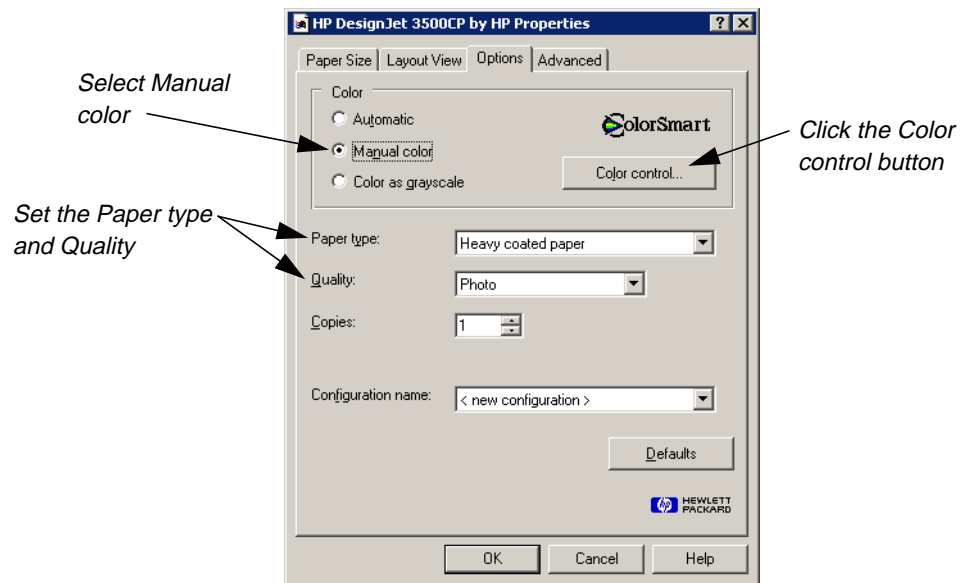
9. Set the **Paper type** and **Quality**.

The **Quality** should be set to **Photo** or **Best**, which is 600 dpi if the highest quality is desired.

10. Click on the **Manual color** radio button in the **Options** tab.

11. Click on the **Color control** button to check the Color Control settings.

The Color Control dialog opens.

Select the User defined color correction radio button
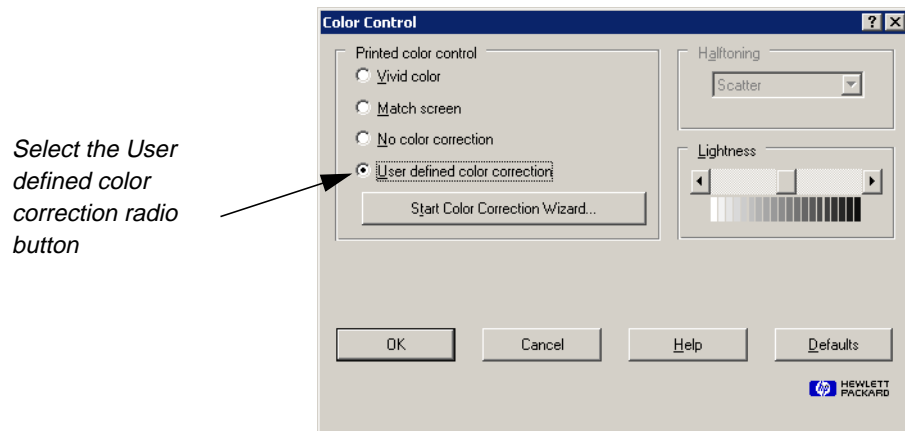
12. Set the **Printed color control** to **User defined color correction**.

This should still be set to the same values used in the previous exercise, "No Pre-Rasterize". If you did not perform the previous exercise, the procedure for setting the User defined color correction is fully described there, on page 79.

13. Click on the **Advanced** tab.
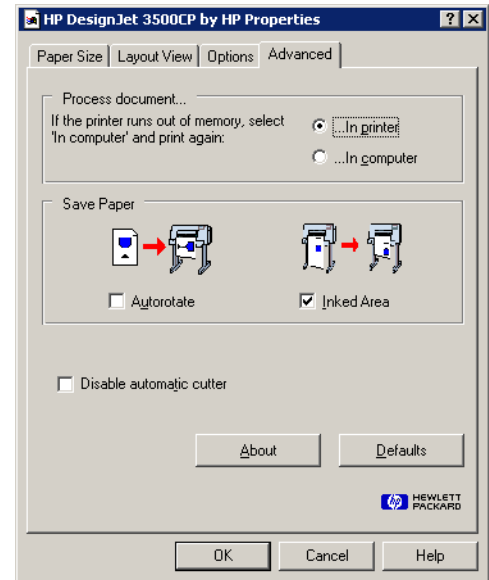
14. Click the **In Printer** radio button.

In the previous exercise, the **In Computer** radio button was set so that printing could be done using the no pre-rasterize method in IMAGINE.

15. Click **OK** in the **Advanced** tab.

The **Page Setup** tab of the Print Map Composition dialog displays.
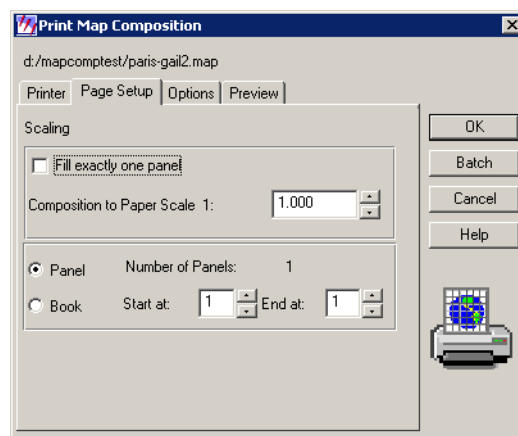
16. Verify the parameters on the **Page Setup** tab.

17. Click the **Options** tab.

Click the Options tab —————
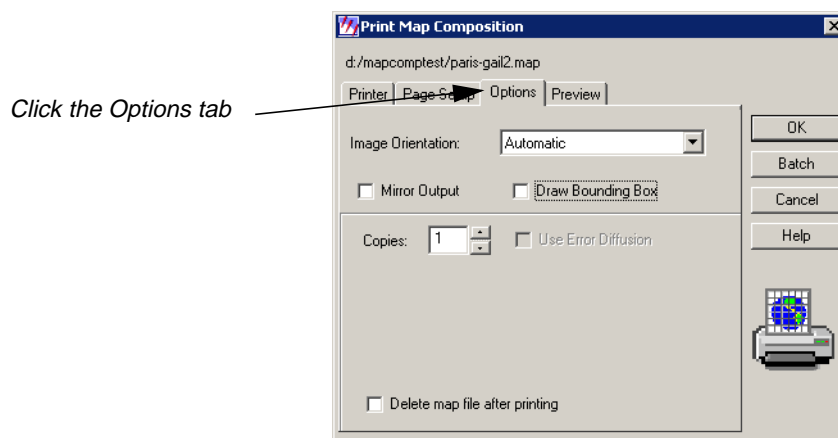
18. Verify the parameters on the **Options** tab.

19. Click on the **Preview** tab.

Windows Printing

Click the Preview tab
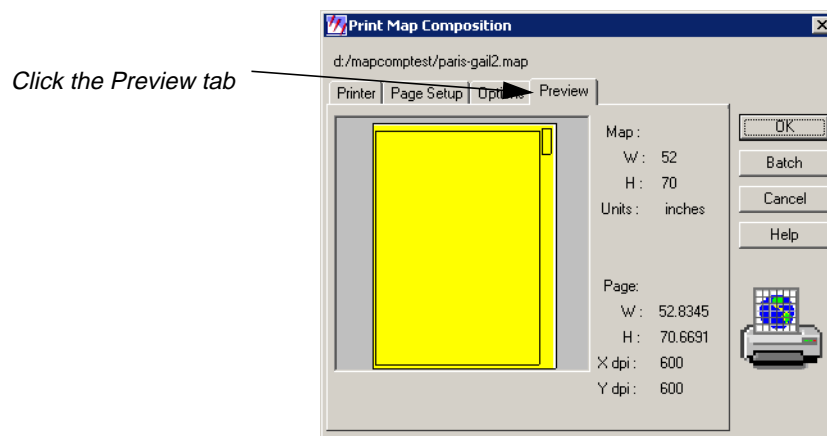
20. Examine the Print Preview.

21. Click **OK** in the Print Map Composition dialog to print.

CHAPTER 9
Configuring IMAGINE VirtualGIS for Windows

Stereo Configuration for Windows Systems

Only Stereo-In-A-Window is supported for Windows 95, Windows 98, and Windows NT. A stereo graphics emitter, an emitter cable, liquid crystal glasses, and a stereo-capable graphics card are required to use the **Stereo-In-A-Window** option.

Most stereo-capable graphics cards provide a control panel for enabling and disabling stereo display (see your graphics card's instructions). The card must be stereo-enabled before starting IMAGINE VirtualGIS.

Contact StereoGraphics (http://www.StereoGraphics.com) for the specific cable needed to work with your system and graphics card.

ERDAS IMAGINE Preference Settings

Several ERDAS IMAGINE preferences can be modified to improve the performance of IMAGINE VirtualGIS. These changes may affect other applications running within the ERDAS IMAGINE environment.

User Interface and Session

The **Dialogs Follow Parent** preference should be off. When entering or exiting stereo modes in IMAGINE VirtualGIS, this preference may cause the supporting dialogs to become inaccessible.

Memory

The **Directory for the External Memory File** preference needs to have a directory on a local file system with greater than 20 MB available. IMAGINE VirtualGIS creates a file in the specified directory to use before any system memory is consumed. This improves the performance when rendering large Virtual Worlds in IMAGINE VirtualGIS.

The **Total Size of External Memory in Megabytes** preference should be set to greater than 20 MB.

ERDAS IMAGINE Image Files (Native)

The **Memory Map File Size Limit** and **Memory Map Segment Height** preferences should both be set to 0.000. This disables memory mapping. Some Virtual Worlds built in the Virtual World Editor could be greater than the defaults displayed.

Section Two
UNIX Installation and Configuration

Preface to UNIX Installation

About This Manual

The *ERDAS IMAGINE Installation Guide* takes you step-by-step through the installation of ERDAS IMAGINE® V8.4 software. You should read "CHAPTER 10: Preparation for Installation under UNIX"before you begin the installation process to verify that your system is properly set up for the software.

Standard Installation vs. Advanced Installation

There are two ways to install the software, depending on your system setup.

- If your workstation is a stand-alone system or a system on a network with a local CD-ROM, read"CHAPTER 11: Standard CD-ROM Installation".

- If your workstation is connected to a network and has a remote CD-ROM, follow the instructions in "CHAPTER 12: Advanced CD-ROM Installation".

When you perform a Standard installation, you must install the software from the root account. If you do not want to install the software as root, then you must perform an Advanced installation.

NOTE: ERDAS IMAGINE V8.4 does not support installation from tape drives.

Security Codewords Request Form

The ERDAS IMAGINE software security system uses security codewords to protect the software against unauthorized use. You need to fill out the Security Codewords Request Form located in the Important Information material and mail or fax it to ERDAS Codeword Support to receive your security codewords. The Security Codewords Request form can also be obtained via the ERDAS web site (www.erdas.com).

ERDAS IMAGINE V8.3 users: If you have ERDAS IMAGINE V8.3, you need to receive new codewords for ERDAS IMAGINE V8.4. The security broker for ERDAS IMAGINE V8.4 recognizes the codewords used with ERDAS IMAGINE V8.3 and the new ERDAS IMAGINE V8.4 codewords. If you are working with both versions of ERDAS IMAGINE, use the security broker from V8.4. During installation, enter your V8.4 codewords first and then enter your V8.3 codewords.

Documentation

The *ERDAS IMAGINE Installation Guide* is part of a whole suite of printed and on-line documentation that you receive with ERDAS IMAGINE software.

Printed Documentation

Following is a listing of printed documentation that is available with ERDAS IMAGINE software:

- ERDAS Field Guide™

- ERDAS IMAGINE Installation Guide

- ERDAS IMAGINE Tour Guides™

- ERDAS IMAGINE V8.4 Release Notes and Important Information

On-Line Documentation

Following is a listing of on-line manuals that can be found in the On-Line Help in ERDAS IMAGINE software. These may have been delivered in printed form or as digital .pdf files:

- Introduction to ERDAS IMAGINE On-Line Manual

- Annotation On-Line Manual

- AOI On-Line Manual

- Classification On-Line Manual

- C_Tools On-Line Manual

- DLL On-Line Manual

- EML On-Line Manual

- Expert Classifier On-Line Manual

- Graphical Models On-Line Manual

- HyperSpectral On-Line Manual

- IMAGINE Command and Function Syntax On-Line Manual

- IMAGINE Interface On-Line Manual

- Image Catalog On-Line Manual

- Image Interpreter On-Line Manual

- Import/Export On-Line Manual

- Map Composer On-Line Manual

- OrthoBASE On-Line Manual

- Radar Mapping Suite On-Line Manual

- Rectification On-Line Manual

- Session On-Line Manual

- SML On-Line Manual

- Spatial Modeler On-Line Manual

- Tools and Utilities On-Line Manual

- Vector On-Line Manual

- Viewer On-Line Manual

- Viewer Raster Tools On-Line Manual

- Virtuality On-Line Manual

Documentation Functions

The following chart depicts the different types of information you can extract from ERDAS IMAGINE documentation.

If you want to...	Read...
Install ERDAS IMAGINE	*ERDAS IMAGINE V8.4 Release Notes*, then *ERDAS IMAGINE Installation Guide*
Set up hardware for use with ERDAS IMAGINE	ERDAS IMAGINE Installation Guide
Learn about new features in the latest release	*ERDAS IMAGINE V8.4 Release Notes*
Learn to use ERDAS IMAGINE	ERDAS IMAGINE Tour Guides
Learn about GIS and image processing theory	ERDAS Field Guide
See what a particular dialog does	*ERDAS IMAGINE* On-Line Help
Get quick information for a button or function	*ERDAS IMAGINE* On-Line Help or Status Bar Help
Learn how to most effectively use the On-Line Help system	*ERDAS IMAGINE* On-Line Help
Learn more about the Image Interpreter functions	ERDAS IMAGINE Tour Guides
Use the Spatial Modeler Language to write models	On-Line Spatial Modeler Language manual
Customize the ERDAS IMAGINE graphical user interface	On-Line ERDAS Macro Language (EML) manual
Write custom application programs within IMAGINE	On-Line IMAGINE developers' Toolkit manual

Conventions Used in This Book

In ERDAS IMAGINE, the names of menus, menu options, buttons, and other components of the interface are shown in bold type. For example:

"In the Select Layer To Add dialog, select the **Fit to Frame** option."

<words>

When you see words enclosed in **< >** substitute the proper information for these words. For example, when you see <system arch> in this document, replace it with the system architecture for your workstation (e.g., sun4).

```
Prompts
```

Words that appear in the font style above represent program prompts that displays on the screen.

Commands, Entries

Words that appear in the font style above are used to show commands that you need to enter and examples of data that you may enter as a response to a program prompt. A word enclosed in brackets **[]** at the end of a prompt is the default answer for that prompt. Press the Return key to accept the default answer.

Root Prompt

The **#** symbol is used to represent the prompt on your system when you login as root.

Paragraphs

The following paragraphs are used throughout the ERDAS IMAGINE documentation:

These paragraphs contain strong warnings or important tips.

These paragraphs direct you to the ERDAS IMAGINE software function that accomplishes the described task.

These paragraphs lead you to other chapters in the ERDAS IMAGINE Installation Guide or other manuals for additional information.

Obsolete

Device drivers and configuration instructions for the following hardware are no longer provided with standard IMAGINE releases.

- CalComp 68000 Electrostatic plotter

- IRIS Color Inkjet printer

- Kodak XL7700 printer

- Tektronix Inkjet printer

- Versatec ServeWare converter

CHAPTER 10
Preparation for Installation under UNIX

Description

This section briefly explains the steps for preparing your UNIX workstation for installing ERDAS IMAGINE V8.4 software.

Operator Expertise

The system setup and the software installation should be performed by a system manager who is familiar with the UNIX workstation and its documentation.

If you are setting up a new workstation on which user accounts have not yet been assigned, then you must set up at least one user account that may access ERDAS IMAGINE. Please refer to the appropriate manuals as well as to these instructions.

Security Codeword Request Form

A Security Codewords Request Form is located in the Important Information material. You must complete this form and send it to ERDAS Codeword Support to receive your security codewords. Security codewords are explained in the ERDAS Software Security section of this chapter.

V8.3 Users

If you have enough disk space, it is recommended that you keep ERDAS IMAGINE V8.3 on your system until you feel comfortable with running ERDAS IMAGINE V8.4.

The security broker for ERDAS IMAGINE V8.4 recognizes the codewords used with ERDAS IMAGINE V8.3 and the new ERDAS IMAGINE V8.4 codewords. If you are working with both versions of ERDAS IMAGINE, use the security broker from V8.4. During installation, enter your V8.4 codewords first and then enter your V8.3 codewords.

See the Running ERDAS IMAGINE V8.3 and 8.4 section in "CHAPTER 11: Standard CD-ROM Installation" or "CHAPTER 12: Advanced CD-ROM Installation" of this manual for instructions to continue running ERDAS IMAGINE V8.3.

Requirements

Before you begin installing ERDAS IMAGINE software, you need to know the following:

- if your workstation is connected to a network
- whether or not you want to install the software from the **root** account
- the name of the CD-ROM mount point
- where you want to install the ERDAS IMAGINE software security program

If you install everything onto the same workstation, then the installation process is relatively easy.

For more information about ERDAS IMAGINE software security, see the Software Security section on "CHAPTER 13: Security System"

Hardware

<p align="center">**Table 10-1 Minimum Requirements for ERDAS IMAGINE V8.4**</p>

System	Disk Space [a]	Swap Space	Memory [b]	Window System	Operating System
Compaq AlphaStation	575 MB	300 MB	96 MB (128 MB when using a 24-bit display)	OSF/Motif	Compaq Tru64 UNIX (4.0F)
HP 9000 family, series 700 and 800	600 MB	250 MB[c]	64 MB (96 MB when using a 24-bit display)	X11/Motif [d]	HP-UX 11.00
IBM RS/6000	650 MB	250 MB	96 MB (128 MB when using a 24-bit display)	AIX Windows	AIV 4.3.2
Silicon Graphics R4000 and up	600 MB	200 MB	64 MB (96 MB when using a 24-bit display)	X11/Motif	IRIX 6.5
Sun SPARCstation	550 MB	200 MB	64 MB (96 MB when using a 24-bit display)	Open Windows	Solaris 2.6, and 2.7

[a] This is the hard disk space requirement for installation of all modules and example data.

[b] When you are using a 24-bit display board you should have more memory—we recommend 96MB (128 for the Compaq AlphaStation and the IBM RS/6000). The first time you bring up a Viewer, the Viewer creates a backing store. A backing store allows the image in the Viewer to be refreshed quickly. However, with a 24-bit display ERDAS IMAGINE uses about 4 MB of memory for each backing store. This is why extra memory is required. If you do not have extra memory, ERDAS IMAGINE runs slower. With an 8-bit display, ERDAS IMAGINE uses only 1 MB of memory for each backing store.

[c] You need more swap space (384 MB to 512 MB) for full scenes with ERDAS IMAGINE IFSAR DEM.

[d] It is necessary to apply patch PHSS_15853 to HP-UX machines to correct a problem in the Xserver causing color-striping and other visual artifacts.

NOTE: These requirements are subject to change. Please see the Release Notes in the Important Information material for corrections or visit our web site at http://www.erdas.com for the latest specifications.

Swap Space   Use the table on page 107 to determine how much free swap space you should have in order to run ERDAS IMAGINE. Use the commands below to determine how much swap space you currently have on your workstation.

Compaq AlphaStation

```
/sbin/swapon -s
```

If it is less than the minimum requirement, you should increase the swap space.

In order to make the best use of swap space when running IMAGINE, it is recommended that Compaq AlphaStations be configured to use deferred swap space mode. For information on the swap space modes under Compaq Tru64 UNIX (4.0F), type the following in a UNIX shell:

```
# man swapon
```

In order to change a system from immediate mode to deferred mode, you must log in as **root**, rename the file **/sbin/swapdefault**, and then reboot:

```
# cd /sbin
# mv swapdefault  swapdefault.bak
# reboot
```

HP 9000

Log in to the **root** account and use the following command to determine how much swap space you have:

```
/etc/swapinfo
```

If it is less than the minimum requirement, you should increase the swap space.

IBM RS/6000

Log in as **root** and use the following command to determine how much swap space you have:

```
/usr/sbin/lsps -s
```

If it is less than the minimum requirement, you should increase the swap space.

Silicon Graphics

Use the following command to determine how much swap space you have:

```
/sbin/swap -s
```

This command shows you the configured, reserved, used, free, and available swap space. The used plus the available swap space is the amount that is on your system. If this sum is less than the minimum requirement, you should increase the swap space.

Sun SPARCstation

Sun Solaris 2.6

```
/usr/sbin/swap -s
```

This command shows you the configured, reserved, used, free, and available swap space. The used swap space plus the available swap space is the amount that is on your system. If this sum is less than the minimum requirement, you should increase the swap space.

User Accounts

This section describes steps for setting up user accounts that are necessary or helpful when running ERDAS IMAGINE software. Refer to the system and network administration manual for your workstation for more detailed information about setting up user accounts.

Using the documentation that accompanies the UNIX system, you (the system manager) must create user accounts. Every user of the workstation has a user name and a password for logging into the system. The user names and passwords are usually unique for each user.

Types of Access

You may allow the user of each account to access the files in certain directories in these ways:

• Read — to read or copy the file, but not change the original copy.

• Write — to change the file.

• Execute — to run an executable file.

ERDAS IMAGINE users must have read and write access to files in directory /tmp.

ERDAS IMAGINE on Root Menu

It might be helpful to add an option for running ERDAS IMAGINE software from the **root** menu (the menu that displays when the user clicks on the background). You can do this by modifying one of the following files in your home directory:

• .mwmrc file if you are using the Motif window manager

• .openwin-menu file if you are using the OpenLook window manager

Refer to your window manager manuals for instructions on modifying these files.

Preparation for Installation under UNIX

Setting Up Your Window Environment	Optionally, you can follow these instructions to configure your window environment for use with ERDAS IMAGINE.

Most users are running the Common Desktop Environment (CDE) window manager. All of the configuration options for the CDE window manager are controlled through the CDE Style Manager utility. If you are running the Motif or OpenLook window manager, you may want to make further additions to the .Xdefaults file in your home directory to customize ERDAS IMAGINE for your personal use. |
| **OpenLook Window Manager (olwm)** | The OpenLook window manager is configured using the following files in the user's home directory. Change or add the lines listed below as desired.

Add the following lines to the .Xdefaults files: |

```
OpenWindows.WindowColor:color of window frames
OpenWindows.WorkspaceColor:color of workspace background
```

Add the following line to the Programs section of the .openwin-menu file:

```
"Imagine... "            "<IMAGINE_HOME>/bin/imagine"
```

<IMAGINE_HOME> refers to the directory where IMAGINE software resides (e.g., /usr/imagine/840).

Motif Window Manager (mwm)

The Motif window manager is configured using the following files in the user's home directory. Change or add the lines listed below as desired.

NOTE: This information is also applicable to AIX Windows.

Add the following lines to the .Xdefaults file:

```
Mwm.background:        color of workspace background
Mwm.foreground:        color of inactive window frame
Mwm.activeForeground: color of active window frame
Mwm*keyboardFocusPolicy:pointer
Mwm*clientAutoPlace:  false
```

Add the following line to the Programs section of the .mwmrc file:

```
"Imagine..."          f.exec
"<IMAGINE_HOME>/bin/imagine"
```

<IMAGINE_HOME> refers to the directory where ERDAS IMAGINE software resides (e.g., /usr/imagine/840).

HP VUE

If you want to configure HP VUE to function more like Motif, make one or more of the following changes:

• Add the following line to the .vueprofile file:

```
source $HOME/.cshrc
```

- Add the following line to the .cshrc file:

  setenv XENVIRONMENT $HOME/.Xdefaults

- Add the following line to the .Xdefaults file:

  Vuewm*clientAutoPlace: False

Silicon Graphics

If you wish, you may use the Motif window manager in lieu of the Silicon Graphics 4Dwm window manager. Motif Window Manager is NOT provided with IRIX; you must acquire and install this software separately.

If you are using 4Dwm and you don't want to interactively place your icons, add the following line to your .Xdefaults file in your home directory.

  *interactivePlacement: false

If you want to start the Motif window manager (mwm) instead of the 4Dwm, place the following set of lines in the .xsession file in your home directory.

  # /usr/bin/X11/xterm &
  # exec /usr/bin/X11/mwm (as the last line of the file)

You must remove the .xsession file before you can use the Silicon Graphics window manager (4Dwm).

Perform the following steps to prepare IRIX for use with ERDAS IMAGINE.

1. Run the following program to configure parameters for your system:

    # /usr/sbin/systune -i

    This program comes with IRIX.

2. Enter the following command at the systune prompt:

    systune-> **resource**

3.   Messages similar to the ones below displays:

```
rlimit_rss_max = 536870912 (0x20000000)
rlimit_rss_cur = 27787264 (0x1a80000)
rlimit_vmem_max = 536870912 (0x20000000)
rlimit_vmem_cur = 536870912 (0x20000000)
rlimit_nofile_max = 2500 (0x9c4)
rlimit_nofile_cur = 100 (0x64)
rlimit_core_max = 2147483647 (0x7fffffff)
rlimit_core_cur = 2147483647 (0x7fffffff)
rlimit_stack_max = 536870912 (0x20000000)
rlimit_stack_cur = 67108864 (0x4000000)
rlimit_data_max = 536870912 (0x20000000)
rlimit_data_cur = 536870912 (0x20000000)
rlimit_fsize_max = 2147483647 (0x7fffffff)
rlimit_fsize_cur = 2147483647 (0x7fffffff)
rlimit_cpu_max = 2147483647 (0x7fffffff)
rlimit_cpu_cur = 2147483647 (0x7fffffff)
```

Make sure that the resource **rlimit_nofile_cur** is set to 200.

4.   ERDAS IMAGINE may work with less than 200, however, we are not sure where the breakpoint is located. If the resource is not 200, use the following command to set it:

   systune-> **rlimit_nofile_cur 200**

5.   The following message displays:

   rlimit_nofile_cur = 100 (0x64)

6.   Do you really want to change rlimit_nofile_cur to 200 (0xc8)? (y/n) **Y**

   Y = The rlimit_nofile_cur is changed to 200.

   N = The rlimit_nofile_cur is not changed.

   Enter **Y** to change the limit.

7.   Reboot your system using the following command:

   # /etc/reboot

   NOTE: All of the above steps require **root** authority.

HP 9000

Perform the following steps to prepare HP-UX for use with ERDAS IMAGINE.

1.   Run the System Administration Manager to configure parameters for your system:

   # /usr/sbin/sam

2.   Select **Kernel Configuration** from the SAM Areas.

3.   Select **Configurable Parameters** from the next list of areas.

4.   Find the parameters named *maxfiles* and *maxfiles_lim*. The default values are 60 and 1024 respectively. The *maxfiles* parameter needs to be at least 200. The *maxfiles* parameter cannot be greater than *maxfiles_lim*, so if the *maxfiles_lim* parameter is less than 200, it also needs to be changed.

5.   For IMAGINE IFSAR DEM, change the *maxdsiz* parameter to at least 256 MB. The default is 64 MB.

6.   To change the value of a parameter, double-click on it (if you are running SAM under X Windows), or select the parameter and perform **Actions -> Modify Configurable Parameter** from the main menu. Then enter the new value in the **Formula/Value** field and select **OK**. For *maxdsiz,* enter the value 256 MB, which is 0X10000000.

7.   Once the parameters are properly set you must apply them. To do so perform **Actions -> Process New Kernel** from the main menu. The following message appears:

```
Are you sure you want to process your kernel modifications now?
A new kernel may need to be compiled and moved into place, and
your system rebooted, to make these kernel changes take effect.
```

8.   Select **Yes**. Processing the new kernel may take a few minutes. Once it is done processing, another dialog appears:

```
The new kernel you have just created must be moved into place
prior to shutting down or rebooting the system.
```

9.   Make sure that **Move Kernel Into Place and Shutdown/Reboot System Now** is selected, and that **Overwrite /stand/system** is checked. Then select **OK**. A final prompt appears:

```
The newly created configuration file is copied to /stand/system.
Any comments in that file are lost because SAM cannot preserve
them.
```

10.   Selecting **OK** causes the system to reboot with the new parameters.

*NOTE: All of the above steps require **root** authority.*

IBM RS/6000

ERDAS IMAGINE requires the asynchronous I/O device. To make the device available, follow these steps:

1. Run the command:

   ```
   # /usr/sbin/chdev  -l  aio0  -a  autoconfig='available'
   ```

2. Reboot the system using the following command:

   ```
   # /usr/sbin/reboot
   ```

   *NOTE: Both of the above steps require **root** authority.*

ERDAS Software Security

This section gives you an overview of the ERDAS IMAGINE software security system, so that while you are installing ERDAS IMAGINE you have a better understanding of the process.

ERDAS IMAGINE software security is based on the concept of a license broker, which is a program that is always running on at least one workstation on the network. This program is named **erdmaster**. It secures all copies of ERDAS IMAGINE software that operate on the network.

The license broker workstation is the machine on which the ERDAS IMAGINE security program, **erdmaster**, operates. You are installing security codewords given to you by ERDAS onto this workstation. These codewords protect the software against unauthorized use and determine the following:

- which modules you can use
- the number of users
- when, or if, the modules expire

All ERDAS IMAGINE programs communicate with **erdmaster** via sockets, which are automatically provided on all ERDAS IMAGINE-supported workstations. Sockets provide network communications between programs on workstations within the network.

*You need to determine on which workstation the ERDAS IMAGINE security program, **erdmaster**, resides before you begin installing ERDAS IMAGINE software. If you install the security program on the same workstation where you install the software, then the installation process is easier.*

Refer to "CHAPTER 13: Security System"for more detailed information about the ERDAS IMAGINE software security system.

Installation Instructions

There are two different sets of instructions for installing ERDAS IMAGINE:

- standard installation
- advanced installation

NOTE: The standard installation process is easier than the advanced installation process.

Standard Installation   You should follow the instructions in"CHAPTER 11: Standard CD-ROM Installation" if:

- you are installing the software from the **root** account.

- you are installing the software on a stand-alone system (one workstation) that is not connected to a network <u>or</u> on a system that is connected to a network with a local CD-ROM drive.

- you are installing the security program, **erdmaster**, on this system. If you do not want to install **erdmaster** on this system, you need to follow the instructions in "CHAPTER 12: Advanced CD-ROM Installation".

Local CD-ROM

Installing ERDAS IMAGINE on this workstation

Installing erdmaster on this workstation

Stand-Alone System
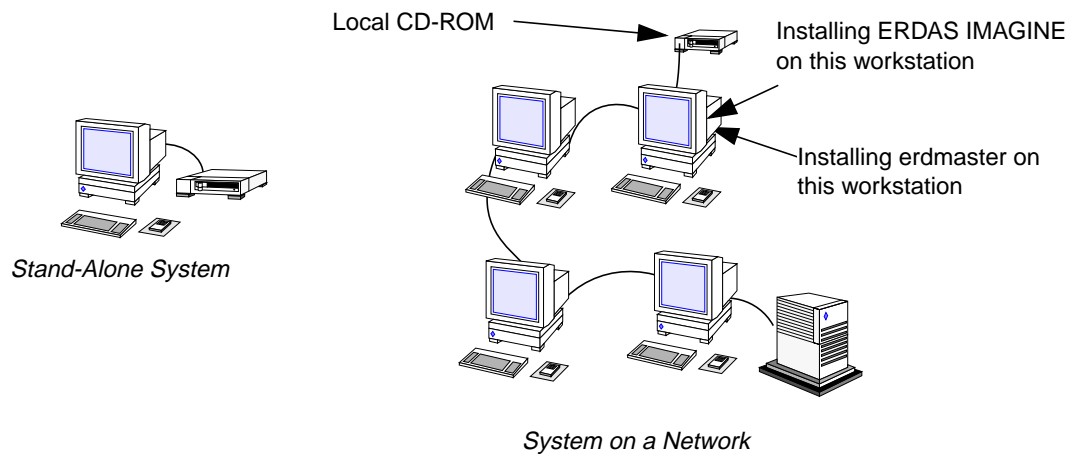
System on a Network

Advanced Installation   You must follow the instructions in "CHAPTER 12: Advanced CD-ROM Installation" if:

- you are not installing the software from the **root** account.

- you are installing the software on a system that is connected to a network with a remote CD-ROM.

- when you do not install the security program, **erdmaster**, on the system where you are installing ERDAS IMAGINE software.

System on a Network
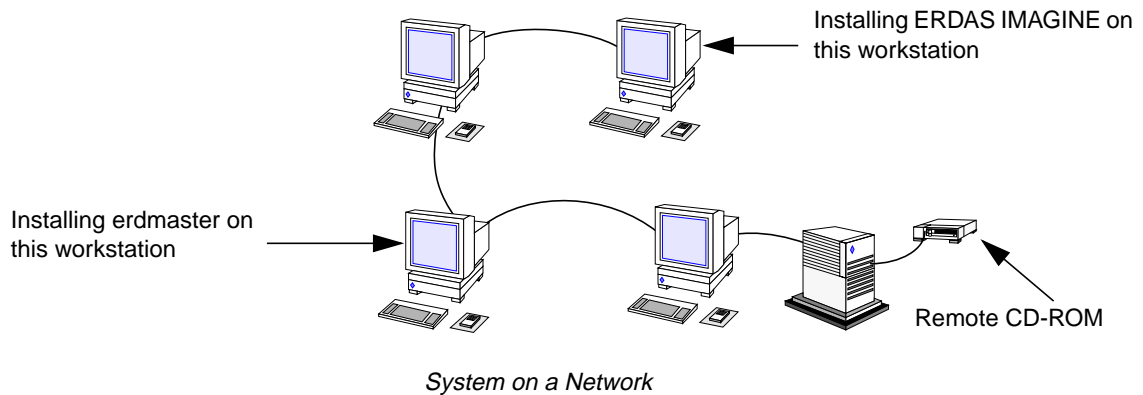
Security Codewords The ERDAS IMAGINE software security system uses security codewords to protect the software against unauthorized use. ERDAS IMAGINE software can be installed before you request the security codewords. However, these codewords must be installed in order for you to access the ERDAS IMAGINE software modules. To receive your codewords, you need to completely fill in the Security Codeword Request Form located in the Important Information material, then fax, e-mail, or mail it to ERDAS Codeword Support. You can also access and complete the Security Codeword Request Form via the ERDAS web site (www.erdas.com).

Please allow ERDAS up to 24 hours for processing your security codewords. The codewords can be sent to you by fax, mail, or e-mail. No codewords can be issued by phone.

Please read the Security Codeword Policy and fill out the Security Codewords Request Form to obtain your codewords. Both of these items are located in the Important Information material.

Please submit a separate Security Codewords Request Form for each host for which you are requesting codewords.

ERDAS IMAGINE V8.3 users: *If you have IMAGINE V8.3 you need to receive new codewords for IMAGINE V8.4. The security broker for IMAGINE V8.4 recognizes the codewords used with IMAGINE V8.3 and the new IMAGINE V8.4 codewords. If you are working with both versions of IMAGINE, use the security broker from V8.4. During installation, enter your V8.4 codewords first and then enter your V8.3 codewords.*

Generate System ID   ERDAS Codeword Support must have your system ID in order to generate your security codewords. Your system ID is automatically displayed during the installation process. If for some reason you need to request your security codewords before you install ERDAS IMAGINE, you should follow the instructions below. These instructions show you how to generate your system ID before you install ERDAS IMAGINE.

See the "Security Codewords" section in "CHAPTER 11: Standard CD-ROM Installation" or "CHAPTER 12: Advanced CD-ROM Installation" for information on installing your codewords.

Submitting an incorrect system ID on your request form may subject you to a charge for a CPU change (see the Security Codeword Policy included in your Important Information material). We strongly urge you to use the system ID generated during the installation process or the <IMAGINE_HOME>/install/showsysid command we provide after the installation for your platform. ERDAS offers no additional support for the instructions below.

Preparation for Installation under UNIX

Showsysid Instructions   If you have access to the ERDAS IMAGINE CD-ROM, you can use the utility **showsysid** to generate your system ID number. Follow these steps:

1.   Mount the CD-ROM using the directions in "CHAPTER 11: Standard CD-ROM Installation" or"CHAPTER 12: Advanced CD-ROM Installation".

2.   Determine your system architecture type by consulting the list below:

  - decosf for Compaq AlphaStation workstations
  - hp700 for HP 9000 workstations
  - rs6000 for IBM RS/6000 workstations
  - sgi for Silicon Graphics workstations
  - sun4sol for Sun SPARCstations using Solaris 2.6 or 2.7

3.   Run the following command:

```
# <cd Mount Point>/contents/bin/<ARCH>/showsysid
```

Where **<cd Mount Point>** represents the mount point of the CD-ROM file system and **<ARCH>** represents the architecture type determined in step 2.

Non-showsysid Instructions   Depending on the type of your platform, perform the following steps to generate your system ID before you begin the installation process. Please follow these instructions carefully.

<IMAGINE_HOME> refers to the directory where ERDAS IMAGINE software resides.

NOTE: This ID number is automatically generated during the installation process.

Compaq AlphaStation

Log in as **root** and run the following command. Use the 12 digits that follow the string "_hardware address" for your system ID (ignore the dashes that appear between the digits):

```
/usr/sbin/uerf -R -r 300 | grep "_hardware address"
```

After the installation process, you may use the <IMAGINE_HOME>/install/showsysid command to generate your system ID.

These instructions apply only to workstations that have only one Ethernet address. Other configurations must use the system ID generated from the installation process.

HP 9000

Log in to the **root** account and then run the following command, using the last twelve digits under the column labeled **Station Address** for your system ID:

```
/etc/lanscan
```

After the installation process, you may use the <IMAGINE_HOME>/install/showsysid command to generate your system ID.

These instructions apply only to workstations that have only one Ethernet address. Other configurations must use the system ID generated from the installation process.

IBM RS/6000

Use the twelve digits returned from the following command for your system ID:

```
/usr/bin/uname -m
```

When you get the system ID, convert the first two and last two characters to **fd**. This is the number that you report to ERDAS to get your security codewords. After the installation process, you may use the <IMAGINE_HOME>/install/showsysid command.

Silicon Graphics

Use the first eight digits from the following command for your system ID:

```
/etc/sysinfo
```

After the installation process, you may use the <IMAGINE_HOME>/install/showsysid command to generate your system ID.

Sun SPARCstation

Sun Solaris 2.6 or 2.7

Run the following command and use these eight digits for the hostid as your system ID:

```
/usr/ucb/hostid
```

After the installation process, you may use the <IMAGINE_HOME>/install/showsysid command to generate your system ID.

CHAPTER 11
Standard CD-ROM Installation

Local CD-ROM ⟶ ☐ Installing ERDAS IMAGINE on this workstation

Installing erdmaster on this workstation

Stand-Alone System

System on a Network
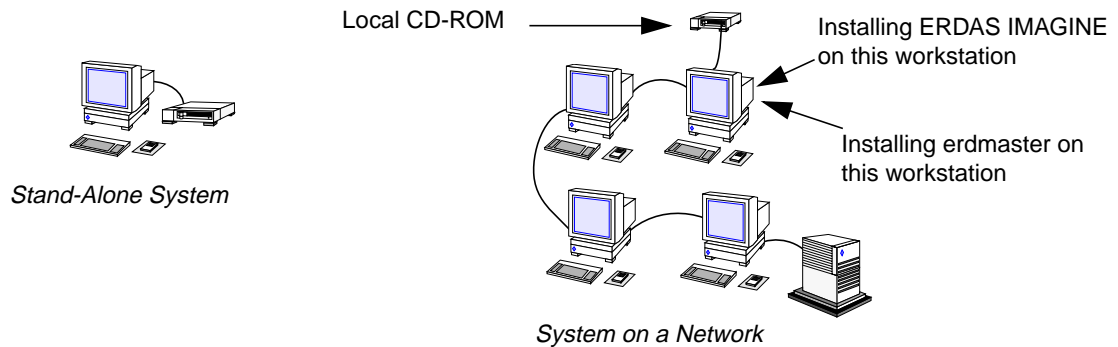
Standard vs. Advanced Installation

This section contains the steps for installing ERDAS IMAGINE software on a UNIX workstation.

Standard Installation

If you are installing the software on a stand-alone system (one workstation), or on a system on a network with a local CD-ROM drive, then follow the instructions in this chapter. When you follow the Standard CD-ROM Installation instructions, you need to have access to the **root** account and install the security program, **erdmaster**, on the same workstation where you are installing ERDAS IMAGINE software. If the configuration is other than this, or if you have a remote CD-ROM drive, then you need to follow the instructions in "CHAPTER 12: Advanced CD-ROM Installation".

Advanced Installation

If you are installing the software on a workstation that is connected to a network and you are using a remote CD-ROM drive, you must follow the instructions in "CHAPTER 12: Advanced CD-ROM Installation". You must also follow these instructions if you are installing the security program, **erdmaster**, on a different workstation from where you are installing ERDAS IMAGINE software, or if you are not installing ERDAS IMAGINE from the **root** account.

The proper user accounts must already be configured. You must have at least one user account that can access ERDAS IMAGINE software. See "CHAPTER 10: Preparation for Installation under UNIX" for information on setting up user accounts.

Standard CD-ROM Installation

System Architecture
The phrase <system architecture> is used in examples throughout this manual. This phrase is replaced by the actual name of your system architecture in the installation prompts and diagnostic messages. This is a list of all of the system architectures that are supported by ERDAS IMAGINE:

- decosf for Compaq AlphaStation workstations

- hp700 for HP 9000 workstations

- rs6000 for IBM RS/6000 workstations

- sgi for Silicon Graphics workstations

- sun4sol for Sun SPARCstations using Solaris 2.6 or 2.7

Setup for Installation
A CD-ROM drive must be installed on your system, and the ERDAS IMAGINE installation CD must be inserted properly in the CD-ROM drive.

On each UNIX workstation, there is an account called the **root** account. To install ERDAS IMAGINE software with the Standard Installation process, you must know the password (if any) to the **root** account, and gain access to the **root** account.

*NOTE: If you do not want to install ERDAS IMAGINE software from the **root** account, you must follow the instructions in"CHAPTER 12: Advanced CD-ROM Installation"*

1. Log in to the **root** account.

   ```
   login: root
   ```

2. Check to see if **erdmaster** is running: ps -aux | grep erdmaster

All Other Workstations

```
ps -ef | grep erdmaster
```

3. If **erdmaster** is running, kill it:

   ```
   kill -9 <pid>
   ```

Mount the CD-ROM
The mounting instructions are slightly different for each platform. Follow the instructions below for the platform on which you are installing, then go to "Run Install Program" on page 126.

Compaq AlphaStation

4. Enter the following commands to be able to run the installation programs from a CD-ROM drive. If you do not already have a <mount point> directory, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

   ```
   # mkdir <mount point>

   # mount -r -t cdfs -o noversion,rrip <device name> <mount
   ```

```
                        point>

                        # cd <mount point>
```

Example: # mkdir /cdrom
             # mount -r -t cdfs -o noversion,rrip /dev/rz4c /cdrom
             # cd /cdrom

Follow the instructions under "Run Install Program" on page 126.

HP 9000

4.   Enter the following commands to be able to run the installation programs from a CD-ROM drive. If you do not already have a <mount point> directory, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

HPUX 11.00

```
                        # mkdir <mount point>

                        # mount -r -F cdfs <device name> <mount point>

                        # cd <mount point>
```

Example: # mkdir /cdrom
             # mount -r -F cdfs /dev/dsk/c1t2d0 /cdrom
             # cd /cdrom

Follow the instructions under "Run Install Program" on page 126.

IBM RS/6000

4.   Enter the following commands to be able to run the installation programs from a CD-ROM drive. If you do not already have a <mount point> directory, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

```
                        # mkdir <mount point>

                        # mount -v cdrfs -p -r <device name> <mount point>

                        # cd <mount point>
```

Example: # mkdir /cdrom
             # mount -v cdrfs -p -r /dev/cd0 /cdrom
             # cd /cdrom

Follow the instructions under "Run Install Program" on page 126.

Silicon Graphics   Some systems may have a **CD daemon** running to automatically mount a CD-ROM drive when a CD is inserted. On Silicon Graphics, the daemon is **mediad**. If your system is running a CD daemon, go to step 5.

4. Enter the following commands to be able to run the installation programs from a CD-ROM drive. If you do not already have a <mount point> directory, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

*NOTE: If the **mediad** daemon is running, the CD is mounted automatically. Omit this step and proceed to step 5.*

```
# mkdir <mount point>

# mount -o setx -t iso9660 <device name> <mount point>

# cd <mount point>
```

Example:
```
# mkdir /cdrom
# mount -o setx -t iso9660 /dev/scsi/sc1d6l0 /cdrom
# cd /cdrom
```

5. If *mediad* is running on your system, enter the following command to change directory to the mount point directory.

NOTE: The mount point directory may be different if your System Administrator has changed the default.

```
# cd /CDROM
```

Follow the instructions under "Run Install Program" on page 126.

Sun SPARCstation   Some systems may have a **CD daemon** running to automatically mount a CD-ROM drive when a CD is inserted. On Sun SPARCstations under Solaris 2.6 or 2.7, the daemon is **vold**. If your system is running a CD daemon, go to step 5.

4. Enter the following commands to be able to run the installation programs from a CD-ROM drive. If you do not already have a <mount point> directory, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

   NOTE: *If the **vold** daemon is running, the CD is mounted automatically. Omit this step and proceed to step 5.*

Sun Solaris 2.6 or 2.7

```
# mkdir <mount point>

# mount -r -F hsfs <device name> <mount point>

# cd <mount point>
```

Example: # mkdir /cdrom
           # mount -r -F hsfs /dev/sr0 /cdrom
           # cd /cdrom

5. If *vold* is running on your system, enter the following command to change directory to the mount point directory.

   NOTE: *The mount point directory may be different if your System Administrator has changed the default.*

```
# cd /cdrom/imagine840_u
```

Go to step 1. on page 126.

Run Install Program

1. Now that you have access to the installation programs from the CD, you are ready to use them to install the software. To install ERDAS IMAGINE software, enter this command:

> # **./install.cd**

2. As the installation program begins, a welcome message is displayed:

```
Welcome to the IMAGINE installation script.

During the installation procedure, if you want to create
a shell for your use, enter an exclamation point (!) in
response to any prompt. On exit from the shell, the last
prompt displayed before the shell was created will be re-
displayed for you to answer.

Also, if a prompt has a default response, this response
will be displayed in brackets (e.g., [default value]).
This default value can be selected simply by hitting
RETURN.

Press RETURN to continue...
```

If you are prepared to continue with the installation, press Return. Otherwise, you may cancel the installation by pressing Control-C.

3. Please enter the mount point for the CDROM: [/cdrom]: **/cdrom**

The mount point must be the directory that was created in step 4. above, or the directory created automatically by the **CD daemon**. Press Return to accept the default.

4. The license agreement message appears:

```
Please read the license file located in:

cdrom/license.txt.

By proceeding with installation, you agree to be bound
by the TERMS AND CONDITIONS set by this license.
```

5. Enter **Y** to continue or **N** to exit. Please enter the installation directory name: [/usr/imagine] **/usr/imagine**

Enter the name of the directory where ERDAS IMAGINE software is installed, such as /usr/imagine. This directory is created if it does not already exist, then a subdirectory is created within this directory with the ERDAS IMAGINE version number as its name (e.g., /usr/imagine/840). ERDAS IMAGINE is loaded into this subdirectory. This prevents you from overwriting a previous version of ERDAS IMAGINE (e.g., V8.3) on your system.

While the directory is being created, the following message displays:

```
Created <install directory>/840
```

NOTE: Throughout the rest of this manual, <IMAGINE_HOME> refers to the location of the subdirectory that was created (e.g., /usr/imagine/840). This is where ERDAS IMAGINE software resides.

Selecting Modules   Follow the instructions below to select the modules to install.

6.   A screen displays similar to the one below, listing the modules that you may install.

If any modules have already been installed in the specified installation directory, an **X** appears before the name of the module. An **A** indicates that the module is available for installation, and an **I** indicates that the module is not available on the media, but has already been installed in the specified directory.

```
Please wait...searching for installable modules in
directory /cdrom
```

Table 11-1 Installable Modules

data	decosf	gnrl	hp700	rs6000	sgi	sun4sol				
A	A	A	A	A	A	A				1. IMAGINE Essentials
	A	A	A	A	A	A				2. IMAGINE Vector
A	A	A	A	A	A	A				3. IMAGINE Advantage
A	A	A	A	A	A	A				4. IMAGINE Radar Interpreter
A	A	A	A	A	A	A				5. IMAGINE Professional
A	A	A	A	A	A	A				6. IMAGINE VirtualGIS
	A		A	A	A	A				7. IMAGINE LZW
A	A	A	A	A	A	A				8. IMAGINE StereoSAR DEM
A	A	A	A	A	A	A				9. IMAGINE IFSAR DEM
A	A	A	A	A	A	A				10. IMAGINE OrthoRadar

Table 11-1 Installable Modules (Continued)

data-	decosf-	gnrl-	hp700-	rs6000-	sgi-	sun4sol-				
	A	A	A	A	A	A				11. IMAGINE Remote Services
										12. IMAGINE Install ALL Modules
										13. ABORT INSTALLATION

The above modules may be installed. An **X** in the key at the left indicates that the particular fileset of the given module has already been installed in the selected installation directory and that same fileset is also available on the installation medium. An **A** in the key indicates that the fileset is available on the installation medium, but has not yet been installed.Finally, an **I** in the key indicates that the fileset is not available on the current installation medium, but has been installed in the installation directory (/usr/imagine).

Select the module(s) you wish to install by specifying the product's number separated by spaces (e.g., 1 3 4): [2 5]

NOTE: You should select only the modules for which you have a license. The security program prevents you from running unlicensed modules. Installing unlicensed modules needlessly consumes disk space.

*NOTE: Selecting the **IMAGINE Install ALL Modules** does not install the **IMAGINE Remote Services** module because its components are included with IMAGINE Essentials. If you wish to install it in addition to all of the others, you must specify both the **IMAGINE Install ALL modules** product number and the **IMAGINE Remote Services** product number.*

Essentials Module

The IMAGINE Essentials module is required to run any ERDAS IMAGINE module.

Advantage Module

When you load the IMAGINE Advantage module, the IMAGINE Essentials module is also automatically loaded. Both of these filesets are required to run the IMAGINE Advantage module.

Professional Module

When you load the IMAGINE Professional module, the IMAGINE Essentials, IMAGINE Advantage, and IMAGINE Radar modules are also automatically loaded. All of these filesets are required for, or included in, the IMAGINE Professional module.

7.   After you select the modules to load, a screen similar to the one below displays:

```
The following modules were selected...

                    IMAGINE Essentials
                    IMAGINE Vector
                    IMAGINE Advantage
                    IMAGINE Radar Interpreter
                    IMAGINE Professional
                    IMAGINE Remote Services


*** Be aware that you will only be able to use those  ***
*** modules for which you have obtained security      ***
*** codewords. Installing unsecured modules will only ***
*** consume disk space unnecessarily                  ***

Are these the modules you want to install? [Y]
```

Y = These are the modules to be installed. Go to step 8.

N = These are not the modules to be installed. Repeat step 6.

8. A message similar to the following explains the different types of filesets and allows you to select those you wish to install. The default selection list shows the current system architecture. You may also select other system architectures that are displayed in the module selection screen (step 6.).

```
Each module is packaged into separately installable
filesets. The 'gnrl' fileset for each module contains
architecture independent files for that module. This
fileset should be installed if this is the first time the
module is being installed. The 'data' fileset contains
sample data for the module and is not required. The other
valid fileset types contain architecture specific files
for one of the supported IMAGINE architectures.You should
choose the type(s) appropriate for the workstation(s) on
which you will be running IMAGINE.

Which fileset types do you wish to install? [gnrl hp700
data]
```

If you are installing ERDAS IMAGINE for the first time, then you should install the gnrl fileset, the data fileset, and the architecture specific fileset (e.g., hp700).

Disk Space

9. The following message informs you of the amount of disk space that is consumed:

```
Installing the current module/fileset selection will
consume an additional <XXX> kilobytes of disk space.

Do you wish to proceed with the current module/fileset
selection? [Y]
```

Y = The installation process proceeds.

N = Do not proceed with this module/fileset selection. Return to step 6.

If there is not enough disk space to load the modules you selected, then the following message displays:

```
This may exceed the free disk space available in the file
system in which the installation directory resides!!!
```

You need to free up more disk space before you proceed.

10. After several seconds, messages similar to the ones below displays while the modules are unloading from the CD. The modules are decompressed as they are transferred from the CD. You cannot use any of the modules until you complete the installation and security system process.

```
Uncompressing/de-archiving imess_gnrl...
Uncompressing/de-archiving imess_hp700...
Uncompressing/de-archiving imess_data...
Uncompressing/de-archiving imvect_gnrl...
Uncompressing/de-archiving imvect_hp700...
Uncompressing/de-archiving imadvan_gnrl...
Uncompressing/de-archiving imadvan_hp700...
Uncompressing/de-archiving imradar_gnrl...
Uncompressing/de-archiving imradar_hp700...
Uncompressing/de-archiving imradar_data...
Uncompressing/de-archiving imtool_gnrl...
Uncompressing/de-archiving imtool_hp700...
Uncompressing/de-archiving improf_gnrl...
Uncompressing/de-archiving improf_hp700...
Uncompressing/de-archiving improf_data...
Uncompressing/de-archiving imremsv_gnrl...
Uncompressing/de-archiving imremsv_hp700...
*** Beginning customization of imess_gnrl ...
```

NOTE: The actual messages displayed depends upon the modules installed.

11. The following prompt enables you to copy global configuration information from another installed version of ERDAS IMAGINE (e.g., ERDAS IMAGINE V8.3).

```
Would you like to copy initial configuration information
from another installed version of IMAGINE? [Y]
```

If you answer **Y**, the following prompt displays:

```
From which IMAGINE_HOME would you like to copy the
configuration information?
```

If you are installing ERDAS IMAGINE V8.4 in the same directory that you used for ERDAS IMAGINE V8.3, IMAGINE_HOME for ERDAS IMAGINE V8.3 displays as the default. Otherwise, you have to provide the full path name of the directory that serves as IMAGINE_HOME for ERDAS IMAGINE V8.3 (including the 830 subdirectory).

The following files (if they exist) are copied from your ERDAS IMAGINE V8.3 installation to your ERDAS IMAGINE V8.4 installation:

<IMAGINE_HOME>/defaults/v8preference
<IMAGINE_HOME>/etc/*.cfg
<IMAGINE_HOME>/etc/*tablet*
<IMAGINE_HOME>/etc/*.cbl

If you answer **N**, you may manually copy one or more of the configuration information files listed above from the 830 directory to the 840 subdirectory.

Security Configuration

12. The following screen displays, allowing you to specify where the security program, **erdmaster**, is installed:

```
Configuring IMAGINE security software...

Enter the network node name on which the IMAGINE security
license broker will reside:
```

Enter the hostname of your workstation.

For more information about the ERDAS IMAGINE software security system, refer to "CHAPTER 10: Preparation for Installation under UNIX" or "CHAPTER 13: Security System".

13. Your system identification number displays on the screen, as shown below:

```
Your system ID number is

                System identification number:
080009f0468f

Please write this system identifier on your Security
Codewords Request Form.

To obtain the necessary security codewords to secure this
system, follow the instructions on your Security
Codewords Request Form. This form is located in the
Important Information material.

Press RETURN to continue...
```

The system ID is a 12-digit hexadecimal number (i.e., a sequence of digits 0 through 9 and characters "a" through "f").

Write down your system ID number on the Security Codewords Request Form located in the Important Information material.

ERDAS IMAGINE V8.3 users: If you have ERDAS IMAGINE V8.3 you need to receive new codewords for ERDAS IMAGINE V8.4. The security broker for ERDAS IMAGINE V8.4 recognize the codewords used with ERDAS IMAGINE V8.3 and the new ERDAS IMAGINE V8.4 codewords. If you are working with both versions of ERDAS IMAGINE, use the security broker from V8.4. During installation, enter your V8.4 codewords first and then enter your V8.3 codewords.

Security Codewords

14. Send the Security Codewords Request Form to ERDAS Codeword Support via the ERDAS web site (www.erdas.com), fax, e-mail, or mail to receive your security codewords. These codewords protect the software against unauthorized use by determining which modules you can use, the number of users, and the expiration date for the modules.

    NOTE: It may take ERDAS up to 8 business hours to process your security codewords.

15. After the security system is installed, the following screen displays, explaining how to enter the security codewords.

```
The security codewords you received from ERDAS are placed
into the file

                    <IMAGINE_HOME>/etc/erdas_codewords

with the program <IMAGINE_HOME>/install/enter_codewd.

If you have obtained your system's security codewords
from ERDAS, you may run the codeword entry program now
by answering 'Y' at the next prompt.

If you have not yet obtained your codewords, answer 'N'
at the next prompt and run
<IMAGINE_HOME>/install/enter_codewd at a some later
time, but before running IMAGINE.

Do you wish to enter your codewords now? [Y]
```

Y = You have received the security codewords from ERDAS Codeword Support and you are ready to enter them into the system. Proceed to step 16.

N = You have not received the security codewords from ERDAS Codeword Support, but you would like to continue with the customization of ERDAS IMAGINE. You may enter the codewords at a later time. Go to step 17.

16. A screen displays, similar to the one below, asking you to enter the security codewords that you received from ERDAS. These codewords protect the software against unauthorized use.

```
*** IMAGINE Security Codeword Entry/Edit Program ***

Enter new codeword and press RETURN
(To exit, just press RETURN): V2HZBQ49HZHZ4NM27
```

The following message displays after the codewords have been entered:

```
Codeword entry program complete.
```

If you want to run ERDAS IMAGINE V8.3 along with ERDAS IMAGINE V8.4, you must enter those codewords after you enter the V8.4 codewords. Please see "CHAPTER 13: Security System" for step-by-step instructions on how to set up your system correctly.

NOTE: The following steps may be out of sequence in the installation process for your platform.

**Convert International
Fonts**

17. The following prompt enables you to convert the international fonts available in
ERDAS IMAGINE to a form suitable for the X Server.

```
This script will convert the .bdf fonts on
<IMAGINE_HOME>/etc/fonts into a format suitable for the
X Server on the <system architecture> architecture.

Do you wish to continue? [Y]
```

N = You are not using the international fonts (Hebrew, Greek, Russian, etc.) in ERDAS
IMAGINE, therefore you do not want to convert them.

Y = You do want to convert the fonts. The following prompt displays.

*Compaq AlphaStation
HP 9000
Silicon Graphics*

Please enter the directory containing the font building tools 'bdftopcf' and
'mkfontdir': [/usr/bin/X11]

Press Return to accept the displayed default.

IBM RS/6000

*NOTE: This platform requires the X11.fnt.util LPP from the AIX 4 CD-ROM. If this LPP is
not installed this step fails, but ERDAS IMAGINE still runs.*

Please enter the directory containing the font building tools 'bdftopcf' and
'mkfontdir': [/usr/lpp/X11/bin]

Press Return to accept the displayed default.

Sun SPARCstation

Sun Solaris 2.6 or 2.7

Please enter the directory containing the font building tools 'bdftopcf' and
'mkfontdir': [<OPENWINHOME>/bin]

The default that displays are <OPENWINHOME>/bin, /usr/openwin/bin, or no
default if <OPENWINHOME> is not defined and /usr/openwin/bin does not exist.

If there is a problem converting the fonts, an error message displays. You can convert
the fonts manually by running the <IMAGINE_HOME>/bin/setup_fonts script.

**Automatic CD-ROM
Mounting**

ERDAS IMAGINE software automatically mounts a CD-ROM if your system has this
capability.

📖 _____

See "CHAPTER 20: CD-ROM Device" for information on configuring your CD-ROM device so that it can be accessed by ERDAS IMAGINE software.

18. The following message displays as ERDAS IMAGINE verifies that your system can automatically mount a CD-ROM:

```
Checking automatic CDROM mounting capability
```

Capability Exists

If ERDAS IMAGINE is able to automatically mount a CD-ROM on your system, the following message displays:

```
Automatic CDROM mounting enabled on this system
```

Capability Does not Exist

If ERDAS IMAGINE is not able to automatically mount a CD-ROM on your system, the following message displays in addition to an error message:

```
IMAGINE may be unable to automatically mount CDROMs on
this system. Refer to the 'ERDAS IMAGINE 8.4 Installing
and Configuring' manual for further information.

Press RETURN to continue...
```

Standard CD-ROM Installation

19. The following message displays to inform you about setting up your system so that all users can access ERDAS IMAGINE software:

Once IMAGINE is installed, there are two ways that you
can set up your system so that all users can more easily
access IMAGINE.

In the first method, a symbolic link is created from
/usr/bin/imagine to $IMAGINE_HOME/bin/imagine. This
requires root user access to the /usr/bin directory and
presumes that '/usr/bin' is in the PATH of all users.

In the second method, an alias for 'imagine' must be
created in each user's environment (presumably in a
.login script).

In either case, you can always simply type

<IMAGINE_HOME>/bin/imagine

to start IMAGINE.

Do you wish to create a link in /usr/bin to the IMAGINE
startup script? [Y]

Enter the name of the IMAGINE root directory:
[<IMAGINE_HOME>]

Setting up link in /usr/bin to the IMAGINE main
program....

Configuring RasterFormats DLLs...

*** Customization of imess_hp700 complete.
*** Beginning customization of imess_data ...

Building image chips for example data...
Done.

*** Customization of imess_data complete.
*** Beginning customization of imradar_data ...
*** Customization of imradar_data complete.
*** Beginning customization of imtool_gnrl ...
*** Customization of imtool_gnrl complete.
*** Beginning customization of imtool_hp700 ...

Attempting to unpack toolkit include files...please wait

*** Beginning customization of improf_data ...
*** Customization of improf_data complete.
*** Beginning customization of imremsv_gnrl ...
*** Customization of imremsv_gnrl complete.
*** Beginning customization of imremsv_hp700 ...

This script converts the .bdf fonts in
<IMAGINE_HOME>/etc/fonts into a format suitable for the
X Server on the <system architecture> architecture.

20. The following message displays:

```
Do you wish to continue? [Y]
```

N = You are not using the international fonts (Hebrew, Greek, Russian, etc.) in ERDAS IMAGINE, therefore you do not want to convert them. Installation will be complete. **Y** = You do want to convert the fonts. The following prompt displays:

```
Please enter the directory containing the font building
tools 'bdftopcf' and 'mkfontdir': [/usr/bin/X11]
Created /usr/imagine/840/etc/fonts/hp700

*** Customization of imremsv_hp700 complete.


--------------------
Installation Report:
--------------------
IMAGINE Essentials was successfully installed.
IMAGINE Vector was successfully installed.
IMAGINE Advantage was successfully installed.
IMAGINE Radar Interpreter was successfully installed.
IMAGINE Toolkit Module was successfully installed.
IMAGINE Professional was successfully installed.
IMAGINE Remote Services was successfully installed.

Installation completed successfully
```

Running ERDAS IMAGINE V8.3 and 8.4

ERDAS IMAGINE V8.3 codewords cannot be used to secure ERDAS IMAGINE V8.4 software. If you wish to run ERDAS IMAGINE V8.3 and ERDAS IMAGINE V8.4 at the same time, there are two courses of action that may be followed:

- use different security broker nodes for ERDAS IMAGINE V8.3 and ERDAS IMAGINE V8.4 software.

- enter your ERDAS IMAGINE V8.3 codewords while setting up ERDAS IMAGINE V8.4 security and make sure that the ERDAS IMAGINE V8.4 license broker gets started before running ERDAS IMAGINE V8.3 software. (Make sure that the ERDAS IMAGINE V8.3 codewords are entered under the ERDAS IMAGINE V8.4 codewords while setting up ERDAS IMAGINE V8.4 security.)

If you want to be able to continue running ERDAS IMAGINE V8.3 after you have installed ERDAS IMAGINE V8.4, you need to perform the following steps.

NOTE: If your login shell is not C-shell, add the equivalent lines to your startup file.

1. Add two alias lines to the .cshrc file in your home directory on the system where you want to continue to run ERDAS IMAGINE V8.3. Open the .cshrc file and enter the following lines:

   `alias imagine83 '<IMAGINE_HOME for v.8.3>/bin/imagine'`

   `alias imagine84 '<IMAGINE_HOME for v.8.4>/bin/imagine'`

2. Save the .cshrc file, and log out (or source the new .cshrc file).

3. Use the appropriate alias to start up the version of ERDAS IMAGINE that you want to use.

   NOTE: These steps need to be repeated for every user that is running both ERDAS IMAGINE V8.3 and 8.4.

Starting ERDAS IMAGINE

To start ERDAS IMAGINE, type one of the following in a command window:

- **imagine**

- **imagine84** (if you have set up ERDAS IMAGINE V8.3 and V8.4, as described on page 138).

NOTE: The software runs in the background, allowing you to run other applications from that command window.

The ERDAS IMAGINE icon panel and a Viewer window opens.

If the installation was interrupted and/or some modules did not get properly customized, the following message appears when you start ERDAS IMAGINE:

```
WARNING: The customization for the following filesets has
         not yet been successfully completed. You may
         experience difficulties running IMAGINE. Please
         advise your IMAGINE system administrator of the
         problem.

         imtkrun_hp700 imlzw_hp700
```

To correct the problem and customize the modules, run the following program for each uncustomized module:

 # <IMAGINE_HOME>/bin/customize <module name>

And substitute the name of a module (such as imtkrun_hp700 or imlzw_hp700 in the example above) for <module name>.

Using IMAGINE On-Line Documentation

ERDAS IMAGINE On-Line Help manuals are accessed easily from the main icon panel by selecting **Help | IMAGINE Online Documentation...**. The Help menu is also available from the **Session** menu. When the On-Line Manuals title page is displayed, click on the **Manuals** button.

See the ERDAS IMAGINE Tour Guides manual for more information about the Help system.

Adding Another System

If you would like to run ERDAS IMAGINE on more than one system, then you must do the following steps on every workstation where you run ERDAS IMAGINE. Your license agreement from ERDAS states the number of systems on which you may run ERDAS IMAGINE concurrently. If you are not sure about how many licenses you have authorized, please call ERDAS Codeword Support at 404/248-9000.

<IMAGINE system> represents the workstation where you installed ERDAS IMAGINE software and <Added system> represents the other workstation where you want to run ERDAS IMAGINE software.

NOTE: For Silicon Graphics users, in order to add another system that uses the same installation, you should have installed the Network File System (NFS) Subsystem when you installed IRIX.

1. Log in to the <IMAGINE system> as **root**.

2. Make an appropriate entry in the /etc/exports or /etc/dfs/dfstab file to make files in the <IMAGINE_HOME> directory available to the <Added system> through the network file system (NFS).

    You may also use the following utilities to accomplish this:

    - HP - sam
    - IBM - smit
    - SGI - System Manager
    - Sun (Solaris only) - modify the /etc/dfs/dfstab file

3. Reboot the system.

4. Log in to the <Added system> as **root**.

5. **# mkdir <IMAGINE_HOME>**

    This command creates the directory <IMAGINE_HOME> to serve as the NFS mount point.

6. **# mount <IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME>**

    This step mounts the <IMAGINE_HOME> directory from the <IMAGINE system> onto the <Added system>'s <IMAGINE_HOME> directory.

Compaq AlphaStation

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE_HOME>@<IMAGINE system> <IMAGINE_HOME> nfs rw,bg,soft 0 0
```

HP 9000

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> nfs rw,soft,bg 0 0 16388
```

IBM RS/6000

Execute the command below and follow the instructions. Specify **both** for the question stating **MOUNT now, add entry to /etc/filesystems or both?** so that ERDAS IMAGINE is mounted every time you boot the system.

 # smit mknfsmnt

Silicon Graphics

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> nfs rw,soft,bg 0 0

Sun SPARCstation

Sun Solaris 2.6 or 2.7

Add the following line to the /etc/dfs/dfstab file so that ERDAS IMAGINE is mounted every time you boot the system:

<IMAGINE system>:<IMAGINE_HOME> - <IMAGINE_HOME> nfs rw yes -

7.   Perform the following commands to run the setup_system script.

```
# cd <IMAGINE_HOME>/install
```

```
# ./setup_system
```

You must do this on every workstation where you want to run ERDAS IMAGINE.

Refer to the Configuring portion for this manual if you would like to access a printer, plotter, or digitizer from the added platform.

Adding More Modules

If you would like to add another module after you have already installed ERDAS IMAGINE software, you need to do one of the following:

*   If you want to add a module that you selected in step 6. on page 127, but did not enter a security codeword for this module, then go to the "Module was Selected" section below.

*   If you want to add a module that you did <u>not</u> select in step 6. on page 127, then go to the "Setting Up Your System" section below.

Module was Selected

Run the ERDAS Security Codeword Entry/Edit Program (enter_codewd), and follow the instructions to enter the codeword for the <u>new</u> module.

```
# <IMAGINE_HOME>/install/enter_codewd
```

Replace <IMAGINE_HOME> with the location of the subdirectory where ERDAS IMAGINE was installed, for example /usr/imagine/840.

The new module is now secured and ready for use. Module was Not Selected

To add a module that was <u>not</u> loaded when you previously installed the software you need to do the following steps:

- Start at step 1. on page 122, and when you get to step 6., select <u>only</u> the module(s) you want to add.

- After you select the module(s), run the ERDAS Security Codeword Entry/Edit Program, enter_codewd, and follow the instructions to enter the codeword for the <u>new</u> module.

  ```
  # <IMAGINE_HOME>/install/enter_codewd
  ```

The new module is now secured and ready for use.

Error Messages

Refer to the Error Messages section at the end of "CHAPTER 13: Security System" if you get any error messages during the installation process.

CHAPTER 12
Advanced CD-ROM Installation

Installing ERDAS IMAGINE
on this workstation

Remote CD-ROM
drive

Installing *erdmaster* on
this workstation
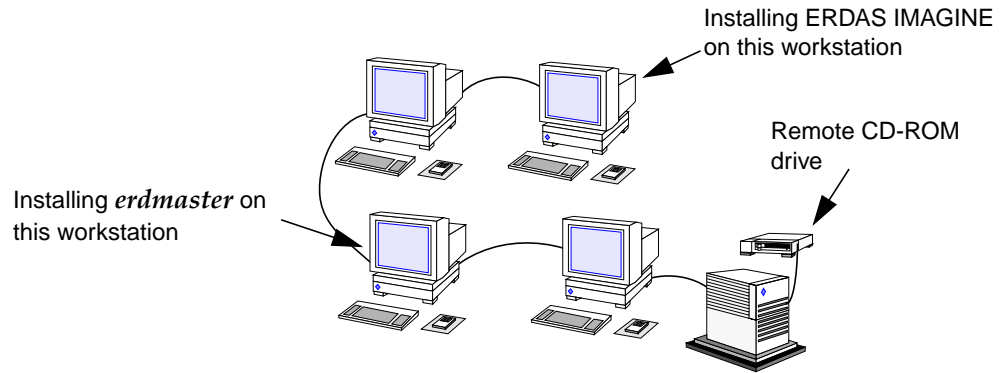
Advanced vs. Standard Installation

This section contains the steps for installing ERDAS IMAGINE software on a UNIX workstation.

Advanced Installation

If you are installing the software on a workstation that is connected to a network with a remote CD-ROM, you must follow the instructions in this chapter. You must also follow these instructions if you are installing the security program, **erdmaster**, on a different workstation from where you are installing ERDAS IMAGINE software, or if you are not installing the software from the **root** account.

Standard Installation

If you are installing the software on a stand-alone system (one workstation), or on a system on a network with a local CD-ROM drive, then you should follow the instructions in"CHAPTER 11: Standard CD-ROM Installation". When you follow the Standard Installation instructions, you need to have access to the **root** account, and install the security program, **erdmaster**, on the same workstation where you are installing ERDAS IMAGINE software. If the configuration you want is other than this, or if you have a remote CD-ROM drive, then you need to follow the instructions in this chapter.

NOTE: The Standard Installation process is easier.

The proper user accounts must already be configured. You must have at least one user account that may access ERDAS software. See "CHAPTER 10: Preparation for Installation under UNIX"for information on setting up user accounts.

Remote Services

ERDAS IMAGINE V8.4 includes a Remote Services module that enables you to install **erdmaster**, the security program, on a remote machine. This module also provides remote tape and print capabilities. For example, with this module installed, you can access a printer that is connected to another platform without having any other modules loaded on that platform. The remote platform must be a platform supported by ERDAS IMAGINE, and the device (tape drive or printer) that you are accessing must also be supported by ERDAS IMAGINE on that platform. Steps for installing this module are in "CHAPTER 23: Remote Services".

System Architecture

The phrase <system architecture> is used in examples throughout this manual. This phrase is replaced by the actual name of your system architecture in the installation prompts and diagnostic messages. This is a list of all of the system architectures that are supported by ERDAS IMAGINE:

- decosf for Compaq AlphaStation workstations

- hp700 for HP 9000 workstations

- rs6000 for IBM RS/6000 workstations

- sgi for Silicon Graphics workstations

- sun4sol for Sun SPARCstations using Solaris 2.6 or 2.7

Log in to Root or Non-root Account

It is not necessary to log in to the **root** account to install ERDAS IMAGINE software. However, depending upon your system, there may be certain preinstallation setup steps that require **root** user authority (e.g., mounting devices and file systems). Also, if you do not use the **root** account to install the software, you may not be able to create a link in the /usr/bin directory to the ERDAS IMAGINE startup script. (This step is not necessary to run ERDAS IMAGINE, but it allows you to provide ERDAS IMAGINE users with an easy way to access ERDAS IMAGINE without addressing each user individually.) For these reasons, it may be more convenient to install ERDAS IMAGINE software as the **root** user. Perform the step below if you would like to install ERDAS IMAGINE from the **root** account. Otherwise, log in to a different account on the system.

*Throughout the rest of this chapter any reference to the <HOME> directory refers to the login directory of the account you are using to install ERDAS IMAGINE software. If you are using the **root** account, <HOME> refers to /, the **root** directory.*

1. Log in to the **root** account.

   ```
   login: root
   ```

   On each UNIX system, there is an account called the **root** account. To install ERDAS IMAGINE software from the **root** account, you must know the password (if any) to the **root** account and gain access to the **root** account.

   Also, a CD-ROM drive must be installed on the network, and the ERDAS IMAGINE installation CD must be inserted properly into the CD-ROM drive.

2. Check to see if **erdmaster** is running:

All Other Workstations   **`ps -ef | grep erdmaster`**

   3.   If **erdmaster** is running, kill it:

          `kill -9 <pid>`

Access Install Program from a Local CD-ROM Drive

These commands are used when installing ERDAS IMAGINE on a local system with a CD-ROM drive connected.

Verify that the ERDAS IMAGINE CD/caddy has been properly inserted into the CD-ROM drive.

Some systems may have a **CD daemon** running to automatically mount a CD-ROM drive when a CD is inserted. On Sun Solaris 2.6 or 2.7 the daemon is **vold**; on Silicon Graphics it is **mediad**. If your system is running a CD daemon, go to step 5. on page 149.

   4.   If your system is <u>not</u> running a CD daemon, enter the following commands to be able to run the installation programs from a CD-ROM drive. If the <mount point> directory does not exist, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

          *NOTE: You may need to be logged in as **root** to perform these steps.*

Compaq AlphaStation

          `# mkdir <mount point>`

          `# mount -r -t cdfs -o noversion,rrip <device name> <mount point>`

          `# cd <mount point>`

Example: # mkdir /cdrom
           # mount -r -t cdfs -o noversion,rrip /dev/rz4c/cdrom
           # cd /cdrom

HP 9000

   HPUX 11.00

          `# mkdir <mount point>`

          `# mount -r -F cdfs <device name> <mount point>`

          `# cd <mount point>`

Example: # mkdir /cdrom
           # mount -r -F cdfs /dev/dsk/c1t2d0 /cdrom
           # cd /cdrom

Follow the instructions under "Run Install Program" on page 153.

Advanced CD-ROM Installation

IBM RS/6000

```
# mkdir <mount point>

# mount -v cdrfs -p -r <device name> <mount point>

# cd <mount point>
```

Example:
```
# mkdir /cdrom
# mount -v cdrfs -p -r /dev/cd0 /cdrom
# cd /cdrom
```

Go to step 1. on page 153 and follow the instructions under "Access Install Program from a Remote CD-ROM Drive".

Silicon Graphics

*NOTE: If the **mediad daemon** is running, the CD mounts automatically. Proceed to step 5.*

```
# mkdir <mount point>

# mount -o setx -t iso9660 <device name> <mount point>

# cd <mount point>
```

Example:
```
# mkdir /cdrom
# mount -o setx -t iso9660 /dev/scsi/sc1d6l0 /cdrom
# cd /cdrom
```

Go to step 1. on page 153 and follow the instructions under "Access Install Program from a Remote CD-ROM Drive".

Sun SPARCstation

Sun Solaris 2.6 or 2.7

*NOTE: If the **vold daemon** is running, the CD mounts automatically. Proceed to step 5.*

```
# mkdir <mount point>

# mount -r -F hsfs <device name> <mount point>

# cd <mount point>
```

Example:
```
# mkdir /cdrom
# mount -r -F hsfs /dev/sr0 /cdrom
# cd /cdrom
```

Follow the instructions under "Run Install Program" on page 153.

5. If your system <u>is</u> running a **CD daemon**, enter the following command to change directory:

NOTE: The mount point may be different if your System Administrator has changed the default. Therefore, the path specified below may be different for your system.

Compaq AlphaStation

HP 9000

IBM RS/6000   Not applicable - go to step 1. on page 153 and follow the instructions under "Access Install Program from a Remote CD-ROM Drive".

Silicon Graphics

```
# cd /CDROM
```

Follow the instructions under "Run Install Program" on page 153.

Sun SPARCstation

Sun Solaris 2.6 or 2.7

```
# cd /cdrom/imagine840_u
```

Follow the instructions under "Run Install Program" on page 153.

Access Install Program from a Remote CD-ROM Drive

These commands are used when installing ERDAS IMAGINE on a local system and the CD-ROM drive is connected to a remote system on the network. You need to do some steps on both systems. These instructions assume that the remote workstation is running the same operating system as the local workstation. If this is not the case, use the appropriate commands for the system in use.

*NOTE: These steps require the use of the network file system (NFS) on both systems (local and remote). You may need to be logged in as **root** to perform these steps.*

Verify that the ERDAS IMAGINE CD or caddy has been properly inserted into the CD-ROM drive.

Some systems may have a **CD daemon** running to automatically mount a CD-ROM drive when a CD is inserted. On Sun Solaris 2.6 or 2.7, the daemon is **vold**; on Silicon Graphics it is **mediad**. If your remote system is running a CD daemon, go to step 7.

6. If your remote system is <u>not</u> running a **CD daemon**, enter one of the commands, below, on the remote system to mount the CD-ROM. If the <mount point> directory does not already exist, you must create it. Replace <device name> with the name of the CD-ROM device file for your system.

Advanced CD-ROM Installation

Compaq AlphaStation

```
# mkdir <mount point>

# mount -r -t cdfs -o noversion,rrip <device name> <mount
point>

# cd <mount point>
```

Example: # mkdir /cdrom
                # mount -r -t cdfs -o noversion,rrip /dev/rz4c /cdrom
                # cd /cdrom

HP 9000

HPUX 11.00

```
# mkdir <mount point>

# mount -r -F cdfs <device name> <mount point>

# cd <mount point>
```

Example: # mkdir /cdrom
                # mount -r -F cdfs /dev/dsk/c1t2d0 /cdrom
                # cd /cdrom

IBM RS/6000

```
# mkdir <mount point>

# mount -v cdrfs -p -r <device name> <mount point>

# cd <mount point>
```

Example: # mkdir /cdrom
                # mount -v cdrfs -p -r /dev/cd0 /cdrom
                # cd /cdrom

Silicon Graphics

*NOTE: If the **mediad daemon** is running, the CD mounts automatically. Proceed to step 7.*

```
# mkdir <mount point>

# mount -o setx -t iso9660 <device name> <mount point>

# cd <mount point>
```

Example: # mkdir /cdrom
                # mount -o setx -t iso9660 /dev/scsi/sc1d6l0 /cdrom
                # cd /cdrom

Sun SPARCstation

> *Sun Solaris 2.6 or 2.7*
>
> NOTE: If the **vold daemon** is running, the CD mounts automatically. Go to step 8.
>
> ```
> # mkdir <mount point>
>
> # mount -r -F hsfs <device name> <mount point>
>
> # cd <mount point>
> ```

Example: # mkdir /cdrom
mount -r -F hsfs /dev/sr0 /cdrom
cd /cdrom

7. Verify that the export file on the remote machine contains an entry for the <mount point> with read-only permission, as in the examples below:

> **Sun Solaris 2.6 or 2.7 Only in export file /etc/dfs/dfstab**
> ```
> share -F nfs -o ro <mount point>
> ```
>
> **All other workstations in export file /etc/exports**
> ```
> <mount point>     -ro
> ```
>
> ⚠️ ──
> *If the export file was not already on this system, then you need to reboot the system.*

8. Use the following command on the remote system to export the /cdrom directory to your network:

Compaq AlphaStation   Not applicable - export is automatic. Proceed to step 9.

HP 9000

> *HPUX 11.00*
> ```
> # /usr/sbin/exportfs -a
> ```

IBM RS/6000

> ```
> # /usr/etc/exportfs -a
> ```

Silicon Graphics

> ```
> # /usr/etc/exportfs -a
> ```

Sun SPARCstation

> *Sun Solaris 2.6 or 2.7*
> ```
> # /usr/sbin/shareall
> ```

9. On the local system (the system where you are installing ERDAS IMAGINE) you need to create the <mount point> directory if it does not already exist.

    ```
    # mkdir <mount point>
    ```

10. Use the following command on the local system to mount the CD-ROM from the remote workstation. Replace <remote mount point> with the name of the mount point created on the remote machine in step 6. on page 149.

    ```
    # mount <remote hostname>:<remote mount point> <mount
    point>
    ```

    or if the remote machine was running a **CD daemon**,

Silicon Graphics with mediad

```
# mount <remote hostname>:/CDROM <mount point>
```

Sun SPARCstation Solaris 2.6 or 2.7 with vold

```
# mount <remote hostname>:/cdrom/imagine840_u <mount
point>
```

11. Use the command below to change directory on the local system.

    ```
    # cd <mount point>
    ```

    Follow the instructions under "Run Install Program" on page 153.

Run Install Program

1. Now that you have access to the installation programs from the CD, you are ready to use them to install the software. To install ERDAS IMAGINE software, enter this command:

```
# ./install.cd advanced
```

2. As the installation program begins, a welcome screen is displayed:

```
Welcome to the IMAGINE installation script.

During the installation procedure, if you want to create
a shell for your use, enter an exclamation point (!) in
response to any prompt. On exit from the shell, the last
prompt displayed before the shell was created will be re-
displayed for you to answer.

Also, if a prompt has a default response, this response
will be displayed in brackets (e.g., [default value]).
This default value can be selected simply by hitting
RETURN.

Press RETURN to continue...
```

3. Does the CDROM drive reside on a remote node? [N] **N**

Please read the text on licensing. If you used NFS to mount the CD-ROM, then you need to enter **N**. When a CD-ROM is NFS mounted, it becomes local.

4. Please enter the mount point for the CDROM: [/cdrom]: **/cdrom**

The mount point must be the directory that was created above. The default is **/cdrom** for all systems without a **CD daemon** running. The default is **/cdrom/imagine840_u** on Sun Solaris 2.6 or 2.7 systems with the **vold daemon** running and **/CDROM** on Silicon Graphics systems with **mediad** running. Press Return to accept the default.

Select **Y** to continue to the next step or **N** to exit the Installation program.

Installation Directory

5. Please enter the installation directory name: [/usr/imagine] **/usr/imagine**

Enter the name of the directory where ERDAS IMAGINE software is installed, such as /usr/imagine. This directory is created if it does not already exist, then a subdirectory is created within this directory with the ERDAS IMAGINE version number as its name (e.g., /usr/imagine/840). ERDAS IMAGINE is loaded into this subdirectory. This prevents you from overwriting a previous version of ERDAS IMAGINE (e.g., V8.3) on your system.

While the directory is being created, the following message displays:

```
Created <install directory>/840
```

NOTE: Throughout the rest of this manual, <IMAGINE_HOME> refers to the location of the subdirectory that was created (e.g., /usr/imagine/840). This is where ERDAS IMAGINE software resides.

Selecting Modules

Follow the instructions below to select the modules to install.

6. A screen displays similar to the one below, listing the modules that you may install.

   If any modules have already been installed in the specified installation directory, an **X** appears before the name of the module. An **A** indicates that the module is available for installation, and an **I** indicates that the module is not available on the media, but has already been installed in the specified directory.

```
Please wait...searching for installable modules in
directory /cdrom
```

Table 12-1 Installable Modules

data	decosf	gnrl	hp7000	rs6000	sgi	sun4sol				
A	A	A	A	A	A	A				1. IMAGINE Essentials
	A	A	A	A	A	A				2. IMAGINE Vector
A	A	A	A	A	A	A				3. IMAGINE Advantage
A	A	A	A	A	A	A				4. IMAGINE Radar Interpreter
A	A	A	A	A	A	A				5. IMAGINE Professional
A	A	A	A	A	A	A				6. IMAGINE VirtualGIS
	A		A	A	A	A				7. IMAGINE LZW
A	A	A	A	A	A	A				8. IMAGINE StereoSAR DEM
A	A	A	A	A	A	A				9. IMAGINE IFSAR DEM
A	A	A	A	A	A	A				10. IMAGINE OrthoRadar
	A	A	A	A	A	A				11. IMAGINE Remote Services
										12. IMAGINE Install ALL Modules
										13. ABORT INSTALLATION

The above modules may be installed. An **X** in the key at the left indicates that the particular fileset of the given module has already been installed in the selected installation directory and that same fileset is also available on the installation medium. An **A** in the key indicates that the fileset is available on the installation medium, but has not yet been installed.Finally, an **I** in the key indicates that the fileset is not available on the current installation medium, but has been installed in the installation directory (/usr/imagine).

Select the module(s) you wish to install by specifying the product's number separated by spaces (e.g., 1 3 4): [2 5]

NOTE: You should select only the modules for which you have a license. The security program prevents you from running unlicensed modules. Installing unlicensed modules needlessly consumes disk space.

NOTE: Selecting the **IMAGINE Install ALL Modules** *does not install the* **IMAGINE Remote Services** *module. If you wish to install it in addition to all of the others, you must specify both the* **IMAGINE Install ALL Modules** *product number and the* **IMAGINE Remote Services** *product number.*

Essentials Module

The IMAGINE Essentials module is required to run any ERDAS IMAGINE module.

Advantage Module

When you load the IMAGINE Advantage module, the IMAGINE Essentials module is also automatically loaded. Both of these filesets are required to run the IMAGINE Advantage module.

Professional Module

When you load the IMAGINE Professional module, the IMAGINE Essentials, IMAGINE Advantage, and IMAGINE Radar modules are also automatically loaded. All of these filesets are required for, or included in, the IMAGINE Professional module.

7. After you select the modules to load, a screen similar to the one below displays:

```
The following modules were selected...

                IMAGINE Essentials
                IMAGINE Vector
                IMAGINE Advantage
                IMAGINE Radar Interpreter
                IMAGINE Professional
                IMAGINE Remote Services


*** Be aware that you will only be able to use those  ***
*** modules for which you have obtained security      ***
*** codewords. Installing unsecured modules will only ***
*** consume disk space unnecessarily                  ***

Are these the modules you want to install [Y]
```

Y = These are the modules to be installed. Go to step 8.

N = These are not the modules to be installed. Repeat step 6.

8.   A message similar to the following explains the different types of filesets and allows you to select those you wish to install. The default selection list shows the current system architecture. You may also select other system architectures that are displayed in the module selection screen (step 6.).

```
Each module is packaged into separately installable
filesets. The 'gnrl' fileset for each module contains
architecture independent files for that module. This
fileset should be installed if this is the first time the
module is being installed. The 'data' fileset contains
sample data for the module and is not required. The other
valid fileset types contain architecture specific files
for one of the supported IMAGINE architectures. You
should choose the type(s) appropriate for the
workstation(s) on which you will be running IMAGINE.

Which fileset types do you wish to install? [gnrl sun4
data]
```

If you are installing ERDAS IMAGINE for the first time, then you should install the gnrl fileset, the data fileset, and the architecture specific fileset (e.g., sun4).

If you are using the Remote Services module, you must enter both fileset types at this prompt separated by a space.

Disk Space

9. The following message informs you of the amount of disk space that is consumed:

```
Installing the current module/fileset selection will
consume an additional <XXX> kilobytes of disk space.

Do you wish to proceed with the current module/fileset
selection? [Y]:
```

Y = The installation process proceeds.

N = Do not proceed with this module/fileset selection. Return to step 6.

If there is not enough disk space to load the modules you selected, then the following message displays:

```
This may exceed the free disk space available in the
filesystem in which the installation directory
resides!!!
```

You need to free up more disk space before continuing the installation process.

10. After several seconds, messages similar to the ones below display while the modules are unloading from the CD. The modules are unloaded in a compressed format and then be decompressed. You cannot use any of the modules until you complete the installation and security system process.

```
Uncompressing/de-archiving imess_gnrl...
Uncompressing/de-archiving imess_hp700...
Uncompressing/de-archiving imess_data...
Uncompressing/de-archiving imvect_gnrl...
Uncompressing/de-archiving imvect_hp700...
Uncompressing/de-archiving imadvan_gnrl...
Uncompressing/de-archiving imadvan_hp700...
Uncompressing/de-archiving imradar_gnrl...
Uncompressing/de-archiving imradar_hp700...
Uncompressing/de-archiving imradar_data...
Uncompressing/de-archiving imtool_gnrl...
Uncompressing/de-archiving imtool_hp700...
Uncompressing/de-archiving improf_gnrl...
Uncompressing/de-archiving improf_hp700...
Uncompressing/de-archiving improf_data...
Uncompressing/de-archiving imremsv_gnrl...
Uncompressing/de-archiving imremsv_hp700...
```

NOTE: The actual messages displayed depends upon the modules installed.

This step may take up to one hour if you are installing all modules.

11. The following prompt enables you to copy global configuration information from another installed version of ERDAS IMAGINE (e.g., ERDAS IMAGINE V8.3).

```
Would you like to copy initial configuration information
from another installed version of IMAGINE? [Y]
```

If you answer **Y**, the following prompt displays:

```
From which IMAGINE_HOME would you like to copy the
configuration information?
```

If you are installing ERDAS IMAGINE V8.4 in the same directory that you used for ERDAS IMAGINE V8.3, IMAGINE_HOME for ERDAS IMAGINE V8.3 displays as the default. Otherwise, you have to provide the full path name of the directory that serves as IMAGINE_HOME for ERDAS IMAGINE V8.3 (including the 830 subdirectory).

The following files (if they exist) are copied from your ERDAS IMAGINE V8.3 installation to your ERDAS IMAGINE V8.4 installation:

```
<IMAGINE_HOME>/defaults/v8preference
<IMAGINE_HOME>/etc/*.cfg
<IMAGINE_HOME>/etc/*tablet*
<IMAGINE_HOME>/etc/*.cbl
```

If you answer **N** to the prompt that asks if you want to copy configuration information, you can perform these steps manually.

Security Configuration

License Broker System

The license broker system is the workstation where you install the ERDAS security program, **erdmaster**, and the security codewords.

For more information about the IMAGINE software security system, refer to "CHAPTER 10: Preparation for Installation under UNIX"or "CHAPTER 13: Security System".

12. The following screen displays, allowing you to specify where the security program, **erdmaster**, is installed:

```
Configuring IMAGINE security. Enter the network node name
on which the IMAGINE security license broker will reside:
```

Enter the full hostname of the workstation where you want to install the security program, **erdmaster**. This workstation becomes the license broker and the security program resides here.

The installation/security process is easier if you install the security program onto the same workstation where you are installing the software.

- If you would like to install the security program, **erdmaster**, on the same workstation where you are installing ERDAS IMAGINE software, then go to step 13.

- If you would like to install the security program, **erdmaster**, on a different workstation from where you are installing ERDAS IMAGINE software, then you must follow the steps in the next section. You must also follow these steps if you are using the Remote Services module.

Installing Security Program on a Different Workstation

If you are installing the security program, **erdmaster**, on a different workstation from where you are installing ERDAS IMAGINE V8.4 software and ERDAS IMAGINE V8.4 software is not accessible through <IMAGINE_HOME> on the license broker workstation, then the following message displays:

```
Directory <IMAGINE_HOME> not accessible on host <License
Broker>
```

If this message does not display, go to step 13.

> *You must do the following steps to install the security program onto the license broker workstation. You cannot run the software until you execute the install_broker shell script on the license broker workstation.*
>
> *You may perform the following steps after you complete the installation process.*

<IMAGINE system> represents the workstation where you installed ERDAS IMAGINE software and <License Broker> represents the system where you want to install the security program, **erdmaster**.

- Log in to the <IMAGINE system> as **root**.

- Make an appropriate entry in the /etc/exports file to make files in the <IMAGINE_HOME> directory available to the <License Broker> through the network file system (NFS).

- Reboot the system.

- Log in to the <License Broker> as **root**.

- **# mkdir <IMAGINE_HOME>**

This command creates the directory <IMAGINE_HOME> to serve as the NFS mount point.

- **# mount <IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME>**

This step mounts the <IMAGINE_HOME> directory from the <IMAGINE system> onto the <License Broker>'s <IMAGINE_HOME> directory.

Compaq AlphaStation

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

<IMAGINE_HOME>@<IMAGINE system> <IMAGINE_HOME> nfs rw,bg,soft 0 0

HP 9000

This step mounts the <IMAGINE_HOME> directory from the <IMAGINE system> onto the <License Broker>'s <IMAGINE_HOME> directory.

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> nfs rw,soft,bg 0 0 16388
```

IBM RS/6000

Execute the command below and follow the instructions. Specify **both** for the question stating **MOUNT now, add entry to /etc/filesystems or both?** so that ERDAS IMAGINE is mounted every time you boot the system.

```
# smit mknfsmnt
```

Silicon Graphics

On a Silicon Graphics workstation, you need to add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> rw 0 0
```

Sun SPARCstation

Sun Solaris 2.6 or 2.7

Add the following line to the /etc/dfs/dfstab file so that ERDAS IMAGINE is mounted every time you boot the system:

<IMAGINE system>:<IMAGINE_HOME> - <IMAGINE_HOME> nfs rw yes -

All UNIX Workstations

Perform the following steps on either the <IMAGINE system> or the <License Broker> workstation:

```
# cd <IMAGINE_HOME>/install
# ./install_broker
```

You should be logged in as the same user whom you logged in as to perform the installation.

License Broker Workstation

When running ERDAS IMAGINE on the license broker, the **erdmaster** program is started automatically if it is not already running.

When running ERDAS IMAGINE on a workstation other than the license broker, the **erdmaster** program is automatically started through the *rsh* command if it is not already running.

To ensure that **erdmaster** is always running, place the following line in the appropriate system startup file of the license broker workstation.

*NOTE: This requires **root** privilege.*

```
<IMAGINE_HOME>/install/erdmaster -l /tmp/erdmaster.log
```

*When using the method above, be sure to insert the **erdmaster** command line at a point in the system startup file following any command that clears the /tmp directory.*

If you do not have **root** privilege, you can set up the license broker machine to allow the **erdmaster** program to be started automatically by ERDAS IMAGINE through the *rsh* command. Give the following commands from the <IMAGINE system> on which you wish to run ERDAS IMAGINE:

```
# rlogin <License Broker>
.
.
.
# echo <IMAGINE system> >> $HOME/.rhosts
# chmod 600 $HOME/.rhosts
# exit
```

This creates the .rhosts file in your home directory on the <License Broker> machine and properly set permissions for the .rhosts file. Once **erdmaster** is running, other users may start ERDAS IMAGINE.

Proceed to step 13.

System ID Number

13. Your system identification number displays on the screen, as shown below:

```
Security license broker node installed locally.

Your system ID number is

                 System identification number:
fe45f39a1efe

Please write this system identifier on your Security
Codewords Request Form.

To obtain the necessary security codewords to secure this
system, follow the instructions on your Security
Codewords Request Form. This form is located in the
Important Information material.

Press RETURN to continue...
```

The system ID is a 12-digit hexadecimal number (i.e., a sequence of digits 0 through 9 and characters a through f).

The security broker for ERDAS IMAGINE V8.4 recognizes the codewords used with ERDAS IMAGINE V8.3 and the new ERDAS IMAGINE V8.4 codewords. If you are working with both versions of ERDAS IMAGINE, use the security broker from V8.4. During installation, enter your V8.4 codewords first and then enter your V8.3 codewords.

Write down your system ID number on the Security Codewords Request Form located in the Important Information material or on the ERDAS web site (www.erdas.com).

Security Codewords

14. Send the Security Codewords Request Form to ERDAS Codeword Support via the ERDAS web site (www.erdas.com), fax, e-mail, or mail to receive your security codewords. These codewords protect the software against unauthorized use by determining which modules you can use, the number of users, and the expiration date for the modules.

   NOTE: It may take ERDAS up to 8 business hours to process your security codewords.

15. After the security system is installed, the following screen displays, explaining how to enter the security codewords:

```
The security codewords you received from ERDAS are placed
into the file

                    <IMAGINE_HOME>/etc/erdas_codewords

with the program <IMAGINE_HOME>/install/enter_codewd.

If you have obtained your system's security codewords
from ERDAS, you may run the codeword entry program now
by answering 'Y' at the next prompt.

If you have not yet obtained your codewords, answer 'N'
at the next prompt and run
<IMAGINE_HOME>/install/enter_codewd at a some later
time, but before running IMAGINE.

Do you wish to enter your codewords now? [Y]
```

Y = You have received the security codewords from ERDAS Codeword Support and you are ready to enter them into the system. Proceed to step 16.

N = You have not received the security codewords from ERDAS Codeword Support, but you would like to continue with the customization of IMAGINE. You may enter the codewords at a later time. Proceed to step 17.

16. A screen displays, similar to the one below, asking you to enter the security codewords that you received from ERDAS. These codewords protect the software against unauthorized use.

```
*** IMAGINE Security Codeword Entry/Edit Program ***

Enter new codeword and press RETURN
(To exit, just press RETURN): V2HZBQ49HZHZ4NM27
```

The following message displays after the codewords have been entered:

```
Codeword entry program complete.
```

⚠ *If you want to run ERDAS IMAGINE V8.3 along with ERDAS IMAGINE V8.4, you must enter those codewords after you enter the V8.4 codewords. Please see "CHAPTER 13: Security System" for step-by-step instructions on how to set up your system correctly.*

NOTE: The following steps may be out of sequence in the installation process for your platform.

Convert International Fonts

17. The following prompt enables you to convert the international fonts available in ERDAS IMAGINE to a form suitable for the X Server.

```
This script will convert the .bdf fonts on
<IMAGINE_HOME>/etc/fonts into a format suitable for the
X Server on the <system architecture> architecture.

Do you wish to continue? [Y]
```

Y = You do want to convert the fonts. The following prompt displays.

N = You are not using the international fonts (Hebrew, Greek, Russian, etc.) in ERDAS IMAGINE, therefore you do not want to convert them.

Compaq AlphaStation
HP 9000
Silicon Graphics

```
Please enter the directory containing the font building
tools 'bdftopcf' and 'mkfontdir': [/usr/bin/X11]
```

Press Return to accept the displayed default.

IBM RS/6000

NOTE: This platform requires the X11.fnt.util LPP from the AIX 4 CD-ROM.

```
Please enter the directory containing the font building
tools 'bdftopcf' and 'mkfontdir': [/usr/lpp/X11/bin]
```

Press Return to accept the displayed default.

Sun SPARCstation

Sun Solaris 2.6 or 2.7

```
Please enter the directory containing the font building
tools 'bdftopcf' and 'mkfontdir': [<OPENWINHOME>/bin]
```

The default that displays is <OPENWINHOME>/bin, /usr/openwin/bin, or no default if <OPENWINHOME> is not defined and /usr/openwin/bin does not exist.

If there is a problem converting the fonts, an error message displays. You can convert the fonts manually by running the <IMAGINE_HOME>/bin/setup_fonts script.

Automatic CD-ROM Mounting

ERDAS IMAGINE software automatically mounts a CD-ROM if your system has this capability.

18. The following message displays as ERDAS IMAGINE verifies that your system can automatically mount a CD-ROM:

```
Checking automatic CDROM mounting capability
```

Capability Exists

If ERDAS IMAGINE is able to automatically mount a CD-ROM on your system, the following message displays:

```
Automatic CDROM mounting enabled on this system
```

📖 _____

See "CHAPTER 20: CD-ROM Device" for information on configuring your CD-ROM device so that it can be accessed by ERDAS IMAGINE software.

Capability Does not Exist

If ERDAS IMAGINE is not able to automatically mount a CD-ROM on your system, the following message displays in addition to an error message:

```
IMAGINE may be unable to automatically mount CDROMs on
this system. Refer to the 'Configuring Peripherals'
manual for further information.

Press RETURN to continue...
```

📖 _____

See "CHAPTER 20: CD-ROM Device" for more information on the error messages and mounting your CD-ROM.

Setting Up Your System   The system setup message that displays depends on whether you are installing ERDAS IMAGINE as **root** or not.

- If you are installing as **root**, go to step 19.

- If you are <u>not</u> installing as **root**, go to step 20.

Installing as Root

19. If you are installing ERDAS IMAGINE as **root**, the following message displays to inform you about setting up your system so that all users can access ERDAS IMAGINE software:

```
Once IMAGINE is installed, there are two ways that you
can set up your system so that all users can more easily
access IMAGINE.

In the first method, a symbolic link is created from
/usr/bin/imagine to $IMAGINE_HOME/bin/imagine. This
requires root user access to the /usr/bin directory and
presumes that '/usr/bin' is in the PATH of all users.

In the second method, an alias for 'imagine' must be
created in each user's environment (presumably in a
.login script).

In either case, you can always simply type

<IMAGINE_HOME>/bin/imagine

to start IMAGINE.

Do you wish to create a link in /usr/bin to the IMAGINE
startup script? [Y]

Enter the name of the IMAGINE root directory:
[<IMAGINE_HOME>]

Setting up link in /usr/bin to the IMAGINE main
program....


--------------------
Installation Report:
--------------------
IMAGINE Essentials was successfully installed.
IMAGINE Vector was successfully installed.
IMAGINE Advantage was successfully installed.
IMAGINE Radar Interpreter was successfully installed.
IMAGINE Professional was successfully installed.
IMAGINE Remote Services was successfully installed.

Installation completed successfully
```

Not Installing as Root

20. If you are <u>not</u> installing ERDAS IMAGINE as **root**, the following message displays to inform you about setting up your system so that all users can access ERDAS IMAGINE software:

```
Once IMAGINE is installed, there are two ways that you
can set up your system so that all users can more easily
access IMAGINE.

In the first method, a symbolic link is created from
/usr/bin/imagine to $IMAGINE_HOME/bin/imagine. This
requires root user access to the /usr/bin directory and
presumes that '/usr/bin' is in the PATH of all users.

In the second method, an alias for 'imagine' must be
created in each user's environment (presumably in a
.login script).

In either case, you can always simply type

<IMAGINE_HOME>/bin/imagine

to start IMAGINE.

Since you cannot currently modify the /usr/bin directory,
you will not be able to create the /usr/bin/imagine link.
You can either login as root at some later time and
execute the <IMAGINE_HOME>/bin/setup_system script or,
for C-shell users, you can add the following line to the
.login script for every user that wishes to access
IMAGINE:

alias imagine '<IMAGINE_HOME>/bin/imagine \!*'

Press RETURN to continue...


--------------------
Installation Report:
--------------------
IMAGINE Essentials was successfully installed.
IMAGINE Vector was successfully installed.
IMAGINE Advantage was successfully installed.
IMAGINE Radar Interpreter was successfully installed.
IMAGINE Professional was successfully installed.
IMAGINE Remote Services was successfully installed.

Installation completed successfully
```

Running ERDAS IMAGINE V8.3 and 8.4

ERDAS IMAGINE V8.3 codewords cannot be used to secure IMAGINE V8.4 software. If you wish to run ERDAS IMAGINE V8.3 and 8.4 at the same time, there are two courses of action that may be followed:

- use different security broker nodes for ERDAS IMAGINE V8.3 and ERDAS IMAGINE V8.4 software

- enter your ERDAS IMAGINE V8.3 codewords while setting up ERDAS IMAGINE V8.4 security and make sure that the ERDAS IMAGINE V8.4 license broker gets started before running ERDAS IMAGINE V8.3 software. (Make sure that the ERDAS IMAGINE V8.3 codewords are entered <u>after</u> the ERDAS IMAGINE V8.4 codewords while setting up ERDAS IMAGINE V8.4 security.)

If you want to be able to continue running ERDAS IMAGINE V8.3 after you have installed ERDAS IMAGINE V8.4, you need to perform the following steps.

NOTE: If your login shell is not C-shell, add the equivalent lines to your startup file.

1. Add two alias lines to the .cshrc file in your home directory on the system where you want to continue to run ERDAS IMAGINE V8.3. Use a text edit window to open the .cshrc file and enter the following lines:

    ```
    alias imagine83 '<IMAGINE_HOME for v.8.3>/bin/imagine'

    alias imagine84 '<IMAGINE_HOME for v.8.4>/bin/imagine'
    ```

2. Save the .cshrc file, and log out (or source the new .cshrc file).

3. Use the appropriate alias to start up the version of ERDAS IMAGINE that you want to use.

    NOTE: These steps need to be repeated for every user running both ERDAS IMAGINE V8.3 and 8.4.

Starting ERDAS IMAGINE

To start ERDAS IMAGINE, type one of the following in a command window:

- **imagine**
- **imagine84** (if you have set up ERDAS IMAGINE V8.3 and 8.4, as described on page 168).

NOTE: The software allows you to run other applications from that command window.

The ERDAS IMAGINE icon panel and a Viewer window opens.

If the installation was interrupted and/or some modules did not get properly customized, you see the following when you start ERDAS IMAGINE:

```
WARNING: The customization for the following filesets has
         not yet been successfully completed. You may
         experience difficulties running IMAGINE. Please
         advise your IMAGINE system administrator of the
         problem.

         imtkrun_hp700 imlzw_hp700
```

To correct the problem and customize the modules run the following program for each uncustomized module:

 # <IMAGINE_HOME>/bin/customize <module name>

And substitute the name of a module (such as imtkrun_hp700 or imlzw_hp700 in the example above) for <module name>.

Using IMAGINE On-Line Documentation

ERDAS IMAGINE On-Line Help manuals are accessed easily from the main icon panel by selecting **Help | IMAGINE Online Documentation**. The Help menu is also available from the **Session** menu. When the On-Line Manuals title page is displayed, click on the **Manuals** button.

See the ERDAS IMAGINE Tour Guides manual or select Help from the IMAGINE icon panel for more information about the Help system.

Adding Another System

If you would like to run ERDAS IMAGINE on more than one system, then you must do the following steps on every workstation where you run ERDAS IMAGINE. Your license agreement from ERDAS states the number of systems on which you may run ERDAS IMAGINE concurrently. If you are not sure about how many licenses you have authorized, please call ERDAS Codeword Support at 404-248-9000.

<IMAGINE system> represents the workstation where you installed ERDAS IMAGINE software and <Added system> represents the other workstation where you want to run ERDAS IMAGINE software.

NOTE: For Silicon Graphics users, in order to add another system that uses the same installation, you should have installed the Network File System (NFS) Subsystem when you installed IRIX.

1. Log in to the <IMAGINE system> as **root**.

2. Make an appropriate entry in the /etc/exports file to make files in the <IMAGINE_HOME> directory available to the <Added system> through the network file system (NFS).

    You may also use the following utilities to accomplish this:

- HP - sam
- IBM - smit
- SGI - System Manager
- Sun Solaris - modify the /etc/dfs/dfstab file

3. Reboot the system.

4. Log in to the <Added system> as **root**.

5. **# mkdir <IMAGINE_HOME>**

   This command creates the directory <IMAGINE_HOME> to serve as the NFS mount point.

6. **# mount <IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME>**

   This step mounts the <IMAGINE_HOME> directory from the <IMAGINE system> onto the <Added system>'s <IMAGINE_HOME> directory.

Compaq AlphaStation

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE_HOME>@<IMAGINE system> <IMAGINE_HOME> nfs rw,bg,soft 0 0
```

HP 9000

Add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> nfs rw,soft,bg 0 0 16388
```

IBM RS/6000

Execute the command below and follow the instructions. Specify **both** for the question stating **MOUNT now, add entry to /etc/filesystems or both?** so that ERDAS IMAGINE is mounted every time you boot the system.

```
# smit mknfsmnt
```

Silicon Graphics

On a Silicon Graphics workstation, you need to add the following line to the /etc/fstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> <IMAGINE_HOME> nfs rw,soft,bg 0 0
```

Sun SPARCstation

Sun Solaris 2.6 or 2.7

Add the following line to the /etc/dfs/dfstab file so that ERDAS IMAGINE is mounted every time you boot the system:

```
<IMAGINE system>:<IMAGINE_HOME> - <IMAGINE_HOME> nfs rw yes -
```

7.   Perform the following commands to run the setup_system script.

```
# cd <IMAGINE_HOME>/install
# ./setup_system
```

You must do this on every workstation where you want to run ERDAS IMAGINE.

Refer to the Configuring section of this manual if you would like to access a printer, plotter, or digitizer from the added platform.

Adding More Modules

If you would like to add another module after you have already installed ERDAS IMAGINE software, you need to do one of the following:

• If you want to add a module that you selected in step 6., but did not enter a security codeword for this module, then go to the Module was Selected section below.

• If you want to add a module that you did not select in step 6., then go to the Module was Not Selected section below.

Module was Selected   Run the ERDAS Security Codeword Entry/Edit Program (enter_codewd) on the workstation where **erdmaster**, the security program resides. Follow the instructions to enter the codeword for the new module.

```
# <IMAGINE_HOME>/install/enter_codewd
```

The new module is now secured and ready for use.

Module was Not Selected   In order to add a module that was not loaded when you previously installed the software you need to do the following steps:

• Start at step 1. and when you get to step 6., select only the module(s) you want to add.

• After you select the module, run enter_codewd, the ERDAS IMAGINE Security Codeword Entry/Edit Program on the workstation where **erdmaster**, the security program, resides. Follow the instructions to enter the codeword for the new module(s).

```
# <IMAGINE_HOME>/install/enter_codewd
```

The new modules are now secured and ready for use.

Error Messages   Refer to the Error Messages section at the end of "CHAPTER 13: Security System"if you get any error messages during the installation process.

CHAPTER 13
Security System

This chapter is intended for system administrators who want to know more about the ERDAS security system. It is not required that you read this for successful software installation.

Introduction

The ERDAS security system is a client/server based system that uses a single license server, **erdmaster**, to authorize requests for module usage by application clients on a network.

Definitions

The **license broker** is the host that is designated to run the ERDAS license server, **erdmaster**.

A license broker is identified through its **system id**. This is a platform dependent identifier string obtained from the host that is unique among all hosts.

A **module** is a named, licensable product from ERDAS or other third party developer. Every module has a unique module ID.

Each module is secured through a **security codeword**. The security codeword is an encrypted form of the information pertinent to module licensing such as the module ID, the system ID, the user count, the expiration date, or maximum version number.

Files and Environment Variables

* IMAGINE_HOME - Once the ERDAS IMAGINE environment is entered, the environment variable IMAGINE_HOME contains the full path of the top level directory for this version of ERDAS IMAGINE.

* <IMAGINE_HOME>/etc/erdas_codewords — This file contains the security codewords used by **erdmaster** to know which modules a client is authorized to use.

* <IMAGINE_HOME>/etc/secure.master — This file contains the name of the license broker that should be contacted by a client to request module usage authorization.

* ERDAS_ETC_PATH — This environment variable controls what path is searched by ERDAS IMAGINE to find the secure.master file. The default path set by the start-up script of ERDAS IMAGINE is ".:<IMAGINE_HOME>/etc."

* <IMAGINE_HOME>/install/*modules.lst — These files are used to match module names to module IDs and module descriptions. Both the license broker and the application programs are generally only aware of module IDs. These files are used to provide more informative messages at both the client and server end.

- erdas-security81 — The default port number on which the license broker listens for connections is 5530. If there is a service entry (in /etc/services or an NIS services map, whichever is being used) for erdas-security81, the license broker listens for connections on the port associated with the service entry. Likewise, the client contacts the server on this same port. This service entry is not required.

Using erdmaster

Use this syntax to run **erdmaster**:

```
<IMAGINE_HOME>/install/erdmaster [-l <log file>]
[-p <path>] [-a]
```

-l <log file> Specify a file to which messages are to be logged. The default is **stderr**.

-p <path>Override default path from which to read *modules.lst and erdas_codewords. By default, **erdmaster** looks for *modules.lst files in $IMAGINE_HOME/install. It looks for the erdas_codewords file in $IMAGINE_HOME/etc. By specifying an alternate path, you can tell **erdmaster** to look for both files in <path>.

-aAUDIT mode execution. Generate messages when authorization granted/denied/returned.

When **erdmaster** is started automatically from ERDAS IMAGINE, $IMAGINE_HOME (the environment variable) is set to <IMAGINE_HOME> (where ERDAS IMAGINE actually is installed) and the flag '-l /tmp/erdmaster.log' flag is used. This is accomplished by using the <IMAGINE_HOME>/bin/broker_start script. You can invoke the broker_start script through a full path from a system start-up file if you wish to start **erdmaster** when the system reboots. This may be necessary, for instance, if you wish to put the license server on a machine that ERDAS IMAGINE users are not able to access via remote login or that has **erdmaster** accessible through a path that is different than the one the ERDAS IMAGINE users are using.

If you invoke the **erdmaster** program directly, and you specify a log file and **erdmaster** cannot start, you do not receive a message at the command line. The program returns a non-zero status, however. The <IMAGINE_HOME>/bin/broker_start script uses this status to let you know when **erdmaster** could not be started. The error messages are written to the log file.

The most common error for not being able to start the **erdmaster** looks something like the following:

```
FATAL: Unable to create socket (port <PORT NUMBER>).
Errno = <n>
```

where <n> is:

Compaq Tru64 UNIX (4.0F)
67 on systems running AIX
125 on systems running Solaris, IRIX
226 on systems running HPUX

This simply means that some other process has already bound a socket on <PORT NUMBER> which almost always means that **erdmaster** is already running.

erdmaster Services

Once **erdmaster** is running, you can request that additional information be placed in the logfile by sending it a signal.

```
<IMAGINE_HOME>/bin/killstring -s USR1 erdmaster
```

asks **erdmaster** to place the following current information in the log file:

- Which modules are licensed
- For how many users is each module licensed
- How many licenses are currently available for each module
- Which hosts on the network are accessing licenses
- Which licenses is each host on the network using

Also, you can request that **erdmaster** reread the erdas_codewords file by sending it a signal.

```
<IMAGINE_HOME>/bin/killstring -s HUP erdmaster
```

asks **erdmaster** to reread the erdas_codewords file. This is normally unnecessary because the <IMAGINE_HOME>/install/enter_codewd program automatically does this when you are done reentering codewords.

NOTE: For Solaris 2.6 or 2.7,the signal should look like this:

```
<IMAGINE_HOME>/bin/killstring -s USR1 erdmast
```

```
<IMAGINE_HOME>/bin/killstring -s HUP erdmast
```

Error Messages	Below are some of the most common security error messages, their possible causes, and possible remedies.

1. Could not locate security file secure.master

   There is no file called secure.master anywhere in the ERDAS_ETC_PATH. Rerun **<IMAGINE_HOME>/install_broker**.

2. No master node specified in <FILE NAME>.

   The secure.master file, <FILE NAME>, does not contain a host name. If <FILE NAME> is <IMAGINE_HOME>/etc/secure.master, rerun **<IMAGINE_HOME> /install_broker**. Otherwise, manually correct the file, <FILE NAME>.

3. Unable to connect to master node and/or security program @<HOST NAME>.

   The client side of the security package could not establish a connection with the security program, **erdmaster**, at the designated host, <HOST NAME>. Confirm the following:

   • That <HOST NAME> is correct. If not, re-run **<IMAGINE_HOME> /install_broker**. Try to run ERDAS IMAGINE again.

   • That <HOST NAME> is reachable on the network. Use the UNIX **ping** command. (i.e., **ping <HOST NAME>**). If <HOST NAME> is unreachable, correct the situation and try to run ERDAS IMAGINE again.

   • That **erdmaster** is running on <HOST NAME>. Log in to <HOST NAME> and use the following command on <HOST NAME> to determine if the **erdmaster** program from <IMAGINE_HOME>/bin/<ARCH> is running:

   <IMAGINE_HOME>/bin/killstring -p -a erdmaster

   If the following prompt displays:

   Kill this process?

   then check the path displayed for the process to make sure that it matches <IMAGINE_HOME>/bin/<ARCH>. If you do not receive the appropriate prompt, erdmaster is not running and you should try to start it by executing the <IMAGINE_HOME>/bin/broker_start script on <HOST NAME>.

   Refer to "Using erdmaster" on page 174 if you receive any diagnostic output from this script. If you do not receive any diagnostic output, try to run ERDAS IMAGINE again.

- That the port on which the server, **erdmaster**, is expecting the client (the host on which you are trying to start ERDAS IMAGINE) to make contact. If you have determined that **erdmaster** is running and you know where the log file is located that it is writing to, you should be able to look for the last message in the file; it looks something like:

INFO: Listening on port <PORT NUMBER>.

If the log file was not used or was deleted inadvertently, you can either restart erdmaster or use the following procedure. If NIS is running, you should first type:

ypcat services | grep erdas-security81

If you receive an error, then try:

grep erdas-security81 /etc/services

If neither command gives you a match, then the server is listening on port 5530. Otherwise, the server is using the port indicated in the second field of the output of the grep command. It looks something like <PORT NUMBER>/tcp. Double-check that the server is listening on the correct port by issuing the following command:

netstat -na | grep <PORT NUMBER>

You should see something like:

tcp   0   0 *.<PORT NUMBER>   *.* LISTEN

in the output. If you do not, kill the erdmaster and start it again. If you continue to have problems with this, call ERDAS Customer Service.

Now repeat the same steps on the client. Again, if you do not match anything with either **grep**, then the client is trying to reach the server on port 5530. If there is a port mismatch on the client, correct the situation by modifying the appropriate /etc/services file or NIS services map. If there does not seem to be a mismatch, call ERDAS Customer Service.

4. The <MODULE NAME> will expire in <NUMBER> days.

   Call ERDAS Codeword Support for new codeword(s) for the selected module(s).

5. The <MODULE ID>-<MODULE NAME> is not included in the current codeword list. (Check $IMAGINE_HOME/etc/erdas_codewords)

   Check the codewords file. If the module is not listed in the file, call ERDAS Codeword Support for the appropriate codeword.

6. Too many users are presently using the <MODULE NAME>

   You can use the **<IMAGINE_HOME>/bin/killstring -s USR1 erdmaster** command on the license broker as described in "Using erdmaster" on page 174 to determine where licenses are being consumed. If you require more licenses, call ERDAS Codeword Support.

7. Cannot communicate with the security master node.

Call ERDAS Customer Service.

8. The <MODULE NAME> is not secured for this program version.

Call ERDAS Codeword Support for new codeword(s) for the selected module(s).

9. Did not receive response from master node.

Call ERDAS Customer Service.

10. The <MODULE NAME> has expired for this installation.

Call ERDAS Codeword Support for new codeword(s) for the selected module(s).

> *If "Unknown" or "<number>-Unknown" displays in place of <MODULE NAME> in any of the above messages, it means that the client cannot locate a match for the module id, <number>, in any of the <IMAGINE_HOME>/install/*.lst files.*

Using V8.4 Security with Previous Versions of ERDAS Software

You can use the ERDAS IMAGINE V8.4 license broker for running previous versions of ERDAS software including ERDAS IMAGINE V8.1, 8.2, 8.02, 8.3, and 7.5. It is, in fact, recommended that you use only a single license server for all of your ERDAS software. To do this you must follow these steps:

1. When you enter your ERDAS IMAGINE V8.4 codewords, also enter all of your codewords for all previous versions of ERDAS IMAGINE. The ERDAS IMAGINE V8.3 codewords should be entered AFTER the V8.4 codewords, the V8.1 codewords entered AFTER the V8.3 codewords, and the ERDAS IMAGINE V7.5 and ERDAS IMAGINE V8.0.2 codewords should be entered AFTER the V8.1 codewords.

2. For ERDAS V7.5 and ERDAS IMAGINE V8.0.2:

   When ERDAS V7.5 and ERDAS IMAGINE V8.0.2 were installed on your system, a services entry was created either in your local /etc/services file, or in an NIS services map identifying the ERDAS security service. This entry must be updated so that these older clients can contact the license broker on the correct port. The easiest way to change this entry is to modify the port number so that the older clients are directed to contact the license broker on port 5530. This is accomplished by changing the port number in the services entry.

   Change:

   erdas-security 1530/tcp # Licensing.

   to

   erdas-security 5530/tcp # Licensing.

   Alternatively, you can add an alias for the old security service name so that the new license broker listens for connections on the old port.

Change:

erdas-security 1530/tcp # Licensing.

to

erdas-security 1530/tcp erdas-security81 # Licensing.

This causes ERDAS IMAGINE V8.4 clients, ERDAS IMAGINE V8.2 clients, and the ERDAS IMAGINE V8.4 security service to use port 1530 because of the presence of the **erdas-security81** service. (It is the **erdas-security81** service because that is the version of ERDAS IMAGINE which began using the port 5530 instead of the port 1530).

3. Modify the system start-up files so that any commands that were present to automatically start the older license brokers are replaced with the command to start the ERDAS IMAGINE V8.4 license broker. System start-up files vary from platform to platform. Consult the Installing ERDAS IMAGINE manual from the previous version of ERDAS software to determine which file on your system may have been modified to contain a command to start the ERDAS license server.

The command to start the ERDAS IMAGINE V8.4 license server from the system start-up files is:

```
<IMAGINE_HOME>/bin/broker_start
```

where <IMAGINE_HOME> is the home of ERDAS IMAGINE V8.4.

Remember that the broker_start script creates the log file in the /tmp directory, so you should be sure to place this command in the start-up files AFTER the /tmp directory is cleared (it is common for the /tmp directory to be cleared after system reboot by the system start-up files).

The automatic initiation of the license broker is required, because the previous versions of ERDAS software do not start the ERDAS IMAGINE V8.4 license broker automatically when they are run as the V8.4 software does.

CHAPTER 14
FontTastic Font Manager

Introduction

The FontTastic Font Manager is a utility that allows you to add new fonts to ERDAS IMAGINE annotation. The following pages detail how to use the FontTastic Font Manager to maximize your font usage.

The steps you follow in this appendix take you through the utility, but does not direct you to font files that ERDAS IMAGINE does not distribute. It is assumed that users of this utility have their own set of fonts that they have obtained, and have placed them in a directory of their choice.

Approximate completion time for this tour guide is 30 minutes.

Start FontTastic Font Manager

1. In the ERDAS IMAGINE icon panel, select **Tools | Manage PostScript and TrueType Fonts**.

The FontTastic Font Manager dialog opens.

Use this menu to install fonts
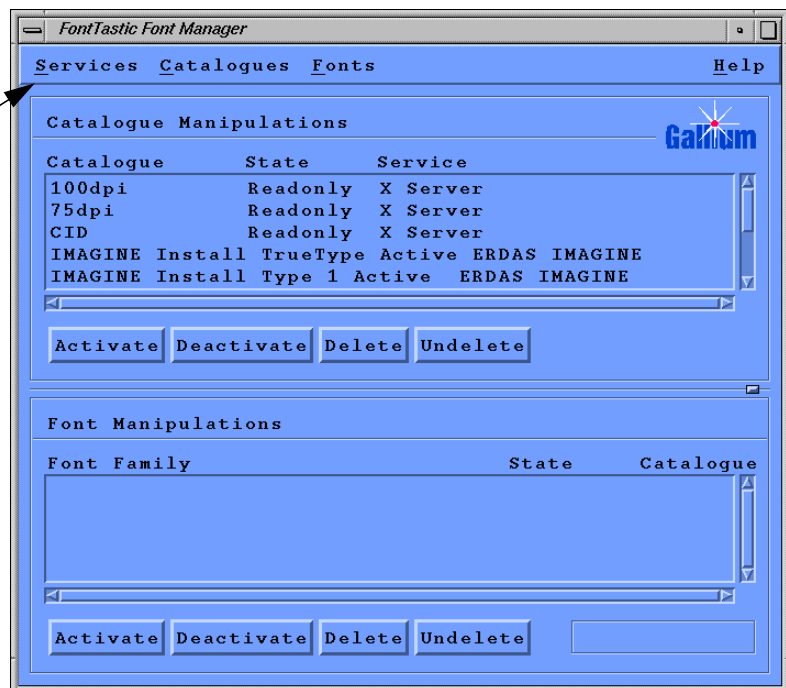
Install Fonts

You begin by installing your fonts into the ERDAS IMAGINE service.

1. In the FontTastic Font Manager dialog, select **Services | Install Fonts into | ERDAS IMAGINE** from the menu bar.

   The Font Installation dialog opens.

Click here to select the font files to install
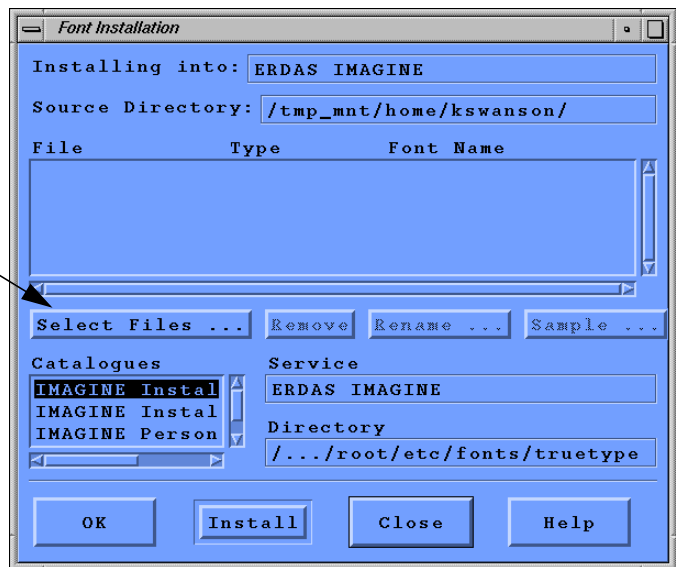
2. In the Font Installation dialog, click on the **Select Files** button.

   The Select Font Files to Install dialog opens.

First, enter the path name of your font directory here
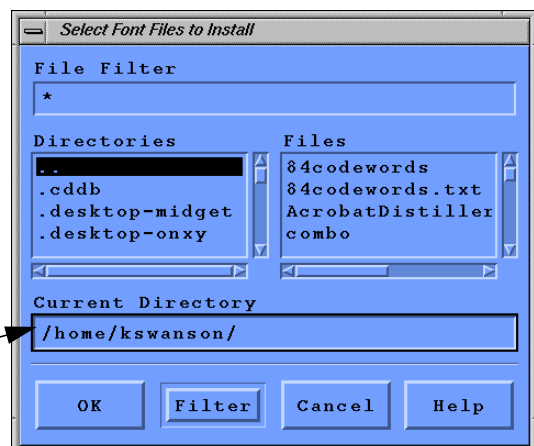
3. In the **Current Directory** part, enter the name of the directory where the font files are on your system, and then press the Return key on your keyboard.

The list of **Files** in the Select Font Files to Install dialog updates to show the files in the directory you just selected.

Select Files to Add

> *When using HP JetAdmin software for the PostScript printer(s) you print to, the downloadable PostScript font(s) must begin with "**%!PS**".*

1.   In the Select Font Files to Install dialog under **Files**, select the font file you wish to install.

      NOTE: TrueType fonts must have a .ttf extension and PostScript Type 1 fonts must have a .pfa or .pfb extension.

2.   Click **OK** in the Select Font Files to Install dialog.

      The Select Font Files to Install dialog closes and the font file name, type, and font name display in the scrolling list at the top of the Font Installation dialog.

3.   In the **Catalogues** scrolling list in the Font Installation dialog, select the ERDAS IMAGINE catalogue where you want the font installed, being sure to select a catalogue in which you have write permission.

      If the font is a TrueType font, install it in either the ERDAS IMAGINE Install TrueType catalogue (for a global installation) or the ERDAS IMAGINE Personal TrueType catalogue (for your own, personal use). If the font is a PostScript Type 1 font, install it in either the ERDAS IMAGINE Install Type 1 catalogue (for a global installation), or the ERDAS IMAGINE Personal Type 1 catalogue (for your own, personal use).

      > *If you do not have write permission in the IMAGINE_HOME/fonts/truetype and IMAGINE_HOME/fonts/type1 directories or the files they contain, these catalogues may still be listed in the scrolling lists, but you cannot install fonts in them.*

4.   Click the **Install** button in the Font Installation dialog to install the font you selected into the catalogue you selected.

5.   Repeat steps 2. through 4. for any other fonts you wish to add. When you have installed all the fonts you want, click **Close** the Font Installation dialog.

Update Services

1.   In the FontTastic Font Manager dialog, select **Services | Update**. This function copies the fonts into the directory(ies) you selected and updates the necessary font configuration files.

      A warning message displays, stating that the service cannot be updated, but that it is updated the next time it is executed. Click **OK** to dismiss the warning.

FontTastic Font Manager

Update Font Usage   Next, tell the ERDAS IMAGINE Annotation package that you wish to use the new fonts you have installed. In the scrolling list under **Catalogue Manipulations** in the FontTastic Font Manager dialog, select the ERDAS IMAGINE catalogue that you previously added the new fonts to (this is the catalogue you selected in step 3.).

1. In the scrolling list under **Font Manipulations**, double-click on the font family that this font is part of.

    The Font Samples dialog opens.

Font name

Font file name
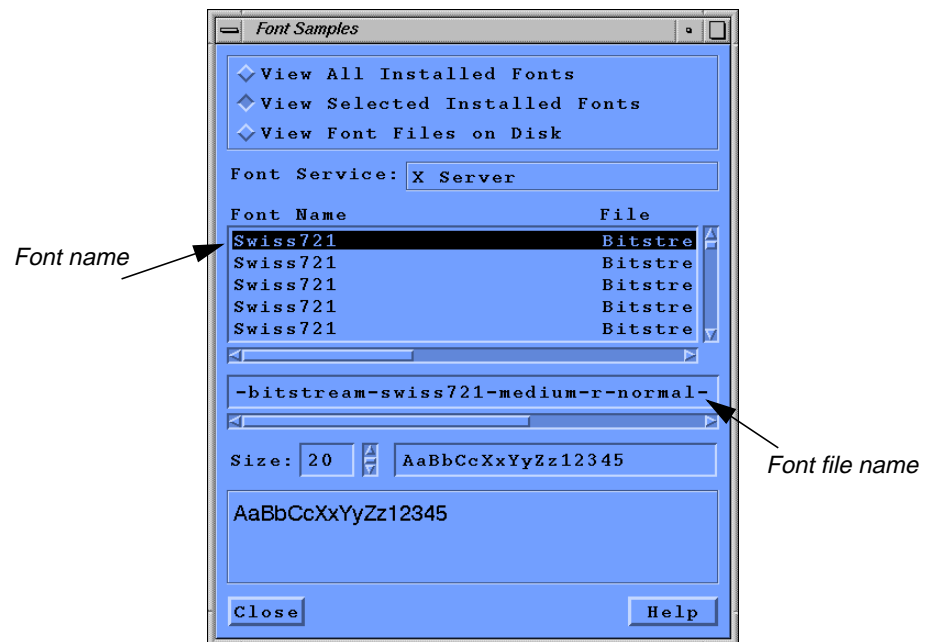
2. In the Font Samples dialog, select the font name of the font you want to add from the scrolling list.

    The Font Samples dialog now displays much of the information that you need for the .fdb file you are about to create.

Create an .fdb File   To complete your update of the ERDAS IMAGINE annotation package, you must add the new fonts to an .fdb (Font Data Base) file in any of the directories specified in the ERDAS_FONT_PATH, which are, by default:

• the directory from which you started ERDAS IMAGINE

• the .imagine840 in your home directory

• the etc/fonts directory where ERDAS IMAGINE is installed on your system

You can create a new file or edit an existing one (if you have one you have created before). You may use etc/fonts/fontlist.fdb as an example, but be aware that the contents of the fields may look different for the OTL fonts that are distributed with ERDAS IMAGINE, and that your file should only have entries for your fonts.

If you create a new file, you can call it anything you wish as long as it is in one of the directories mentioned above. Keep in mind, however, that a file named **a.fdb** in the current directory overrides a file named **a.fdb** in the directory from which you started ERDAS IMAGINE, which in turn overrides a file named **a.fdb** in the etc/fonts directory.

The first line of the .fdb file must be **version 3**.

You must have a seven-field entry in your .fdb file for every font you want the annotation package to know about. All of the name and string fields in the entry should be in quotes.

The following chart lists these seven fields and the information they specify:

Table 0-1 Seven Fields of Font Information

Field Number	Field Name	Font Information[1]
One	Font Name	Use the Font Name as it is listed in the Font Samples dialog, or use another name of your choice. This is the name you see in the scrolling list of available fonts in the Text Style Chooser, plus any special weight and/or slant attributes[2].
Two	Font File Name	The 14-field X font name that is shown right below the scrolling list in the Font Samples dialog.
Three	ASCII PostScript File Name	This is a printer-downloadable file that goes with the selected font. It is the font that is actually downloaded to your PostScript printer if you output your Map Composition to a PostScript device[3].
Four	X-Windows Font Name	When a font is selected, the X-Windows font name is listed in the annotation text entry fields, where text is entered or displayed. If you just want the standard ERDAS IMAGINE text font to be used, use the word default. If you want the font that you are adding to be displayed in the text entry fields, use the same name here that you used for the font file name (field two). You must then run the Gallium FontTastic font server on your system to make this font available to X-Windows[4].

Table 0-1 Seven Fields of Font Information (Continued)

Field Number	Field Name	Font Information[1]
Five	Font Language Flag	This is the only field that must **not** be in quotes. It is the flag that indicates whether the language for which this font is used is written left-to-right or right-to-left. If the language is written left-to-right, use LEFT_TO_RIGHT for this field. If the language is written right-to-left, use RIGHT_TO_LEFT for this field.
Six	Sample String	This is the string that you want to use for the text style sample in the Text Style Chooser. For English, something like "AaBbCc" or "Abc123" is usually used, but you may wish to use some other string, particularly for other alphabets.
Seven	Font Server Name	This is the name of the font server to be used to read the font. Use "GALLIUM" for this field.

[1]This information is not an actual description of the fields in the .fdb files, but rather instructions on where to find the information for the TrueType and PostScript fonts you are adding.

[2]Weight attributes that are recognized in the Text Style Chooser are "Extra-Bold", "SemiBold", "Bold", "Heavy", "Medium", "Light" and "Thin"; the only slant attribute that is recognized is "Italic".

[3]This file must be in the $IMAGINE_HOME/etc/fonts directory. If you do not have a downloadable ASCII PostScript font file for this font, use the word "none".

[4]See "Running the Gallium FontTastic Font Server" on page 187 for more information.

Font Server

Below is an example of an entry in an .fdb file for the font shown in the Font Samples dialog.

"Dutch Italic"
```
"--dutch 801 swa-medium-i-normal--0-0-0-0-p-0-iso8859-1"
"dutch.ps"
"default"
LEFT_TO_RIGHT
"AaBbCc"
"GALLIUM"
```

Below is an example of an entry for a font for which there is no downloadable PostScript file. This example uses a 20 point representation of the same font for the text entry fields as for the annotation itself.

"Suu kyi"
```
"--suu kyi-medium-r-normal--0-0-0-0-p-0-iso8859-1"
"none"
"--suu kyi-medium-r-normal--0-200-0-0-p-0-iso8859-1"
LEFT_TO_RIGHT
"AaBbCc"
"GALLIUM"
```

Also see $IMAGINE_HOME/etc/fonts/fontlist.fdb for other examples.

Running the Gallium FontTastic Font Server

If you want fonts that you add to annotation to display in the annotation text entry fields, you must first run the FontTastic font server on your system to make this font available to X-Windows.

NOTE: If the default font used for the text entry field is acceptable, you do not have to do this step (see "X-Windows Font Name" in the chart on page 185).

The command to run the FontTastic font server is:

$IMAGINE_HOME/bin/gfs_start $IMAGINE_HOME/etc/fonts/gallium_config

where $IMAGINE_HOME is the directory in which ERDAS IMAGINE is installed.

The **config file** specified here is the default. If you have set your Gallium Font Server config_file_name preference to another config file, use it here instead of the one shown above.

You then have to include this font server as a resource for the X server by issuing the command

    xset fp+ tcp/$SYSTEM:7001

where $SYSTEM is the host name of the system on which you just ran the FontTastic font server.

If you wish to have the font server run automatically when the system is booted, add (or have your system administrator add) the two lines above to one of the system start-up scripts.

CHAPTER 15
Printer Connections

Description

This chapter provides information required to configure a printer for use with ERDAS IMAGINE V8.4. It does not cover the details of configuring specific printer models. The assumption is made that the printer is already connected to the host computer or network, and that it has been successfully integrated into the normal UNIX printing system. The ERDAS IMAGINE Configuration Editor enables you to set parameters for the printer or plotter you are setting up to be accessed by ERDAS IMAGINE. Select **Session | Configuration** from the ERDAS IMAGINE icon panel to access the Configuration Editor dialog.

There are several preferences which are common across printer classes. These control how data is transmitted from ERDAS IMAGINE to the printer based on how the printer is connected to the server or network. The **Printer Connection** preference sets up the transmission method while the other preferences control the actual destination. It is important to configure all relevant preferences for each printer connection type to ensure that the printer is accessible. Below is the full list of printer connection types and the preferences which must be set to use each one.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the tape drive, the workstation you are using, and their documentation.

Not all printers support all connection types. Some of the connection types are not be available when configuring certain printers.

System Queue

Using this connection sends data into the standard operating system spooling software queue. A System Queue should be used to access printers connected to a local device or served by a remote host. The following fields are required for a System Queue connection.

Preference Name	Preference Value
Printer Connection	"System Queue"
Print Queue Name	Name of spooler queue to use
Queue Type	BSD or SYSTEM V[a]
Print Queue Host	Host name of print server
Local Device	Name of the /dev file associated with the print device on the server.

[a] SGI does not support BSD queue types by default.

In order to use a System Queue once it is configured within ERDAS IMAGINE, an associated spooler queue must be configured on each system that uses the printer. This can be done by selecting **File | Create Print Queues** from the Configuration Editor menu.

JetDirect

Using the JetDirect connection sends data directly to a network printer that uses the JetDirect protocol. It can be used for any printer type that has a JetDirect network interface.

Preference Name	Preference Value
Printer Connection	"JetDirect"
Print Queue Host	Network name of printer

TFTP

The TFTP connection is used to send data to a remote network printer or printer server using the Trivial File Transfer Protocol.

Preference Name	Preference Value
Printer Connection	"TFTP"
Print Queue Host	Network name of printer or printer server

File

The File connection allows you to create a file to hold the data that normally would be sent to a hardcopy print device. The resulting file contains data that is ready to send to a print device with no further processing.

Preference Name	Preference Value
Printer Connection	"File"
Output Directory	Default destination directory for the new file
Output File	Default file name for new file

Drop Directory

The Drop Directory connection is similar to the File connection in that it creates a file ready to send to a print device. The main difference is that only the specified directory is taken from the configuration information. A unique file name is created in that directory to receive the data. The primary use for this connection type is a spooling system that monitors a specific directory for files to be printed.

Preference Name	Preference Value
Printer Connection	"Drop Directory"
Output Directory	Default destination directory for the new file

Other Command

The Other Command connection is used to pipe the print data into the input of the command specified. It is useful for printing to a preview program to display output on the screen, or when a spooling system requires the use of a special command (other than lp or lpr) to add jobs to the queue.

Preference Name	Preference Value
Printer Connection	"Other Command"
Other Command	Command which accepts data as standard input and delivers it to the destination printer.

CHAPTER 16
HPRTL Plotters

Description

This chapter explains how to configure a Hewlett-Packard DesignJet plotter so that it can be accessed by ERDAS IMAGINE programs and utilities. This chapter uses the DesignJet as an example, but any plotter that uses the HPRTL language may be configured with these instructions.

Topics include:

- the ERDAS IMAGINE Configuration Editor
- print queue setup
- remote printer access

NOTE: On Silicon Graphics workstations, you cannot print remotely with System V printing. Remote printing always uses BSD. Local printing may use either System V or BSD.

The HP DesignJet plotter has both a parallel and a serial interface. ERDAS highly recommends that you use the parallel interface because it is faster.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the HP DesignJet plotter, the workstation you are using, and their documentation.

IMAGINE Configuration Editor

You need to use the IMAGINE Configuration Editor to define and configure the printer within ERDAS IMAGINE and set up preferences. This makes the printer accessible through the Print Map Composition dialog and Print Plot File dialog. The Configuration Editor also allows you to create a print queue to serve the configured printer.

1. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu to open the Configuration Editor. The Configuration Editor dialog opens.

2. Click on the **Configuration Class** popup list and select **printers**.

    *You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select **File | Save** to save the setup and preferences for the current configuration class.*

3. Click on the **Template Filter:** popup list and select **hprtl**.

4. Turn on the **Use Filter** check box. A list of printers that have been configured with the HP DesignJet template filter displays.

5. Click on the **Directory:** popup list and select one of the following options:

    Global = <IMAGINE_HOME>/etc
    The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same ERDAS IMAGINE installation. You cannot save to the global environment unless you are the system administrator who installed ERDAS IMAGINE software.

    To prevent the administrator's **User** preferences from being inadvertently saved to the global database, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this Configuration Class when the **Global** option is selected. This allows a system administrator to properly test only the global changes.

    User = <HOME>/.imagine840
    The setup and preferences for the current device can be accessed only by you (whenever you are logged into the same account). Your **User** preference changes to a globally configured device that takes precedence over the **Global** preference settings for your ERDAS IMAGINE sessions.

    NOTE: The changes you have made in the Configuration Editor takes effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

    *If all of your **User** preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the **User** option is selected in the **Directory** popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

6. The **File** label shows you the file name that is used when you save the setup and preferences for the current configuration class.

7. Click on the **New** button to add a new plotter using the HP DesignJet template filter. The Create New Device dialog opens.

8. Enter the name for the device (e.g., **printer** — the device name cannot match the template name). After you enter the name, press the Return key on your keyboard for the name to be accepted, then click **OK**. This is the name that displays in the IMAGINE dialogs as an output device option.

Set Up Preferences   The Configuration Editor allows you to set parameters for the currently selected printer. The following section lists the default entries for the HP DesignJet plotter, and briefly explains other available options.

Printer Model	HP DesignJet 650C, HP DesignJet 755CM
IMAGINE Print Queue Name	This is the name of the print queue that serves the printer. Each configured printer that is local to a given host must have a unique print queue name. Most systems have restrictions on the format of this name (e.g., on Sun systems, see **man printcap**).
Printer Connection	This is the method for sending data to the printer. Default: System Queue (standard operating system spooling software queue). Options are System Queue, JetDirect, Tftp (Trivial File Transfer Protocol), File (Create a named file), Drop Directory (Create a unique file in a specific directory), Other Command (Send the data, formatted for the printer, to the specified command). Click on this popup list to select a different option.
Queue Type	Default: BSD. The configured machine, either remote or local, can be configured for either System V printing or BSD printing.
Local Device	Default: Varies per platform. This is the name of the device file through which the printer may be accessed.
Printer Host Name	Default: $HOSTNAME. This is the name of the host to which the printer is actually attached or the name of the network interface to the printer.
Output Directory	Default: $HOME. This is the default destination for the File and Drop Directory print connections. This value can be overridden in the Print Map Composition dialog when the map is actually printed.
Output File	Default: hprtl.out. This is the default file name for the File print connection. This value can be overridden in the Print Map Composition dialog when the map is actually printed.
Other Command	Default: lpr. This is the command to use for the Other Command printer connection.
Color Options	Default: CMYK (cyan, magenta, yellow, black). Options are CMYK, CMY, or black. Click on this popup list to select a different option.
Media Width	Default: 36. The minimum is 0. Enter the width of the output medium you are using.
Media Height	Default: 0. Enter the height of the output medium you are using. The minimum is 0 (use 0 for unlimited, e.g., roll paper).
Media Units	Default: inch. Options are meter, centimeter, or millimeter for use with the Metric system. Click on this popup list to select a different option.
Horizontal Dot Density	Default: 300. Enter the dots per horizontal unit. The minimum is 0.

Vertical Dot Density	Default: 300. Enter the dots per vertical unit. The minimum is 0.
Dot Units	Default: inch. Options are meter, centimeter, or millimeter for use with the Metric system. Represents the printer dot density unit type. Click on this popup list to select a different option.
Total Horizontal Pixels	Default: 10680. Total number of horizontal pixels in the printable area of a 36″ wide, 300 DPI plotter. The minimum amount is 0. If your plotter is not 36″ wide, or 300 DPI, see the printer manufacturer specification for the amount.
Total Vertical Pixels	Default: 0. Total number of vertical pixels in the printable area. The minimum amount is 0.
Use Error Diffusion	Default: Off.
Screen Frequency	Default: 70. Enter the number of lines per inch (LPI). The minimum number is 0.
Black Screen Angle	Default: 45. Enter the black screen angle in degrees. The minimum amount is 0.
Cyan Screen Angle	Default: 15. Enter the cyan screen angle in degrees. The minimum amount is 0.
Magenta Screen Angle	Default: 75. Enter the magenta screen angle in degrees. The minimum amount is 0.
Yellow Screen Angle	Default: 0. Enter the yellow screen angle in degrees. The minimum amount is 0.
Use a Mirrored Image	Default: Check box disabled (turned off), indicating that the image is not mirrored. If you want to use mirrored images, for example, if you are printing on negative film, this check box should be enabled. The selection for the **Mirrored Image** check box in the Print Map Composition dialog overrides the selection in the Configuration Editor.
Number of Copies	Default: 1. This lets you select the number of copies to print, which displays as the default in the Print Map Composition and Print Plot File dialogs. The minimum allowed is 1 and the maximum is 1000. The entry for the **Number of Copies** number field in the Print Map Composition dialog and Print Plot File dialog overrides the entry in the Configuration Editor.
Color Intensity Level	Default: 1. This lets you set the printer color intensity level per pass.

Set Up Print Queue

1. Select **File | Create Print Queues** in the Configuration Editor menu bar. The Create Print Queues dialog opens. This utility generates a script that you execute to create the print queue.

2. Turn on either the **All Printers** or **Current Printer** check box.

   All Printers = Print queues are set up for all of the printers that have been configured in IMAGINE using the Configuration Editor.

   Current Printer = The print queue is set up for the current printer in the Configuration Editor.

3. Enter the file name for the script that is generated. The default is /tmp/printcap.

4. Click **OK**.

5. Log in as **root** and execute the script that was generated in the Create Print Queues utility (e.g., /tmp/printcap).

Remote Printer Access

The IMAGINE Configuration Editor allows you to specify connections to a printer or plotter across the network. If the printer uses the HP JetDirect protocol or the CalComp 981 interface, no system queue is required to connect to the printer. If the printer is served by a remote host, you need to perform the following steps before you can access it.

Remote vs. Local

The **remote workstation** refers to the workstation to which the printer or plotter is attached. The **local workstation** refers to the workstation where you are currently running ERDAS IMAGINE software.

The steps that you follow depend on whether or not you have loaded the architecture specific IMAGINE Essentials fileset for the architecture of the remote workstation.

- If the architecture specific IMAGINE Essentials fileset has been loaded for the architecture of the remote workstation, follow the instructions below.

- If the architecture specific IMAGINE Remote Services fileset for the architecture of the remote workstation has been loaded, follow the instructions in "CHAPTER 23: Remote Services".

If you have ERDAS IMAGINE software for both the local and remote workstations, you can use either option above to enable remote printing. However, if you have ERDAS IMAGINE software for only the local workstation, you must install the IMAGINE Remote Services fileset for the architecture of the remote workstation in order to enable remote printing.

Remote Workstation

1. If you have not already done so, use the Configuration Editor to set up the printer and create a print queue on the remote workstation to which the printer is attached. Follow the instructions in the IMAGINE Configuration Editor section.

Local Workstation

Use the Configuration Editor on the local workstation (i.e., the workstation to which the printer is **not** attached) to perform the following steps.

2. Click on the **Configuration Class:** popup list and select **printers**.

> *You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select **File | Save** to save the setup and preferences for the current configuration class.*

3. Click on the **Template Filter** popup list and select **hprtl**.

4. Turn on the **Use Filter** check box. A list of printers that have been configured with the HP DesignJet template filter displays.

5. Select the remote printer from the **Configured Devices** filename part.

   *NOTE: You do not need to change any preferences to set up the printer. However, if you would like to change some of the preferences, do NOT change the preferences that are not related to the print queue (e.g., **Number of Copies**) once the printer is configured on the remote workstation (the host to which the printer is attached).*

Set Up Print Queue

6. Select **File | Create Print Queues** in the Configuration Editor menu bar. The Create Print Queues dialog opens. This utility generates a script that you execute to create the print queue.

7. Turn on the **Current Printer** check box. The print queue is set up for the current printer (remote printer) in the Configuration Editor.

8. Enter the file name for the script that is generated. The default is /tmp/printcap.

9. Click **OK**.

10. Log in as **root** and execute the script that was generated in the Create Print Queues utility (e.g., /tmp/printcap).

CHAPTER 17
PostScript Printers

Description

This chapter explains how to set up a PostScript printer so that it can be accessed by ERDAS IMAGINE programs and utilities. ERDAS IMAGINE supports Adobe PostScript Level I and II; you should be able to access most PostScript printers. However, the instructions in this chapter apply only to PostScript printers that use a Centronics parallel interface. ERDAS has tested the following PostScript Level II printers in-house:

- Hewlett Packard LaserJet III D

- Hewlett Packard LaserJet 4 M

- Hewlett Packard DesignJet 755 CM

- Hewlett Packard DesignJet 1055 CM

- Hewlett Packard DesignJet 2500 CP

- Hewlett Packard DesignJet 3500 CP

NOTE: You cannot print remotely from Silicon Graphics workstations with System V printing. Remote printing always uses BSD. Local printing may use either System V or BSD.

The PostScript printer has both a parallel and a serial interface. ERDAS highly recommends that you use the parallel interface because it is faster.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the PostScript printer, the workstation you are using, and their documentation.

___

Parallel Setup (IBM RS/6000 Workstations Only)

1. Verify that your parallel port is configured as an **Other Parallel Printer** by using the following command:

    # **smit chgprt**

    - If your parallel port is already configured as **Other Parallel Printer**, go to step 6.
    - If your parallel port is not, then go to step 2.

2. If there is a printer currently associated with your parallel interface, use the following command to remove the printer:

    # **smit rmvprt**

    You may want to enter **Yes** in the **KEEP definition in database** field so that you do not have to redefine this device when you want to use it again.

3. Use the following command to associate a printer with your parallel interface:

    # **smit makprt**

4. Select the following line as the printer to add and use the parent adapter of the parallel port that you freed in step 2. (If you removed **lp0**, then this is probably be **ppa0**).

    # **opp parallel Other Parallel Printer**

5. Fill in the **Port Number** field with the open serial port in step 2. (If you removed **lp0**, then this would probably be **p**).

6. Set the value in the **Printer Time OUT Period** field to **600**.

7. Attach the printer to the parallel port with the proper cable.

___

Installation for Network Interface

Hardware

1. Install the Tektronix 4511A according to the instructions in the user's manual.

2. Connect the cable from the Tektronix 4511A to the interface port in the PostScript printer.

3. Write down the internet address that you are assigning to the Tektronix 4511A because this address is needed later.

**Set Up Network
Connections**

Using NIS

If you are using a Network Information Service (NIS), you must add this printer and the proper internet address to the /etc/hosts file on the NIS Master:

tek4511a <tab> <internet address>

Do the following steps to update the NIS database:

cd /var/yp
make

Proceed to the IMAGINE Configuration Editor section.

Not Using NIS

If you are not using a Network Information Service (NIS), you must add this printer and the proper internet address to the /etc/hosts file on the workstation that works with the PostScript printer:

tek4511a <tab> <internet address>

Proceed to the IMAGINE Configuration Editor section.

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*IMAGINE
Configuration Editor*

You need to use the IMAGINE Configuration Editor to define and configure the printer within ERDAS IMAGINE and set up preferences. This makes the printer accessible through the Print Map Composition dialog and Print Plot File dialog. The Configuration Editor also allows you to create a print queue to serve the configured printer.

1.   Select **Session | Configuration** in the ERDAS IMAGINE icon panel menu to open the Configuration Editor. The Configuration Editor dialog opens.

2.   Click on the **Configuration Class** popup list and select **printers**.

> *You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select* **File | Save** *to save the setup and preferences for the current configuration class.*

3.   Click on the **Template Filter** popup list and select **postscript**.

4.   Turn on the **Use Filter** check box. A list of printers that have been configured with the PostScript template filter displays.

5.   Click on the **Directory** popup list and select one of the following options:

Global = <IMAGINE_HOME>/etc
The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same ERDAS IMAGINE installation. You cannot save to the global environment unless you are the system administrator who installed ERDAS IMAGINE software.

To prevent the administrator's **User** preferences from being inadvertently saved to the global database, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this Configuration Class when the **Global** option is selected. This allows a system administrator to properly test only the global changes.

User = <HOME>/.imagine840
The setup and preferences for the current device are accessible only by you (whenever you are logged into the same account). Your **User** preference changes to a globally configured device takes precedence over the **Global** preference settings for your ERDAS IMAGINE sessions.

NOTE: The changes you have made in the Configuration Editor takes effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

*If all of your **User** preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the **User** option is selected in the **Directory** popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

6. Click on the **New** button to add a new printer using the postscript template filter. The Create New Device dialog opens.

7. Enter the name for the device (e.g., **PSprntr1** — the device name cannot match the template name). After you enter the name, press the Return key on your keyboard for the name to be accepted, then click **OK**. This is the name that displays in the ERDAS IMAGINE dialogs as an output device option.

Set Up Preferences   The Configuration Editor allows you to set parameters for the currently selected printer. The following sections list the default entries for a PostScript printer and briefly explain the other options available.

Printer Model	Generic PostScript
IMAGINE Print Queue Name	This is the name of the print queue that serves the printer. Each configured printer that is local to a given host must have a unique print queue name. Most systems have restrictions on the format of this name (e.g., on Sun systems, see **man printcap**). *NOTE: If the configured printer is a PostScript printer that is attached to a Tektronix 4511a controller, the print queue name must be **PS**.*

Printer Connection	This is the method for sending data to the printer. Default: System Queue (standard operating system spooling software queue). Options are System Queue, Jetdirect, Tftp (Trivial File Transfer Protocol), File (Create a named file), Drop Directory (Create a unique file in a specific directory), Other Command (Send the data, formatted for the printer, to the specified command). Click on this popup list to select a different option.
Queue Type	Default: BSD. The configured machine, either remote or local, can be configured for either System V printing or BSD printing.
Print Host Name	This is the name of the host to which the printer is actually attached or the name of the network interface to the printer. Default: $HOSTNAME *NOTE: If the configured printer is a PostScript printer that is attached to a Tektronix 4511a controller, the print queue host must be the 4511a host name.*
Device	This is the name of the device file through which the printer may be accessed. Default: Varies per platform
Output Directory	This is the default destination for the File and Drop Directory print connections. This value can be overridden in the Print Map Composition dialog when the map is actually printed. Default: $HOME
Output File	This is the default file name for the File print connection. This value can be overridden in the Print Map Composition dialog when the map is actually printed. Default: postscript.out
Other Command	This the command to use for the Other Command printer connection. Default: lpr
Color Options	Default: RBG. Options are RGB (red, green, blue) or black. Click on this popup list to select a different option.
PostScript Level	Default: 2. See your printer's technical manual for the PostScript Level used by your printer.
Media Width	Default: 8.5". The minimum is 0". Enter the width of the paper or other output medium you are using.
Media Height	Default: 11". Enter the height of the paper or other output medium you are using. The minimum is 0. Use 0 for unlimited, e.g., roll paper.
Media Units	Default: inch. Options are meter, centimeter, or millimeter for use with the Metric system. Click on this popup list to select a different option.
Horizontal Dot Density	Default: 300. Enter the dots per inch (DPI) per horizontal unit. The minimum is 0.
Vertical Dot Density	Default: 300. Enter the dots per inch (DPI) per vertical unit. The minimum is 0.
Dot Units	Default: inch. Options are meter, centimeter, or millimeter for use with the Metric system. Represents the printer density unit type. Click on this popup list to select a different option.
Total Horizontal Pixels	Default: 2424. Total number of horizontal pixels in the printable area of the medium. The minimum amount is 0. If you change the paper size, you must also change this field.
Total Vertical Pixels	Default: 3156. Total number of vertical pixels in the printable area of the medium. The minimum amount is 0. If you change the paper size, you must also change this field.
Use a Mirrored Image	Default: Check box disabled (turned off), indicating that the image is not mirrored. If you want to use mirrored images (for example, if you are printing on negative film) this check box should be enabled. The selection for the **Mirrored Image** check box in the Print Map Composition dialog overrides the selection in the Configuration Editor.

Number of Copies	Default: 1. This lets you select the number of copies, which displays as the default in the print dialog. The minimum is 1 and the maximum is 1000. The entry for the **Number of Copies** number field in the Print Map Composition dialog and Print Plot File dialog overrides the entry in the Configuration Editor.
Color Intensity Level	Default: 256. This lets you set the printer color intensity level. The setting can be between 1 and 256.
App end Control-D to EOF	Default: ON

Set Up Print Queue

1. Select **File | Create Print Queues** from the Configuration Editor menu bar. The Create Print Queues dialog opens. This utility generates a script that you execute to create the print queue.

2. Turn on either the **All Printers** or **Current Printer** check box.

    All Printers = Print queues are set up for all of the printers that have been configured in IMAGINE using the Configuration Editor.

    Current Printer = The print queue is set up for the current printer in the Configuration Editor.

3. Enter the file name for the script that will be generated. The default is /tmp/printcap.

4. Click **OK**.

5. Log in as **root** and execute the script that was generated in the Create Print Queues utility (e.g., /tmp/printcap).

Remote Printer Access

The IMAGINE Configuration Editor allows you to access a printer or plotter across a network. You need to perform the following steps before you can output a map composition to a remote printer.

Remote vs. Local

The **remote workstation** refers to the workstation to which the printer or plotter is attached. The **local workstation** refers to the workstation where you are currently running IMAGINE software.

The steps that you follow depend on whether or not you have loaded the architecture specific IMAGINE Essentials fileset for the architecture of the remote workstation.

- If the architecture specific IMAGINE Essentials fileset has been loaded for the architecture of the remote workstation, follow the instructions below.

- If the architecture specific IMAGINE Remote Services fileset for the architecture of the remote workstation has been loaded, follow the instructions in "CHAPTER 23: Remote Services".

> *If you have ERDAS IMAGINE software for both the local and remote workstations, you can use either option above to enable remote printing. However, if you have ERDAS IMAGINE software for only the local workstation, you must install the IMAGINE Remote Services fileset for the architecture of the remote workstation in order to enable remote printing.*

Remote Workstation

1. If you have not already done so, use the Configuration Editor to set up the printer and create a print queue on the remote workstation to which the printer is attached. Follow the instructions in the IMAGINE Configuration Editor section.

Local Workstation

Use the Configuration Editor on the local workstation (i.e., the workstation to which the printer is **not** attached) to perform the following steps.

2. Click on the **Configuration Class** popup list and select **printers**.

> *You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select **File | Save** to save the setup and preferences for the current configuration class.*

3. Click on the **Template Filter** popup list and select **postscript**.

4. Turn on the **Use Filter** check box. A list of printers that have been configured with the PostScript template filter displays.

5. Select the remote printer from the **Configured Devices** filename part.

*NOTE: You do not need to change any preferences to set up the printer. However, if you would like to change some of the preferences, do NOT change the preferences that are not related to the print queue (e.g., **Number of Copies**) once the printer is configured on the remote workstation (the host to which the printer is attached).*

Set Up Print Queue

6. Select **File | Create Print Queues** from the Configuration Editor menu bar. The Create Print Queues dialog opens. This utility generates a script that you execute to create the print queue.

7. Turn on the **Current Printer** check box. The print queue is set up for the current printer (remote printer) in the Configuration Editor.

8. Enter the file name for the script that is generated. The default is /tmp/printcap.

9. Click **OK**.

10. Log in as **root** and execute the script that was generated in the Create Print Queues utility (e.g., /tmp/printcap).

CHAPTER 18
Printer Setup for On-Line Help

Description

The ERDAS IMAGINE On-Line Help is arranged in manuals that can be printed directly from the On-Line Help system or from PostScript files delivered with ERDAS IMAGINE. In order to print from On-Line Help, you must have your printer set up properly.

This chapter explains how to configure a PostScript printer so that you can print excerpts from the On-Line Help.

> *If you want a printed copy of an entire On-Line Manual, we urge you to use the provided PostScript files in the <IMAGINE_HOME>/help/hardcopy directory.*

Printer Setup

Before you can print from the On-Line Help window, you must set up a local printer definition file. This can be done by the system administrator for all users by modifying the <IMAGINE_HOME>/bristol/xprinter/Xpdefaults file, or by individual users by creating and modifying the <HOME>/.Xpdefaults file. When you print On-Line Help, the .Xpdefaults file in your <HOME> directory is used if it exists. If it is not found, the <IMAGINE_HOME>/bristol/xprinter/Xpdefaults file is used.

In order to set up your printer definition file, you must know the following information:

- the manufacturer and model name of the printer(s)

- the system configuration name of the printer you wish to use (if more than one are connected).

With this information, perform the following steps. These steps modify the <HOME>/.Xpdefaults file or create it if it does not exist.

1. From ERDAS IMAGINE, open the On-Line Help window by clicking on a **Help** button in any ERDAS IMAGINE dialog.

2. From the HyperHelp window, select **File | Printer Setup**

   The Printer Setup dialog is opened.

3. In the Printer Setup dialog **Output Format** group, select **Printer Specific**.

4. Click the **Install** button.

   The Printer Installation dialog is opened. Click the **Add Printer** button to open the Add Printer dialog.

5. Click **Define New Port** to open the Ports dialog.

In the **Edit Port** text field, enter the port definition, which consists of <port name> = <UNIX print command>. For example, **DEC=lpr -Plp0** might be used to define a port on the Compaq Alpha Station that would print to system-defined printer **lp0**. Then click the **Add-Replace** button to include or update a port in the list of defined ports.

Repeat as necessary to include all the printers to which you want to print. Click **Dismiss** to close this dialog. You are returned to the Add Printer dialog.

NOTE: The specification of a printer name is optional if you are printing to the default UNIX printer.

Solaris

```
<port name>=lp [-d <printername>]
```

Compaq Tru64 UNIX (4.0F)

```
<port name>=lpr [-P<printername>]
```

HP 9000

```
<port name>=lp [-d <printername>]
```

IBM RS/6000

```
<port name>=lpr [-P<printername>]
```

Silicon Graphics

```
<port name>=lp [-d <printername>]
```

A port can be defined only once. If you want to set up the same printer with another print command or other printer options, you must define a new port. Then assign the printer to the new port as described in step 6. below.

6. In the Add Printer dialog, select the printer type from the **Printer Devices** window. Then select the printer port from the **Current Port Definitions** window.

   Click the **Add Selected** button to include your printer in the list of currently configured printers. Repeat this step for each printer/port combination you wish to use. Click **Dismiss** to close this dialog. You are returned to the Printer Installation dialog.

7. Click **Dismiss** to close the Printer Installation dialog. You are returned to the Printer Setup dialog.

8. Click on the **Options** button in the Printer Setup dialog.

   The Options dialog opens.

9. In the Options dialog, click on the triangle next to the **Printer Name** scrolling window and select the printer you wish to use. These are identified by manufacturer, model name, and port name.

    For example: HP LaserJet IIID PostScript Cartridge on DEC

10. When the scrolling window closes, the printer name you selected is displayed. You may also use the **Resolution**, **Paper Size**, and **Paper tray** scrolling windows to set different preferences for those options.

    Now click on the **Ok** button. You are returned to the Printer Setup dialog.

11. Click the **Save** button. The currently selected printer becomes the default printer.

    To use a printer other than the default printer, select the printer you wish to use and click the **Apply** button. The default printer does not change unless the **Save** button is clicked after selecting the different printer.

12. To change printer options, repeat steps 8. through step11.

    To install a new printer, repeat steps 2. through step10.

    To remove an old printer, click the **Install** button to open the Printer Installation dialog. Select the printer you wish to remove, and click the **Remove Selected** button. The printer is deleted from the list. Click **Dismiss**. You are returned to the Printer Setup dialog.

CHAPTER 19
Host System

Description

This chapter explains how to define the number of Central Processing Units (CPUs) on the host system so that this information can be utilized by ERDAS IMAGINE programs and utilities.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the workstation you are using and its documentation.

IMAGINE Configuration Editor

You need to use the IMAGINE Configuration Editor to define the number of CPUs on the host workstation.

1. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu to open the Configuration Editor. The Configuration Editor dialog opens.

2. Click on the **Configuration Class** popup list and select **hosts**.

   *When you select **File | Save** from the Configuration Editor menu bar, only the currently selected **Configuration Class** is saved. Therefore, you should select **File | Save** to save the setup and preferences for the current Configuration Class before changing to a different Configuration Class.*

3. Click on the **Template Filter** popup list and select **host**.

4. Turn on the **Use Filter** check box. A list of hosts that have been configured with the host filter display.

5. Click on the **Directory** popup list and select one of the following options:

   Global = <IMAGINE_HOME>/etc
   The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same ERDAS IMAGINE installation. You cannot save to the global environment unless you are the system administrator who installed ERDAS IMAGINE software.

   To prevent the administrator's **User** preferences from being inadvertently saved to the global database, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this Configuration Class when the **Global** option is selected. This allows a system administrator to properly test only the global changes.

User = <HOME>/.imagine840

The setup and preferences for the current device are accessible only by you (whenever you are logged into the same account). Your **User** preference changes to a globally configured device take precedence over the **Global** preference settings for your ERDAS IMAGINE sessions.

NOTE: The changes you have made in the Configuration Editor take effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

*If all of your **User** preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the **User** option is selected in the **Directory** popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

6. The **File** label shows you the file name that is used when you save the setup and preferences for the current configuration class.

7. Click on the **New** button to add a new host device using the host template filter. The Create New Device dialog opens.

8. Enter the host name for the host that you want to configure. After you enter the name, press the Return key on your keyboard for the name to be accepted, then click **OK**. This is the name that displays in the ERDAS IMAGINE dialogs as a host option.

Set Up Preferences   The Configuration Editor allows you to define the number of processors for the currently selected host workstation, and the directory location of the cdromctl program.

Number of Processors	Default: 1. ERDAS IMAGINE software takes advantage of workstations with multiple processors to increase processing speed. Enter the number of CPUs that are in this workstation.
CDROMCTL	This preference contains the directory location of the cdromctl program on this host. *NOTE: See "CHAPTER 20: CD-ROM Device" for a description of the purpose of the* cdromctl *program and an explanation of why you may need to change its location from the default location.*

CHAPTER 20
CD-ROM Device

Description

This chapter explains how to setup a CD-ROM device so that it can be accessed by ERDAS IMAGINE programs and utilities.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the CD-ROM device, the workstation you are using, and their documentation.

IMAGINE Configuration Editor

You need to use the IMAGINE Configuration Editor to define the CD-ROM device within ERDAS IMAGINE and set up preferences.

1. Select **Session | Configuration** in the ERDAS IMAGINE icon panel menu to open the Configuration Editor. The Configuration Editor dialog opens.

2. Click on the **Configuration Class** popup list and select **cdroms**.

   You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select **File | Save** *to save the setup and preferences for the current configuration class.*

3. Ensure that the **Use Filter** check box is on.

4. Click on the **Template Filter** popup list. A list of CD-ROM devices that have been configured with the CD-ROM filter is displayed. Select **cdrom**.

5. Click on the **Directory** popup list and select one of the following options:

   Global = <IMAGINE_HOME>/etc
   The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same ERDAS IMAGINE installation. You cannot save to the global environment unless you are the system administrator who installed the ERDAS IMAGINE software.

   To prevent the administrator's **User** preferences from being inadvertently saved to the global database, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this Configuration Class when the **Global** option is selected. This allows a system administrator to properly test only the global changes.

User = <HOME>/.imagine840
The setup and preferences for the current device can be accessed only by you (whenever you are logged into the same account). Your **User** preference changes to a globally configured device takes precedence over the **Global** preference settings for your ERDAS IMAGINE sessions.

NOTE: The changes you have made in the Configuration Editor take effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

*If all of your **User** preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the **User** option is selected in the **Directory** popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

6.   The **File** label shows you the file name that is used when you save the setup and preferences for the current configuration class.

7.   Click on the **New** button to add a new host device using the CD-ROM template filter. The Create New Device dialog opens.

8.   Enter the name for the device (e.g., **new cdrom**). After you enter the name, press the Return key on your keyboard for the name to be accepted, then click **OK**. This is the name that displays in the ERDAS IMAGINE dialogs as an output device option.

Set Up Preferences   The Configuration Editor allows you to set parameters for the currently selected CD-ROM device. The following sections list the default entries for the CD-ROM device.

Sun SPARCstation

Model	Default: CDROM drive. Enter the CD-ROM drive manufacturer and model.
Host	Enter the host name of the workstation on which the CD-ROM device is attached.
Mount Point	Sun Solaris 2 Default: /cdrom/cdrom0. Enter the directory over which you are mounting the CD-ROM device.
Device File	Sun Solaris 2 Default: /dev/dsk/c0t6d0s2. Enter the name of the CD-ROM device for your system.

Compaq AlphaStation

Model	Default: CDROM drive. Enter the CD-ROM drive manufacturer and model.
Host	Enter the host name of the workstation on which the CD-ROM device is attached.
Mount Point	Default: /cdrom. Enter the directory over which you are mounting the CD-ROM device.
Device File	Default: /dev/rz4c. Enter the name of the CD-ROM device for your system.

HP 9000

Model	Default: CDROM drive. Enter the CD-ROM drive manufacturer and model.
Host	Enter the host name of the workstation on which the CD-ROM device is attached.
Mount Point	Default: /cdrom. Enter the directory over which you are mounting the CD-ROM device.
Device File	Default: /dev/dsk/c201d1s0. Enter the name of the CD-ROM device for your system.

IBM RS/6000

Model	Default: CDROM drive. Enter the CD-ROM drive manufacturer and model.
Host	Enter the host name of the workstation on which the CD-ROM device is attached.
Mount Point	Default: /CDROM. Enter the directory over which you are mounting the CD-ROM device.
Device File	Default: /dev/cd0. Enter the name of the CD-ROM device for your system.

Silicon Graphics

Model	Default: CDROM drive. Enter the CD-ROM drive manufacturer and model.
Host	Enter the host name of the workstation on which the CD-ROM device is attached.
Mount Point	Default: /CDROM. Enter the directory over which you are mounting the CD-ROM device.
Device File	Default: /dev/scsi/sc1d6l0. Enter the name of the CD-ROM device for your system.

Enable Automatic Mounting of CD-ROM Device

Silicon Graphics

Silicon Graphics has its own CD-ROM mounting program, **mediad**. Therefore if your system has **mediad** enabled, the CD-ROM is mounted automatically as soon as you insert a CD-ROM. If the removable media **daemon**, **mediad**, is not being, used you can mount the CD manually.

The ERDAS IMAGINE program cdromctl needs to be there as a null driver. It is called by the Import/Export programs.

Sun SPARCstation, Solaris Only

Solaris has its own CD-ROM mounting program, **vold**. Therefore, if your system has the **vold daemon** enabled, the CD-ROM is mounted automatically as soon as you insert a CD-ROM. If volume management, **vold**, is not being used, you can mount the CD manually.

The ERDAS IMAGINE program, **cdromctl**, needs to be there as a null driver. It is called by the Import/Export programs.

All Other Workstations

ERDAS IMAGINE comes with a utility program, called cdromctl, that is used to automatically mount CD-ROM devices as needed to access data on a CD-ROM. This program also is used to unmount the CD-ROM device when access to the data is no longer required. This relieves the user from having to mount the CD-ROM device manually.

CD-ROM devices that have been mounted manually by the user are unmounted by the automatic CD-ROM mounting facility after ERDAS IMAGINE has finished accessing the data on that device.

The automatic CD-ROM mounting facility cannot be used to automatically mount and access CD-ROM devices on remote hosts.

cdromctl Program
The cdromctl program can work only if it is run with **root** user authority. Because the typical ERDAS IMAGINE user does not have **root** user authority, the setup_system script attempts to give the cdromctl program **root** user authority in the <IMAGINE_HOME>/bin/<ARCH> directory during the installation process and when additional ERDAS IMAGINE systems are set up from an existing ERDAS IMAGINE installation.

The setup_system script attempts to do this by changing the owner of the cdromctl program to **root**, and then changing the file permissions on the cdromctl file so that the set-user-ID-on-execution bit is set.

Silicon Graphics

1. Enter the following commands to add the CD-ROM device to /etc/fsd_auto. This automatically mounts the CD-ROM device when the CD is entered.

    # /usr/etc/mediad -p /<device name> /<mount point>

    Replace <device name> with the name of the CD-ROM device for your system, for example, /dev/scsi/sc0d4l0. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device, for example /cdrom.

2. To start the **mediad daemon**, use the following command:

    # /usr/etc/mediad -a

    The CD-ROM device is now mounted and ready for the data to be unloaded or loaded. The **mediad daemon** starts automatically at boot time from now on.

All Other Workstations

The process of granting **root** user authority to the cdromctl program can fail for several reasons. If you find this process has failed on your system during the installation or while running the setup_system script from an existing ERDAS IMAGINE installation, the following steps can be performed on that system to enable the automatic CD-ROM mounting facility:

1. Log in as **root**.

2. Enter the following:

```
cp <IMAGINE_HOME>/bin/<system architecture>/cdromctl <new location>
```

<IMAGINE_HOME> refers to the directory where IMAGINE software resides (e.g., /usr/imagine/840).

> *<new location> refers to the new location for the* cdromctl *program. This location must be in a directory that resides in a file system that is mounted from a **local** disk (i.e., it should not be somewhere in an NFS mounted file system).*

3. Enter the following:

<div align="center">

chown root <new location>/cdromctl

</div>

4. Then enter:

<div align="center">

chmod 4555 <new location>/cdromctl

</div>

5. Log in as the ERDAS IMAGINE system administrator and create a Global configuration for this host that has a CDROMCTL preference value equal to:

<div align="center">

<new location>/cdromctl

</div>

See "CHAPTER 19: Host System" for more information on the CDROMCTL preference.

Manual Mounting of CD-ROM Device

Perform the following steps to manually mount a CD-ROM device.

Note: If you are configuring on a Compaq AlphaStation, your system must be configured to read the ISO 9660 or High Sierra CD-ROM format.

1. Log in as **root**.

2. Make the directory over which you are mounting the CD-ROM device, if it does not already exist.

<div align="center">

 # mkdir /<mount point>

</div>

Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device, for example /cdrom.

3. Enter the following commands to mount the CD-ROM device:

Silicon Graphics

<div align="center">

 # mount -rt iso9660 <device name> /<mount point>

</div>

Replace <device name> with the name of the CD-ROM device for your system, for example, /dev/scsi/sc1d6l0. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device, for example, /cdrom. This is an example of the mount command:

```
# mount -rt iso9660 /dev/scsi/sc1d6l0 /cdrom
```

IBM RS/6000

<div align="center">

 # mount -o ro -v cdrfs <device name> /<mount point>

</div>

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/cd0. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device, for example /cdrom. This is an example of the mount command:

```
# mount -o ro -v cdrfs /dev/cd0 /cdrom
```

HP 9000

HPUX 11.00

 # mount -r -F cdfs <device name> <mount point>

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/dsk/c1t2d0. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device. For example, /cdrom. This is an example of the mount command:

```
# mount -r -F cdfs /dev/dsk/c1t2d0 /cdrom
```

Compaq AlphaStation

 # mount -r -t cdfs -o noversion <device name> <mount point>

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/dsk/c1t2d0. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device. For example, /cdrom. This is an example of the mount command:

```
# mount -r -t cdfs -o noversion /dev/rz4c /cdrom
```

Sun SPARCstation

Sun Solaris 2

 # mount -r -F hsfs <device name> <mount point>

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/c0t6d0s2. Replace <mount point> with the name of the directory over which you are mounting the CD-ROM device. For example /cdrom or /cdrom/cdrom0. This is an example of the mount command:

```
# mount -r -F hsfs /dev/c0t6d0s2 /cdrom/cdrom0
```

The CD-ROM device is now mounted and ready for the data to be unloaded or loaded.

Remote CD-ROM Access

In order to access a CD-ROM device across a network, you need to use the IMAGINE Configuration Editor to configure the remote CD-ROM device, then you have to NFS mount the remote CD-ROM file system with a local NFS mount point. This mount point must be identical to the remote CD-ROM mount point. Perform the following steps to complete this process:

The **remote workstation** refers to the workstation to which the CD-ROM device is attached. The **local workstation** refers to the workstation where you are currently running ERDAS IMAGINE software.

1. Follow the instructions in the ERDAS IMAGINE Configuration Editor section to configure a CD-ROM device for the remote workstation.

    NOTE: You may do this by running ERDAS IMAGINE and accessing the Configuration Editor on the local workstation, if you like. However, be sure that you set the **Host** *preference to the remote workstation host name.*

Log In as Root

For the remaining instructions, you will most likely need to be the **root** user on both the remote and local workstations. Replace <mount point> with the value you entered for the **Mount Point** preference when you configured the remote CD-ROM device in step 1.

2. Use the following command on the remote system (where the CD-ROM is connected) to create the <remote mount point> directory if it does not already exist:

    # **mkdir <remote mount point>**

Mount the CD-ROM

3. Use the following command on the remote system to mount the CD-ROM.

Silicon Graphics

    # **mount -rt iso9660 <device name> <mount point>**

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/scsi/sc1d6l0.

IBM RS/6000

    # **mount -o ro -v cdrfs <device name> <mount point>**

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/cd0.

HP 9000

HPUX 10.11

    # **mount -r -F cdfs <device name> <mount point>**

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/dsk/c1t2d0.

Compaq AlphaStation

    # **mount -r -t cdfs -o noversion <device name> <mount point>**

Replace <device name> with the name of the CD-ROM device for your system. For example, /dev/rz4c.

Sun SPARCstation

> ***Sun Solaris 2***
>
> > # **mount -r -F hsfs <device name> <mount point>**
>
> Replace <device name> with the name of the CD-ROM device for your system. For
> example, /dev/sr0 or /dev/c0t6d0s2.

Export to Network

4. Edit the /etc/exports file (/etc/dfs/dfstab under Solaris 2.X) on the remote system to
   add the <mount point> directory with read-only permission as in the examples below:

Compaq AlphaStation

```
/cdrom              -ro
```

HP 9000

```
/cdrom              -ro
```

IBM RS/6000

```
/cdrom              -ro
```

Silicon Graphics

```
/cdrom              -ro
```

Silicon Graphics with mediad

```
/CDROM              -ro
```

Sun SPARCstation

> ***Sun Solaris 2.6 or 2.7***
>
> ```
> share -F nfs -o ro /cdrom
> ```
>
> ***Sun Solaris 2.6 or 2.7 with vold***
>
> ```
> share -F nfs -o ro /cdrom/imagine840_u
> ```

If the /etc/exports or /etc/dfs/dfstab file was not already on this system, then you
need to reboot the system.

5. Use the following command on the remote system to export the <remote mount point>
   directory to your network.

Silicon Graphics

> # **/usr/etc/exportfs -a**

HP 9000

HPUX 10.11

/usr/sbin/exportfs -a

Sun SPARCstation

Sun Solaris 2

`/usr/sbin/`**shareall**

6. On the local system (the system where you are running ERDAS IMAGINE) you need to create the <mount point> directory if it does not already exist:

mkdir <mount point>

7. Use the following command on the local system to mount the CD-ROM from the remote workstation.

mount <remote machine hostname>:<remote mount point> <mount point>

Unmount the CD-ROM (HP 9000 only)

When finished using the CD, use the following command on the local system to unmount the CD-ROM from the remote workstation:

unmount <mount point>

CHAPTER 21
Tape Drive

Description

This chapter explains how to set up a tape drive so that it can be accessed by ERDAS IMAGINE programs and utilities.

Operator Expertise

The system setup needs to be performed by a system manager who is familiar with the tape drive, the appropriate workstation, and their corresponding documentation.

IMAGINE Configuration Editor

You need to use the IMAGINE Configuration Editor to define the tape drive within ERDAS IMAGINE and set up preferences.

1. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu to open the Configuration Editor. The Configuration Editor opens.

2. Click on the **Configuration Class** popup list and select **tapes**.

   You need to save any additions or changes made to the Configuration Editor before you change to a different configuration class. Select **File | Save** *to save the setup and preferences for the current configuration class.*

3. Ensure that the **Use Filter** check box is on.

4. Click on the **Template Filter** popup list. A list of tape devices that have been configured with the tape filter is displayed. Select **tape**.

5. Under **Database Level**, click on the **Directory** popup list and select one of the following options:

   Global = <IMAGINE_HOME>/etc
   The setup and preferences for the current device are accessible by all ERDAS IMAGINE users working from the same IMAGINE installation. You cannot save to the global environment unless you are the system administrator who installed ERDAS IMAGINE software.

   To prevent the administrator's **User** preferences from being inadvertently saved to the global database, only the global configuration information is accessible from the rest of the ERDAS IMAGINE user interface for this Configuration Class when the **Global** option is selected. This allows a system administrator to properly test only the global changes.

User = <HOME>/.imagine840
The setup and preferences for the current device are accessible only by you (whenever you are logged into the same account). Your **User** preference changes to a globally configured device that takes precedence over the **Global** preference settings for your ERDAS IMAGINE sessions.

NOTE: The changes you have made in the Configuration Editor take effect immediately in the current ERDAS IMAGINE session. They are also retained for the current ERDAS IMAGINE session even if they have not been saved. This allows Global changes to be tested in the current ERDAS IMAGINE session without affecting users sharing the same installation of ERDAS IMAGINE.

If all of your **User** *preferences do not appear to be reflected in the ERDAS IMAGINE user interface, verify that the* **User** *option is selected in the* **Directory** *popup list for the appropriate Configuration Class(es) in the Configuration Editor.*

The **File** label shows you the file name that is used when you save the setup and preferences for the current configuration class.

6. Click the **New** button to add a new tape drive using the tape template filter. The Create new device dialog opens.

7. Enter any name for the device (e.g., tape:/dev/rst1). After you enter the name, press the Return key on your keyboard for the name to be accepted, then click **OK** in the Create new device dialog. This is the name that displays in the ERDAS IMAGINE dialogs as an output device option.

Set Up Preferences The Configuration Editor enables you to set parameters for the currently selected tape drive. The following sections list the default entries for the tape drive.

Silicon Graphics

Begin by following these steps in the command shell to set up a tape drive device file for the SGI:

1. Log on as **Root**.

2. **cd /dev**

3. **rm *tape**

4. **./MAKEDEV tape tapelinks**

This creates two files, two of which are /dev/tape and /dev/nrtape (the default preference).

Tape Model	Default: 1/2 inch mag tape. Enter the type of tape drive.
Host	Enter the host name of the workstation to which the tape drive is attached.
Tape drive device file	Example: /dev/nrtape. Enter the name of the tape drive device file for the tape drive.

IBM RS/6000

Tape Model	Default: 1/2 inch mag tape. Enter the type of tape drive.
Host	Enter the host name of the workstation to which the tape drive is attached.
Tape drive device file	Default: /dev/rmt0. Enter the name of the tape drive device file for the tape drive.

HP 9000

Tape Model	Default: 1/2 inch mag tape. Enter the type of tape drive.
Host	Enter the host name of the workstation to which the tape drive is attached.
Tape drive device file	Default: /dev/rmt/c201d3mnb. Enter the name of the tape drive device file for the tape drive.

Compaq AlphaStation

Tape Model	Default: 4 mm tape. Enter the type of tape drive.
Host	Enter the host name of the workstation to which the tape drive is attached.
Tape drive device file	Default: /dev/rmt0h. Enter the name of the tape drive device file for the tape drive.

Sun SPARCstation

Tape Model	Default: 1/2 inch mag tape. Enter the type of tape drive.
Host	Enter the host name of the workstation to which the tape drive is attached.
Tape drive device file	Sun, Solaris 2.6 or 2.7 Default: /dev/rmt/0b. Enter the name of the tape drive device file for the tape drive.

Remote Tape Access

The IMAGINE Configuration Editor enables you to access a tape drive across a network. The following steps must be performed before you can load data to or from a remote tape drive.

The **remote workstation** refers to the workstation to which the tape drive is attached. The **local workstation** refers to the workstation where you are currently running ERDAS IMAGINE software.

The term "ERDAS IMAGINE software" in the following discussion must include at least the architecture-specific IMAGINE Essentials fileset for the architecture of the local workstation, and either the architecture-specific IMAGINE Essentials fileset for the architecture of the remote workstation OR the architecture-specific IMAGINE Remote Services fileset for the architecture of the remote workstation. See "CHAPTER 23: Remote Services"for more details about loading this fileset.

Automatic Tape Server Start-up at Time of Access

1. In order to have the remote tape server started automatically to allow remote access within ERDAS IMAGINE, ERDAS IMAGINE software must be accessible from the same directory on both the local and remote workstations. For example, if ERDAS IMAGINE software resides in the /usr/imagine/840 directory on the local workstation, the software must either be installed in or NFS-mounted on the /usr/imagine/840 directory on the remote workstation.

2. The name of the local workstation must exist in the <HOME>/.rhosts file on the remote workstation. <HOME> represents the home directory of any ERDAS IMAGINE user that wishes to access the remote tape drive. Be sure that the permissions on the <HOME>/.rhosts file allow writing only by the user.

   Proceed to "Set Up Tape Drive" on page 227.

Automatic Tape Server Start-up at Time of System Boot

1. In order to have the tape server started on a remote workstation every time the remote system boots, ERDAS IMAGINE software must either be installed on the remote workstation or it must be NFS-mounted at boot time. ERDAS IMAGINE software does not necessarily have to be accessible on the remote workstation from the same directory as the local workstation.

2. The tape server must be invoked from a system start-up script (e.g., /etc/rc.local on Solaris systems) at boot time on the remote workstation with the following command:

   ```
   <IMAGINE_HOME>/bin/emta_start
   ```

   Replace <IMAGINE_HOME> with the directory through which ERDAS IMAGINE software is accessible on the remote workstation. The change to the system start-up scripts generally requires root user authority.

   Proceed to "Set Up Tape Drive" on page 227.

Set Up Tape Drive   Use the Configuration Editor to set up and configure the tape drive for the remote workstation.

NOTE: The configuration can be performed from either the local or remote workstation.

CHAPTER 22
Tablet Digitizers

Altek Series Model AC32 Moveable Menu

Altek Series Model 33240 Tablet

CalComp 9100 and 9500 Series

CalComp Drawing Board II and III

GTCO Accutab Series Custom Configuration Menu

GTCO DIGI-PAD Series

Description

This chapter explains how to set up a digitizing tablet so that it can be accessed by ERDAS IMAGINE programs and utilities. These instructions are <u>not</u> included with any hardware.

Operator Expertise

The system setup and configuration need to be performed by a system manager who is familiar with the tablet, the Workstation you are using, and their documentation.

Select a Serial Line

Silicon Graphics

Most Silicon Graphics computers have at least two serial lines, called /dev/ttyd1 and /dev/ttyd2. These may have other names, according to the setup of your system.

IBM RS/6000

Most IBM RS/6000 workstations have at least two serial lines, called /dev/tty0 and /dev/tty1. These may have other names, according to the setup of your system.

HP 9000
Compaq AlphaStation

Most HP 9000 workstations and Compaq AlphaStations have at least two serial lines, called /dev/tty00 and /dev/tty01. These may have other names, according to the setup of your system.

Sun SPARCstation

Most Sun SPARCstations have at least two serial lines, called /dev/ttya and /dev/ttyb. These may have other names, according to the setup of your system. In this documentation, replace <serial line> with the name of the serial line you are using.

NOTE: Each of these serial lines can be used as a login port for a terminal. Select a serial line that you can dedicate permanently to the digitizing tablet, rather than use the line as a login port.

Disable Login Line

Silicon Graphics

1. Log in to the **root** account.

    In order to properly install the digitizer, you must have access to the **root** account (i.e., know the **root** password).

2. Make a backup copy of the file /etc/inittab with the **cp** command.

    This backup ensures that you can recover from any mistakes you might make to this file.

3. Use a text editor to edit the /etc/inittab file.

    It looks similar to the example below:

    ```
    tp:23:respawn:/etc/getty tport co_9600# textport
    t1:23:respawn:/etc/getty ttyd1 co_9600# alt console
    t2:23:off:/etc/getty -N ttyd2 co_9600 # port 2
    ```

    If the status is **respawn** for the serial line (e.g., ttyd1 or ttyd2) that you want to dedicate to the digitizing tablet, you must change the status to **off**.

    When the status is **respawn** for any device line, then the line for that device can be used as a login line. The line for a serial device, such as the digitizing tablet, must be disabled as a login line.

    Save the file /etc/inittab with the change.

4. Reboot the workstation.

IBM RS/6000

1. Login to the **root** account.

    In order to properly install the digitizer, you must have access to the **root** account (i.e., know the **root** password).

2.   Use the following command to change a tty line:

       # **smit chgtty**

If the following message displays:

```
There are no items of this type
```

then you must create a tty line by using the following command:

       # **smit maktty**

3.   The **Enable Login** field must read **disable**.

HP 9000

1.   Log in to the **root** account.

      In order to properly install the digitizer, you must have access to the **root** account (i.e., know the **root** password).

2.   Make a backup copy of the file /etc/inittab with the cp command.

      This backup ensures that you can recover from any mistakes you might make to this file. We are using /dev/tty0p0 as an example.

3.   Use a text editor to edit the /etc/inittab file. It looks similar to the example below:

```
a0:3:respawn:/etc/getty -h tty0p0 9600
```

      If the **respawn** value is **on** for the serial line (e.g., tty0p0 or tty0p1) that you want to dedicate to the digitizing tablet, you must change the status to **off**.

      When the status is **on** for any device line, then the line for that device can be used as a login line. The line for a serial device, such as the digitizing tablet, must be disabled as a login line. The file should be similar to the example below:

```
a0:3:off:/etc/getty -h tty0p0 9600
```

4.   Save the file /etc/inittab with the change.

5.   Reboot the system to invoke the change.

Sun SPARCstation

Sun Solaris

1.   Log in to the **root** account.

      In order to properly install the digitizer, you must have access to the **root** account (i.e., know the **root** password).

2. List the services and look for your port, e.g., ttya (/dev/term/a).

   # **pmadm -l**

   The listing looks similar to the example below. (The lines are actually longer than shown here.)

```
PMTAG   PMTYPE  SVCTAG  FLGS  ID     <PMSPECIFIC>
tcp     listen  lp      -     root   - - p - /var/spool/lp/fifos/listens5 #
tcp     listen  lpd     -     root   \x000202030000000000000000000000000 - p - /var/spool
tcp     listen  0       -     root   \x00020ACE0000000000000000000000000 - c - /usr/lib/s
zsmon   ttymon  ttya    u     root   /dev/term/a I - /usr/bin/login - 9600 ldterm,ttcomp
zsmon   ttymon  ttyb    u     root   /dev/term/b I - /usr/bin/login - 9600 ldterm,ttcomp
```

3. Disable the login service.

   # **pmadm -d -p <PMTAG> -s <SVCTAG>**

   For example, the entry based on the listing above would read:

   # **pmadm -d -p zsmon -s ttya**

4. To check to see that the line is disabled, you can repeat step 2. and the FLGS column should read **ux**.

Connect Digitizer   The proper RS232 cable is required to connect the digitizer to the workstation. Below
is a list of the connections that need to be made between two 25-pin ports. The cable
that you use varies depending upon the genders of the ports.

IBM RS/6000
Compaq AlphaStation

Workstation End	Digitizer End
pin 1	pin 1
pin 2	pin 2
pin 3	pin 3
pin 7	pin 7

It is very important to note that pin 2 and pin 3 do not swap with each other.

Sun
HP 9000
Silicon Graphics

Workstation End	Digitizer End
pin 1	pin 1
pin 2	pin 3
pin 3	pin 2
pin 7	pin 7

Set Protection   Set the protection on the serial line with the **chmod** command. This allows ERDAS
IMAGINE software to access the line. Enter the name of your platform's serial line in
place of <serial line> below.

*NOTE: You must be logged into the **root** account to use this command.*

```
# chmod a+rw /dev/<serial line>
```

Test the Line   Follow the steps below to test the serial line with the digitizing tablet. The instructions are platform-specific.

HP 9000
Silicon Graphics

1. To test the serial line with the digitizing tablet, you can use the **cat** command with the device name as the argument, for example:

    # **cat /dev/tty0p0**

    In the above example, the device is connected to the /dev/tty0p0 port.

2. Now use the controls on the digitizer keypad. Coordinates that represent the location of the cursor should display in the shell window where you used the **cat** command.

    If no text displays, retrace your steps carefully according to the instructions above. Make sure that cables are plugged in securely.

    To exit the **cat** command, type CTRL-C.

IBM RS/6000

1. To test the serial line, you can use the appropriate **tip** command to see the communication between the digitizing tablet and the workstation echoed on the shell window.

2. Add this line to the file /etc/remote. (This file is read when **tip** is used. It gives the digitizing tablet a name and specifies the baud rate.)

    NOTE: If the remote file does not exist, you need to create it.

    <tablet>:dv=/dev/tty0:br#9600

    In this example, /dev/tty0 is the serial line used, <tablet> is the name of the digitizing tablet, and **9600** is the baud rate.

    Save the file /etc/remote with this change.

Compaq AlphaStation

1. To test the serial line, you can use the appropriate **tip** command to see the communication between the digitizing tablet and the workstation echoed on the shell window.

2. Add this line to the file /etc/remote. (This file is read when **tip** is used. It gives the digitizing tablet a name and specifies the baud rate.)

    NOTE: If the remote file does not exist, you need to create it.

    <tablet>:dv=/dev/tty00:br#9600

In this example, /dev/tty00 is the serial line used, <tablet> is the name of the digitizing tablet, and **9600** is the baud rate.

Save the file /etc/remote with this change.

Sun SPARCstation

1. To test the serial line, you can use the appropriate **tip** command to see the communication between the digitizing tablet and the workstation echoed on the shell window.

2. Add this line to the file /etc/remote. (This file is read when **tip** is used. It gives the digitizing tablet a name and specifies the baud rate.)

   NOTE: If the remote file does not exist, you need to create it.

   ```
   <tablet>:dv=/dev/ttya:br#9600
   ```

   In this example, /dev/ttya is the serial line used, <tablet> is the name of the digitizing tablet, and **9600** is the baud rate.

   Save the file /etc/remote with the change you have made.

3. Enter this command at the prompt to test the tablet connection:

   ```
   #  tip <tablet>
   ```

   Replace <tablet> with the name you specified for the digitizing tablet in the file /etc/remote.

4. Now use the controls on the digitizer keypad. Coordinates that represent the location of the cursor should display in the shell window where you used the **tip** command.

   If no text displays, retrace your steps carefully according to the instructions above. Make sure that cables are plugged in securely.

   To disable **tip** and stop the text from displaying, enter a tilde and a period at the keyboard:

   ```
   ~.
   ```

Switch Settings and Formats

Altek Series Model AC32Moveable Menu

When you are using ERDAS IMAGINE with the supported digitizers, we recommend the specified switch settings and data formats.

Serial Speed	9600 bps
Serial Misc.	1 stop bit / 8 data bits / No parity
Emulation	ALTEK
Format F12[a]	F XXXXX YYYYY
Rate	50 pts/sec
Resolution	.001 inch
Run Type	Type 1
Mode	Point
Miscellany	CR on / LF on / CTS off

[a]This format corresponds with the ALTEK format number 4.

Altek Series Model 33240
Tablet

Switch Settings for the Left Bank

IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	on	off	on	on	on	on	on	off
2	on	off	on	on	on	on	on	off
3	on	off	on	on	on	on	on	off
4*	on	off	on	on	on	on	on	off
5	on	off	on	on	on	on	on	off
6	on	off	on	on	on	on	on	off
7	on	off	on	on	on	on	on	off

Switch Settings for the Right Bank

IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	on	off	off	off	on	on	on	on
2	on	off	off	off	on	on	on	off
3	on	off	off	off	on	on	off	on
4*	on	off	off	off	on	on	off	off
5	on	off	off	off	on	off	on	on
6	on	off	off	off	on	off	on	off
7	on	off	off	off	on	off	off	on

Format 4 is the default and ERDAS IMAGINE does not support format 6. You may need to use a swap cable.

CalComp 9100 Series

Switch Settings for SB1

IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4[*]	Switch 5	Switch 6	Switch 7[a]	Switch 8[a]
1	close	open	close	close	close	close	close	open
2	close	open	close	open	close	close	close	open
3	close	open	open	close	close	close	close	open
4	close	open	open	open	close	close	close	open

[a]These settings are set at the factory and should not be changed.

*Format 4 is the default.

Switch Settings for SW1

	SW1 Switch 1	SW1 Switch 2	SW1 Switch 3	SW1 Switch 4	SW1 Switch 5	SW1 Switch 6	SW1 Switch 7	SW1 Switch 8
All IMAGINE Formats	open	open	close	close	open	close	close	open

Switch Settings for SW2

	SW2 Switch 1	SW2 Switch 2	SW2 Switch 3	SW2 Switch 4	SW2 Switch 5	SW2 Switch 6	SW2 Switch 7	SW2 Switch 8
All IMAGINE Formats	close	open	close	open	close	close	close	close

CalComp 9500 Series

Operating Mode and Resolution Switch Settings for Area 1

Operating Mode	Switch
Point	on
Run	off
Track	off
Line	off
INC	off
Prompt	off

Resolution (1000 LPI)	Switch
1	off
2	on
3	on

Soft Switch Settings for Area 1

IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5
1	off	off	on	off	off
2	off	off	on	off	on
3	off	off	on	on	off
4*	off	off	on	on	on

*Format 4 is the default.

Switch Settings for Area 2 (Port A) Only

Baud Rate (9600)	Switch
1	off
2	off
3	on

Data Bits	Switch
7	off
8	on

Parity (none)	Switch
1	on
2	off
3	off

Stop Bit	Switch
Stop 1	off
Stop 2	off

Transmit/Receive	Switch
TX 2/3	on

Line Feed	Switch
LF	off

Port A	Switch
Port	on

Echo	Switch
Echo	Off

The switch settings for CalComp 9500 areas 3 (Port B), 4, and 5 are not applicable.

**CalComp Drawing Board
II and III**

Soft Switch Settings for A

IMAGINE Format	Switch 1	Switch 2	Switches 3-5	Switches 6-10	Switches 11-13	Switch 14	Switch 15	Switch 16	Switch 17	Switch 18
1	off	on	off	on	off	on	off	off	off	on
2	off	on	off	on	off	on	off	on	off	on
3[*]	off	on	off	on	off	on	on	off	off	on
4	off	on	off	on	off	on	on	on	off	on

Soft Switch Settings for B

	Switches 1-2	Switches 3-4	Switches 5-7	Switch 8	Switches 9-17	Switch 18
All IMAGINE Formats[*]	off	on	off	on	off	on

Soft Switch Settings for C (Drawing Board III Only)

	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7
All IMAGINE Formats	off	off	off	off	off	N/A	off

*Format 3 is the default.

NOTE: Drawing Board III is not compatible with HP-UX.

**GTCO Accutab Series
Custom Configuration
Menu**

Communication Options	
Baud	9600
Data Bits	8
Stop Bits	1
Parity	None

Mode Options	
Mode	Point
Resolution	1000 lpi

Menu Codes	
IMAGINE 8.X (ERDAS)	04[*]

Output Format Options	
GTCO	ASCII

*Format 4 is the same as ERDAS IMAGINE format 7.

Tablet Digitizers

GTCO DIGI-PAD Series

Switch Settings for S1

	S1 Switch 1	S1 Switch 2	S1 Switch 3	S1 Switch 4	S1 Switch 5	S1 Switch 6	S1 Switch 7	S1 Switch 8
All IMAGINE Formats	off	off	on	on	off	off	off	on

Switch Settings for S2

IMAGINE Format	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Switch 6	Switch 7	Switch 8
1	off	off	on	on	off	off	off	off
2	off	on	on	on	off	off	off	off
3	on	off	on	on	off	off	off	off
4	on	on	on	on	off	off	off	off
5	off	off	on	on	on	off	off	off
6	off	on	on	on	on	off	off	off
7*	on	off	on	on	on	off	off	off
8	on	on	on	on	on	off	off	off

Format 7 is the default. You may need to use a swap cable with port B, but not with port A.

Switch Settings for S3

	S3 Switch 1	S3 Switch 2	S3 Switch 3	S3 Switch 4	S3 Switch 5	S3 Switch 6	S3 Switch 7	S3 Switch 8
All IMAGINE Formats	off	off	off	off	on	off	off	off

Accessing the Digitizer

ERDAS IMAGINE Software

From within ERDAS IMAGINE, you are prompted to specify the type of digitizer, the data format and the port name that you want to access for output. After you complete this setup, the digitizer should be operational with ERDAS IMAGINE.

See the ERDAS IMAGINE On-Line Help for more information on setting up the digitizer within ERDAS IMAGINE.

CHAPTER 23
Remote Services

Description

The IMAGINE Remote Services module is a collection of architecture specific filesets, each of which contains the minimal amount of software required to run the IMAGINE license broker, the IMAGINE tape server, and any of the IMAGINE print filters on a host of that architecture without having to load the architecture specific IMAGINE Essentials fileset for that architecture.

The IMAGINE Remote Services module must be installed in an existing ERDAS IMAGINE installation directory. The filesets for each architecture supported by ERDAS IMAGINE are on the installation CD and may be installed when the ERDAS IMAGINE software is installed or at a later time.

Refer to "CHAPTER 20: CD-ROM Device" for instructions on installing modules from the IMAGINE installation CD.

If the IMAGINE Essentials module for an architecture has already been installed, the Remote Services module should not be installed.

Remote Tape Access via IMAGINE Remote Services

As long as the IMAGINE Remote Services module for the architecture of the remote tape host has been properly installed and the installation of ERDAS IMAGINE is accessible from the remote tape host, the instructions in the "CHAPTER 21: Tape Drive" may be followed as is.

Remote Printer Access via IMAGINE Remote Services

The IMAGINE Remote Services module may be used to print to a remote workstation of an architecture for which you have not installed the architecture specific IMAGINE Essentials fileset.

If you do not have the architecture specific IMAGINE Essentials fileset loaded for the architecture of the remote workstation, you are not able to run ERDAS IMAGINE on the remote workstation. However, you may still access a printer attached to the remote workstation. You have to use ERDAS IMAGINE on the workstation from which you wish to print (the local workstation) to configure a printer for the remote workstation, and then go to the remote workstation and create the appropriate print queue.

The remote printer that you are accessing must be attached to a platform that is supported under ERDAS IMAGINE V8.4, and the output device must be supported on that platform. For example, you could access a Kodak XL7700 printer attached to a remote Sun SPARCstation, because ERDAS IMAGINE V8.4 runs on the Sun, and the Kodak XL7700 is a supported output device for the Sun. However, you could not access a Versatec electrostatic plotter attached to a Compaq AlphaStation system, because although the Compaq AlphaStation is a supported ERDAS IMAGINE V8.4 platform, ERDAS IMAGINE does not support the Versatec on the Compaq AlphaStation.

Contact your local sales office for information about which output devices are supported on each platform.

Local Workstation

Follow the instructions in the "IMAGINE Configuration Editor" section of the appropriate printer configuration chapter of this manual. Be sure that you use the name of the remote workstation for the **Print Queue Host** preference.

Remote Workstation

The <IMAGINE_HOME>/bin/install_printer script helps you construct the appropriate shell script that, when run as the **root** user, creates a print queue that can be used to serve ERDAS IMAGINE print requests to a specific printer.

1. Run the install_printer script.

   # **<IMAGINE_HOME>/bin/install_printer**

   The following prompts display:

2. Please enter the name of the IMAGINE printer: <name>

   <name> should correspond to the name you entered in the "IMAGINE Configuration Editor" section of the appropriate printer configuration chapter.

3. With what print queue name is '<name>' (going to be) configured? <queue>

   <queue> should correspond to the **Print Queue Name** preference for printer <name> from the "Set Up Preferences" section of the appropriate printer configuration chapter.

4. On which host is this print queue (going to be) maintained? <host>

<host> should correspond to the **Print Queue Host** preference for printer <name> from the "Set Up Preferences" section of the appropriate printer configuration chapter.

- For an HP DesignJet with the HP JetDirect Network Interface, <host> should be the name of the host on which the network software is installed.

5. **Which device is (going to be) acting as an interface to the printer? <device>**

    <device> should correspond to the **Device** preference for printer <name> from the "Set Up Preferences" section of the printer configuration chapter.

    - For printers connected directly to the network, <device> should always be **/dev/null**.

6. **On which printer template is this printer (going to be) configured? <tmplt>**

    <tmplt> should correspond to the value that was selected from the **Template Filter** popup list in the "IMAGINE Configuration Editor" section of the appropriate printer configuration chapter.

7. **Is the queue host running System V printing?**

    Your response depends on the system to which the printer is attached.

    - For a printer host running AIX, Compaq Tru64 UNIX (4.0F), or UNIX, enter **N**.
    - For a printer host running Sun Solaris 2 or HPUX enter **Y**.
    - For a printer host running IRIX, your response depends on the options selected when the system was set up. Enter **N** for BSD printing and **Y** for System V printing.

8. **To which file would you like the script to be written? [/tmp/printcap] <file>**

    Specify the name of the script file to be created.

    After you have finished answering the prompts of the install_printer script, you should log into the system as the **root** user and run the script <file>. The remote host is now ready to accept print requests.

    Once you have an appropriate print queue on the remote workstation, you may simply follow the instructions under the "Local Workstation" subsection of the "Remote Printer Access" section of the appropriate printer configuration chapter of this manual in order to make the printer on that remote workstation accessible to additional ERDAS IMAGINE workstations.

CHAPTER 24
Configuring IMAGINE VirtualGIS for UNIX

System Configuration

Compaq AlphaStation

In order to make the best use of swap-space when running ERDAS IMAGINE, it is recommended that Compaq AlphaStations be configured to use deferred swap-space mode. By default, when Compaq Tru64 UNIX is installed, it is configured to use immediate swap-space mode. For information on the swap-space modes under Compaq Tru64 UNIX (4.0F), type the following from a UNIX shell:

```
# man swapon
```

In order to change a system from immediate mode to deferred mode, you must login as root, and rename the file /sbin/swapdefault, and then reboot:

```
# cd /sbin
# mv swapdefault swapdefault.bak
# reboot
```

Open 3D 4.5 or higher must be installed to use PowerStorm 4D40T, 4D50T, and 4D60T graphics cards successfully with IMAGINE VirtualGIS. Because there is a known problem displaying draped data with the 4.5 version, it is recommended that you download Open 3D 4.6 or higher, from the following web site: **http://www.digital.com**.

The following note is from Compaq AlphaStation's release notes about Open 3D:

In order to improve performance, the PowerStorm 4D40T, 4D50T, and 4D60T system makes extensive use of shared memory to send information to the X windows server. Shared memory is used for the following types of data:

- X connections when using the DISPLAY:0
- OpenGL rendering contexts
- Texture map data

However, the system imposes a limit on the number of shared memory segments that a process can access concurrently and the total amount of shared memory the system allows. At times, an X windows client may run up against this limit.

If this occurs, client applications display the following warning:

```
dxlib warning: server shmget failed
```

It may also display other errors from applications indicating that they are out of memory when using some of the above types of data.

There are two system limits that affect how much shared memory can be used at a time. There is a system-wide limit of 128 shared memory handles. There is a per-process limit of 32 handles that may be attached at a time. The Open3D kit for the PowerStorm 4D40T, 4D50T, and 4D60T increases these values to 256 and 64 respectively.

Compaq recommends that you configure the system with at least the limits described in the following steps. This should be done when logged in as **root**:

1. Save the **ipc** subsystem parameters to a file using the following command:

        sysconfigdb -l ipc > /tmp/ipc.config

2. Edit the saved **ipc.config in /tmp/ipc.config** and set the shared memory parameters to the desired values.

    shm-mni is the number of shared memory segments available on the system. **shm-seg** is the number of shared memory segments available to any individual process. The **shm-seg** value should be fairly high as the X server process needs to connect to most shared memory segments. **shm-max** is the amount of shared memory available on the system. This needs to include the maximum amount of the above items you expect to use on this system.

3. Update ipc subsystem in sysconfigtab.

    NOTE: For larger data sets, both the **shm-mni** *and the* **shm-seg** *values should be set to* **4096***.*

        # sysconfigdb -f /tmp/ipc.config -u ipc

        # sysconfigdb -l ipc

          ipc:

                  shm-mni = 1024

                  shm-seg = 256

                  shm-max = 67108864

4. Save the **vm** subsystem parameters to a file using the following command:

        # sysconfigdb -l vm > /tmp/vm.config

    If this command gives an error indicating that there is no **vm** subsystem, create a file called **/tmp/vm.config** with the following contents:

        vm:

                vm-mapentries=1000000

    Then issue the following command and go to step 6.

        # sysconfigdb -f /tmp/vm.config -a vm

5.   If there is an existing vm subsystem, then edit **/tmp/vm.config** and add the following line:

     ```
     vm-mapentries=1000000
     ```

     If there is already an entry for **vm-mapentries**, add **1000000** to the current value. Then issue the following command:

     ```
     # sysconfigdb -f /tmp/vm.config -u vm
     ```

6.   Reboot the machine. You can verify that the new parameter values are in effect by issuing the following commands:

     ```
     # sysconfig -q ipc shm-mni | grep shm-mni

      shm-mni = 1024

     # sysconfig -q ipc shm-seg | grep shm-seg

      shm-seg = 256

     # sysconfig -q ipc shm-max | grep shm-max

      shm-max = 67108864
     ```

     NOTE: For larger data sets, both the **shm-mni** *and the* **shm-seg** *values should be set to* **4096***.*

     NOTE: Each time Open3D is installed **shm-mni** *is reset to* **256***,* **shm-seq** *is reset to* **64***, and* **shm-max** *is removed from the configuration.*

     These values must be updated manually after every installation of Open3D.

Silicon Graphics   Before starting ERDAS IMAGINE, the following adjustments should be made to your system to increase the number of files allowed open, and to increase the performance of texture mapping.

1.   In a command window, login as **root**.

2.   Enter **systune -i**.

3.   At the prompt, enter **rlimit_nofile_cur = 300**.

     NOTE: To view the current settings for the Lockable Graphix Menu, type **gfx***.*

4.   If using an IMPACT, Onyx, or O2 system, enter **gfxlockablemem = 50**. If using an Octane system, enter **gfxlockablemem_gt64 = 50**.

5.   Enter **quit** to exit.

6.   Reboot.

Stereo Configuration for UNIX Platforms	Contact StereoGraphics for the specific cable needed to work with your system and graphics card at http://www.StereoGraphics.com.

Only Full Screen Stereo requires setting **Frame Offset** in the Configuration Editor. One way to determine **Frame Offset** for your monitor is to divide the screen height in pixels in half, and add **20** to the total value.

For example, if your screen resolution is set to **1024 x 768**:

$$\left(\frac{768}{2}\right) + 20 = 404$$

Therefore, you would set your **Frame Offset** to **404.000**.

Compaq AlphaStation   Both stereo displays, Stereo in a Window and Full Screen Stereo, require Open 3D 4.6 or higher. This can be installed from the Layered Products CD that comes with your system.

A stereo graphics emitter, an emitter cable, and liquid crystal glasses are required to view both types of stereo display.

Stereo-In-A-Window

You need one of the following graphics cards to display Stereo In-A-Window:

- Powerstorm 4D40T
- 4D50T
- 4D60T

Follow these steps for stereo in-a-window configuration:

1.   In a window terminal, login as **root**.

2.   Edit text file /var/dt/Xservers by replacing the last line with:
     :0 Local local@console /usr/bin/X11/X :0 -screen 1024x768 -l -estereo -vsync 110

3.   Reboot the machine and relogin.

4.   Start ERDAS IMAGINE.

5.   Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu bar.

6.   Select **Stereo Display** from the **Configuration Class** popup list.

7.   Select **ALPHA** from the **Template Filter** popup list.

8.   Click the **New** button on the Configuration Editor.

9.   Enter the name of the host machine and press **Return**.

10. Click **OK** to dismiss the dialog.

11. Clear the text field next to **Full Screen Stereo Command** so it is empty.

12. Clear the text field next to **Stereo In-A-Window Command** so it is empty.

13. Clear the text field next to **Exit Stereo** so it is empty.

14. Select **File | Save**.

15. Close the Configuration Editor.

Full Screen Stereo

Full screen stereo is not supported on the Compaq AlphaStation platform:

Configuring IMAGINE VirtualGIS for UNIX

HP 9000 - HPUX 11.00.   A stereo graphics emitter, an emitter cable, and liquid crystal glasses are required to view stereo display.

You need one of the following graphics cards to display stereo-in-a-window:

- VISUALIZE fx4
- fx6

NOTE: HP 9000-HPUX11.00 does not run full-screen stereo displays.

Stereo In-A-Window

Follow these steps for stereo-in-a-window display:

1. Open the Application Manager from the CDE icon panel.

2. Double-click the **System Administrator** icon from the Application Manager menu dialog.

3. Double-click the **Sam** icon to open the System Administration Manager (SAM) dialog.

4. Enter the **root** password for your machine.

5. Double-click the **Display** icon in the SAM dialog.

6. Double-click the **Monitor Configuration** icon in the SAM dialog.

7. Click once to select the **Monitor** icon in the X Server Configuration dialog.

8. Select **Actions | Modify Monitor Type** from the X Server Configuration menu bar. The Modify Monitor Type dialog opens.

9. Select **1024x768, 98Hz, 8x16 Font,** and **Stereo in a Window** from the list of possible configurations.

10. Click the **Test Monitor Type** button.

    NOTE: If the screen goes black, wait 15 seconds. The screen returns, and you can reselect the monitor type from the list.

11. Click **OK** to accept the changes and close the Modify Monitor Type dialog.

12. Click **Yes** to the two confirmation dialogs. The X Server restarts itself.

13. Relogin to your machine.

14. Start ERDAS IMAGINE.

15. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu bar.

16. Select **Stereo Display** from the **Configuration Class** popup list.

17. Select **HPUX** from the **Template Filter** popup list.

18. Click the **New** button in the Configuration Editor.

19. Enter the name of the host machine and press **Return**.

20. Click **OK** to dismiss.

21. Clear the text field next to **Full Screen Stereo Command** so it is empty.

22. Clear the text field next to **Stereo-In-A-Window Command** so it is empty.

23. Clear the text field next to **Exit Stereo** so it is empty.

24. Select **File | Save**.

25. Close the Configuration Editor.

IBM RS/6000   Stereo display is not supported for the IBM RS/6000 platform at this time.

Silicon Graphics   Both modes of stereo display require OpenGL version 1.1 that comes installed with your SGI system.

A stereo graphics emitter, an emitter cable, and liquid crystal glasses are also required to view both types of stereo display.

NOTE: High IMPACT systems require the monitor resolution to be reset <u>before</u> starting ERDAS IMAGINE. Set the resolution to 1024x768, and reboot.

Stereo In-A-Window and Full Screen Stereo

Follow these steps for stereo display:

NOTE: O2 systems do not run Stereo In-A-Window.

1. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu bar.

2. Select **Stereo Display** from the **Configuration Class** popup list.

3. Select **SGI** from the **Template Filter** popup list.

4. Click the **New** button in the Configuration Editor.

5. Enter the name of the host machine and press **Return**.

6. Click **OK** to dismiss.

7. Next to **Full Screen Stereo Command**, enter **/usr/gfx/setmon -n STR_RECT**.

8. Next to **Stereo In-A-Window Command**, enter **/usr/gfx/setmon -n 1024x768_96s**.

9. Next to **Exit Stereo**, enter **/usr/gfx/setmon -n 72HZ**.

10. Calculate and set the correct **Frame Offset** for your screen resolution.

11. Select **File | Save**.

12. Close the Configuration Editor.

Sun Solaris 2.6 and higher

For stereo display, OpenGL version 1.1.2 is required. OpenGL version 1.1.2 can be downloaded from **http://www.sun.com/solaris/opengl/**.

A stereo graphics emitter, an emitter cable, and liquid crystal glasses are also required for viewing stereo display.

Stereo In-A-Window

Follow these steps to display stereo in-a-window:

1. Login as **root** to the system console without running the X Server.

2. Enter **ffbconfig -res stereo**.

3. Log out and restart the X Server.

4. Relogin to the machine.

5. Start ERDAS IMAGINE.

6. Select **Session | Configuration** from the ERDAS IMAGINE icon panel menu bar.

7. Select **Stereo Display** from the **Configuration Class** popup list.

8. Select **SOLARIS** from the **Template Filter** popup list.

9. Click the **New** button in the Configuration Editor.

10. Enter the name of the host machine and press **Return**.

11. Click **OK** to dismiss.

12. Clear the text field next to **Full Screen Stereo Command** so it is empty.

13. Clear the text field next to **Stereo In-A-Window Command** so it is empty.

14. Clear the text field next to **Exit Stereo** so it is empty.

15. Select **File | Save**.

16. Dismiss the Configuration Editor.

Full Screen Stereo

To use Full Screen stereo, you must use a sync doubling device. This device doubles the refresh rate from your computer and interlaces the bottom and top portions of your screen. Contact Stereo Graphics for information.

Follow these steps to display full screen stereo:

1. Make sure the sync doubling device is connected to your system.

2. Start ERDAS IMAGINE.

3. Select **Session | Configuration...** from the ERDAS IMAGINE icon panel menu bar.

4. Select **Stereo Display** from the **Configuration Class** popup list.

5. Select **SOLARIS** from the **Template Filter** popup list.

6 Click the **New** button in the Configuration Editor.

7. Enter the name of the host machine and press **Return**.

8. Click **OK** to dismiss.

9. Clear the text field next to **Full Screen Stereo Command** so it is empty.

10. Clear the text field next to **Stereo In-A-Window Command** so it is empty.

11. Clear the text field next to **Exit Stereo** so it is empty.

13. Calculate and set the correct **Frame Offset** for your screen resolution.

14. Select **File | Save**.

15. Close the Configuration Editor.

NOTE: Once you have enabled Full Screen stereo in VirtualGIS, you must then turn on the sync doubling device to activate the stereo display.

ERDAS IMAGINE Preference Settings	These changes may affect other applications running within the ERDAS IMAGINE environment.

User Interface and Session

The **Dialogs Follow Parent** preference should be toggled off. When entering or exiting stereo modes in IMAGINE VirtualGIS, this preference may cause the supporting dialogs to become inaccessible.

Memory

The **Directory for the External Memory File** preference needs to have a directory on a local file system with greater than 20 MB available. IMAGINE VirtualGIS creates a file in the specified directory to use before any system memory is consumed. This improves the performance when rendering large Virtual Worlds in IMAGINE VirtualGIS.

The **Total Size of External Memory in Megabytes** preference should be set to greater than 20 MB.

ERDAS IMAGINE Image Files (Native)

The **Memory Map File Size Limit** and **Memory Map Segment Height** preferences should both be set to **0.000**. This disables memory mapping. Some Virtual Worlds built in the Virtual World Editor could be greater than the defaults displayed.

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