IRIX® 6.5 Installation Instructions

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Installation Instructions

Contents

IRIX Releases and Release Streams

You do not need to read this section in order to install IRIX on your system. However, you may wish to refer to it if you have questions about release streams or the IRIX release process. If you are ready to install your software, see "How to Install Operating System Software" on page 12.

This section includes:

Understanding Release Streams

This section includes:

- “Overview” on page 6
- “Understanding the Release Family” on page 8

Overview

Beginning with IRIX 6.5, a new software release process delivers IRIX upgrades to you in an easily manageable and consistent fashion. In this new process, intermediate releases are anchored to a base operating system release. Intermediate releases are also referred to as *overlays* because they lay on top of (but do not replace) the base operating system.

During your first upgrade to an intermediate release, you are asked to choose either of two *release streams*, the *maintenance* stream or the *feature* stream. The maintenance stream includes accumulated bug fixes and basic support for new hardware, if any. The feature stream includes everything in the maintenance stream, plus any new software features. (You are not asked to choose a stream in subsequent upgrades, but you will have the option of switching. See “Choosing Release Streams” on page 10 and “Switching Release Streams” on page 11.)

To help clarify the relationships and the elements in a release family, a diagram of the 6.5 release family is shown in Figure 1.

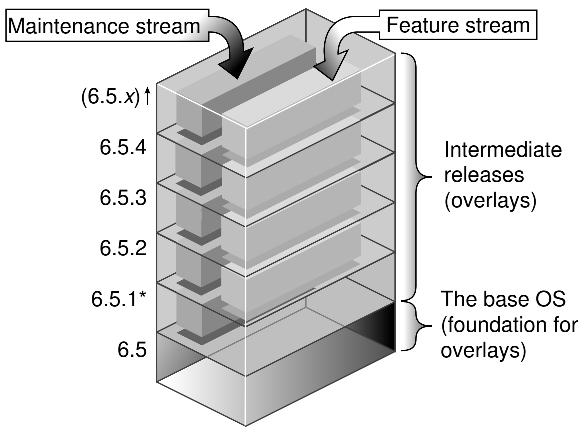

Figure 1 Diagram of the IRIX 6.5 Release Family

Note that each intermediate release includes the cumulative fixes and features of the previous intermediate releases.

The sections that follow describe these concepts in more detail.

* There was no feature stream released with IRIX 6.5.1.

Understanding the Release Family

Base IRIX releases are those in which SGI performs major operating system work. They are released on all platforms that SGI supports at the time.

Intermediate releases (also called *overlays*) maintain backward and forward binary compatibility within their base release (currently IRIX 6.5). This means that applications built on any base release run correctly on all of its intermediate releases. Because intermediate releases are cumulative, overlays include fixes and features from all previous intermediate releases. This allows you to upgrade to the most current release in one step.

Overlays (intermediate releases) contain:

- Maintenance stream products
- Feature stream products
- Cumulative upgrades from previous intermediate releases

See also Figure 1, "Diagram of the IRIX 6.5 Release Family," on page 7.

Determining Your Current Release Stream

If your system is running a 6.5.*x* version of IRIX, it is on the maintenance or feature release stream.

You can determine a system's current release stream in two different ways:

In Software Manager	In a Shell
Open Software Manager by choosing **System > Software Manager** from the **Toolchest**. Below the **Lookup** button you see either **Stream: Maint** or **Stream: Feature**. "Maint" indicates maintenance stream.	Enter `uname -R`. The output line includes an IRIX version number that ends with `f` or `m`, where `m` indicates maintenance and `f` indicates feature.

Note: If the system is running base release IRIX 6.5 or earlier, a release stream has not yet been designated. You are asked to choose either a maintenance or feature release stream the first time you install an intermediate release. For further information, proceed to "Choosing Release Streams" on page 10.

Choosing Release Streams

Intermediate releases are divided into two sets of products, called release streams, as outlined in the box below.

A *maintenance* stream contains:	**A *feature* stream contains:**
• Accumulated bug fixes	• Accumulated bug fixes
• Basic support for new and upgraded hardware	• Basic support for new and upgraded hardware
	• New software features

Choose the **maintenance stream** if you want to upgrade your system only with fixes for maintaining stability and compatibility.

Choose the **feature stream** if you want the maintenance stream content *plus* new software features.

Both the maintenance and the feature stream products are on the same CDs, but once you choose a stream, you can install only that stream's products. (You will not be asked to choose a stream in subsequent upgrades.) Proceed to "Switching Release Streams" on page 11 if you wish to switch streams.

Switching Release Streams

You can switch release streams under either of the following conditions:

- When upgrading from one IRIX 6.5.*x* intermediate release to another.
- When you have already installed an IRIX 6.5.*x* release using one stream, but would like to switch to the other stream after installation.

The installation procedures described in "How to Install Operating System Software" on page 12 include information on switching release streams.

Note: You cannot switch streams if your system is running the IRIX 6.5.1m intermediate release (or the IRIX 6.5 base release). Maintenance and feature streams were not available in a single release until IRIX 6.5.2.

How to Install Operating System Software

Choose from the following procedures, depending on the type of installation you need to perform:

- "How to Install IRIX 6.5.x on IRIX 6.5 or Later" on page 17
- "How to Install IRIX 6.5.x on a Pre-6.5 Release or a Clean Disk" on page 29

See also:

- "How to Install Applications" on page 67 (not for operating system installations)
- "Installations for Nongraphical Systems" on page 49

Introduction

Who should use these instructions?
Use these instructions if your system has a graphical user interface and is running an IRIX 6.5 base release or an IRIX 6.5.*x* intermediate release.

> **Note:** Because intermediate releases are cumulative they do not need to be installed consecutively. For example, you can upgrade from 6.5.1 to 6.5.3 without installing 6.5.2.

If you need to find out what version of IRIX you are running, enter `uname -R` in a shell window.

If you are installing on top of a pre-6.5 release of IRIX, or on a clean disk, see "How to Install IRIX 6.5.x on a Pre-6.5 Release or a Clean Disk" on page 29.

How long will it take?
This procedure should take approximately one to two hours, depending on your installation knowledge and the speed of your system processor.

This section includes:

Quick Summary for Experienced Users

SGI recommends that all users follow the instructions in "How to Install IRIX 6.5.x on IRIX 6.5 or Later" on page 17. However, this section provides a quick summary for experienced **Inst** users.

1. **Preparation Summary**

   - Print or check the Start Here pages for information you need before you begin, such as minimum system requirements and any relevant installation caveats for this release. (Save your place here and see "How to Access the Start Here Pages" on page 77.)

   - Gather the CDs you will use for this upgrade. If you want to switch to the other release stream during this installation, you should have the core CDs from the base operating system release on hand. (You may need them because the files that are replaced in a release stream are removed.)

2. **Patch Installation Summary**
   (required before overlay installation)

   For a live (not miniroot) upgrade, you need the "Installation tools support for overlays" patch. Install it from the `/CDROM/installtools` directory on the Installation Tools and Overlays CD. To use the new tools you must exit Inst or Software Manager after you install the patch.

3. Overlay Installation Summary

Install products from the CDs you received in your release package. Important:

- Open IRIX 6.5.*x* Installation Tools and Overlays first.
- Each CD must be opened and read before you begin the installation selections. **If you are switching release streams**, open the core IRIX 6.5 CDs in addition to the other CDs.
- To install upgrades and related (prerequisite) products, use the appropriate command, depending on the type of installation:

In Software Manager	In Inst
Choose **Install > Select Recommended Upgrades**	`keep *` `install standard`
Choose **Install > Switch to Maintenance Stream**	`install maint`
Choose **Install > Switch to Feature Stream**	`install feature`

4. Postinstallation Summary

Although every product has an associated release note that informs you of major bugs and workarounds, SGI has collected information on bugs that could most *significantly* affect your experience once you upgrade and has posted it as “Caveats to Read After Upgrading.” This document is installed on your system by default as part of the Welcome product. To view it, bring up a Web browser and enter this address: file:///var/www/htdocs/WhatsNew/precaveats.html

In addition to reviewing this document, you may want to check “Caveat and Release Note Updates” for this release on Supportfolio Online at http://support.sgi.com/irix/6.5/ for any late-breaking information.

How to Install IRIX 6.5.*x* on IRIX 6.5 or Later

Follow this procedure closely. Each subsection is *critical* to a successful installation.

Preparation

1. Print or check the Start Here pages for information you need before you begin, such as:
   - Minimum system requirements for this release
   - Major installation caveats

   Save your place here and see "How to Access the Start Here Pages" on page 77. The Start Here pages include additional useful information, such as descriptions of each CD.
2. Gather the CDs you will use for this upgrade. If you want to switch to the other release stream during this installation, you should have the core CDs from the base operating system release on hand. (You may need them because the files that are replaced in a release stream are removed.)

Patch Installation
(required before overlay installation)

To obtain necessary installation software and to be able to perform a live (as opposed to miniroot) installation, install the "Installation tools support for overlays" patch as described in the following steps.

> **Note:** Do not install this patch on systems running a pre-6.5 version of IRIX. (If your system is not running 6.5 or later, you should be following the procedure in "How to Install IRIX 6.5.x on a Pre-6.5 Release or a Clean Disk" on page 29 instead.)

3. Insert the 6.5.*x* Installation Tools and Overlays CD in the CD-ROM drive. (If you are using a remote directory instead of a CD, skip this step—you will open the directory in the next step.)

4. Follow the instructions below to bring up Software Manager and the distribution that contains the patch.

If installing from a CD connected to *your system*:

- Double-click the **CDROM** icon on your desktop.
- The **Installation Startup Message** window appears. Read it and click **Dismiss**.
- Edit the **Available Software** field in Software Manager so that it displays the `installtools` directory. Enter:

```
/CDROM/installtools
```

If installing from a *remote system*:

- From your **Toolchest**, choose **System > Software Manager**.
- In the **Available Software** field, enter the remote system's name and the location of the `installtools` directory of the Installation Tools and Overlays distribution.

  For example, if you are using a CD on a remote system named `mars`, enter:

```
mars:/CDROM/installtools
```

- If an Installation Startup Message appears, read it and click **Dismiss**.

Note: If a network error message appears, refer to "Troubleshooting Remote Installations" on page 71.

5. Click the **Customize Installation** button.
6. Open the **Software** menu and make sure that **Short Product Names** *is not* selected. (A check mark indicates that it *is* selected.)
7. Confirm that your system needs this patch:
   - If, in the **Software Inventory** list, next to "Patch SG#######: Installation tools support for overlays," under the **Status** heading, you see **New** or **Upgrade**, proceed to Step 8 to install the patch.
   - If you see the phrase **Older Version** or **Same Version** next to "Patch SG#######: Installation tools support for overlays," this patch is already installed. Select **File > Exit** (or press Ctrl+Q) to exit Software Manager. Then skip Steps 8, 9, and 10, and proceed to Step 11 on page 21 to begin the overlay installation.
8. Make sure that the "Installation tools support for overlays" patch is selected.
9. Click the **Start** button.
10. When the patch installation is complete, an "exit or continue" dialog appears:

    Choose **Exit**. (Do not install any other products yet.)

    You will see the following message:

    ```
    Requickstarting ELF files (see rqsall(1))
    ```

The requickstarting process improves startup times for applications that use shared libraries. It may take several minutes.

Overlay Installation

11. Follow the instructions below to bring up Software Manager and the software distribution:

If installing from a CD connected to *your system*:

- The Installation Tools and Overlays CD should still be in the CD-ROM drive. If it is not, insert it in the drive now.
- Open Software Manager by double-clicking the **CDROM** icon on your desktop.

  The **Installation Startup Message** window appears. Read it and click **Dismiss**.

  If `/CDROM/dist` does not display in the **Available Software** field, change it so that it does.

If installing from a distribution or CD on a *remote system*:

- From your **Toolchest**, choose **System > Software Manager**.
- Enter the remote system's name and the location of the Installation Tools and Overlays distribution in the **Available Software** field.

  For example, if it is in a CD-ROM drive on a remote system named `mars`, enter:

  `mars:/CDROM/dist`

Note: If a network error message appears, refer to "Troubleshooting Remote Installations" on page 71.

12. Click the **Customize Installation** button.
13. If you have not done so in a previous installation, a dialog asks you to select a stream. (If you are not sure what to choose, see "Choosing Release Streams" on page 10.)

    Note: Skip this step if you are *switching* streams. Switching is performed later in this procedure.
14. A dialog prompts you to insert any other CDs that were included in the IRIX overlay package (for example, any WorldView language support CDs). To do so, eject the current CD and insert the next one. See the following table for location-specific instructions.

    Note: If the **Conflicts** button highlights, ignore it until Step 16.

    You must open all CDs or distributions now if:

    - You are upgrading from a release *before* IRIX 6.5, or,
    - You are switching release streams

    If this is an upgrade from IRIX 6.5 or IRIX 6.5.*x*, however, you need only open the Installation Tools and Overlays and Applications CDs. (The Base Documentation CD is designed to be used as stand-alone reference media. You cannot install it.)

.

Software Location	How to Open a CD or Distribution
CD	Select **System > Software Manager** from your desktop **Toolchest**. Use the Software Manager **Eject** button if it appears in a dialog. If you do not see an **Eject** button, select the desktop **CDROM** icon (on the system connected to the CD-ROM drive), hold down the right mouse button, and choose **Eject CDROM**. (Alternatively, enter `eject /CDROM` in a shell.) Insert the CD. Close the CD carriage.
Distribution directory	Open the next directory, for example: `open` *systemname*`:/irix/cd2`

- Click the **Add** button.
- When all CDs have been added, click **Done**.

15. Make your installation selections, based on the type of upgrade you are performing:

Type of Upgrade	How to Make Selections in Software Manager
Typical upgrade (no stream switch)	Choose **Install > Select Recommended Upgrades**
Switching from feature to maintenance stream	Choose **Install > Switch to Maintenance Stream**
Switching from maintenance to feature stream	Choose **Install > Switch to Feature Stream**

You may see `no matches` messages. This does not indicate an error.

Note: These commands are recommended because they significantly reduce installation conflicts. Alternatively, you can click to select or deselect products. A red check mark indicates that the product is selected for installation.

16. If there are installation conflicts, the **Conflicts** button (two buttons to the right of the **Start** button) turns red. (If there are no conflicts, proceed to the next step.) To display and resolve conflicts, click the **Conflicts** button.

Too Many Conflicts?

If you have a surprising number of conflicts (for example, over twenty):

- You may not have opened all the CDs or remote distributions you needed to open. This may be because you did not click the **Add** button with each CD. Try reopening the CDs that came with your release package (and, if you are switching release streams, open the core IRIX 6.5 CDs as well). To reopen, choose **File > Open Additional Distribution**, and carefully follow the "How to Open a CD or Distribution" instructions in Step 14 (page 23), then proceed to Step 15.
- You may not have used the appropriate selection command. Try repeating Step 15.

Critical Notes on Resolving Conflicts

- If you need to resolve conflicts by opening a CD, any installation selections you previously made on that CD may be altered. Review what is selected on the CD and deselect or reselect as needed, or repeat the command you used in Step 15, page 24.
- If a conflict gives you the option of deselecting a product with “eoe” or “Execution Environment” in the product name, *do not* choose to deselect the product. The operating system needs “eoe” products in order to function properly. ***Exception****: You do not have to install “eoe” products that are man (manual) pages, relnotes (release notes), or books.*
- If you deselected subsystems, conflicts may be generated by dependencies on those subsystems.
- If you deselected subsystems, conflicts may be generated by remaining patches that go with the deselected subsystems. However, because such patches go with subsystems you are not installing, you do not need to install those patches.
- If you are switching release streams, you may need to open one or more of the base operating system CDs. If this occurs, you are prompted with conflict messages that say which products cannot be installed. These messages begin with the following (or a similar warning):

  `Overlay product` *product.name* `(##########)cannot be installed...`

Open the distribution or CD that contains the missing product, select the product for installation from the displayed list, then click the **Add** button. If you do not know which CD contains the product in question, a list of the CD contents can be found on the Start Here pages. (See "How to Access the Start Here Pages" on page 77).

17. Click the **Start** button.

    Installation begins. You are prompted to open one or more specific CDs (or distribution directories) as needed by the installation program.

    Installation dialogs will include an **Eject** button. Click it to eject a CD. Then load the requested CD, and close the CD carriage to continue.

18. When a dialog appears that says "Installations and removals were successful," select **Restart the system now** and click **OK**.

    You will see:

    ```
    Requickstarting ELF files (see rqsall(1))
    ```

    It may take several minutes.

    Restarting is automatic. This completes the installation process.

Postinstallation

Now that the IRIX operating system is upgraded, you can use Software Manager to select and install any new products that were included with your upgrade package. See "How to Install Applications" on page 67.

Although every product has an associated release note that informs you of major bugs and workarounds, SGI has collected information on bugs that could most *significantly* affect your experience once you upgrade and has posted it as "Caveats to Read After Upgrading." This document is installed on your system by default as part of the Welcome document. To see it, bring up a Web browser and enter this address:
file:///var/www/htdocs/WhatsNew/precaveats.html

In addition to reviewing this document, you may want to check "Caveat and Release Note Updates" for this release on Supportfolio Online at http://support.sgi.com/irix/6.5/ for any late-breaking information.

How to Install IRIX 6.5.*x* on a Pre-6.5 Release or a Clean Disk

Summary

In this procedure, you will install the IRIX 6.5 base operating system and the IRIX 6.5.*x* intermediate release concurrently on a pre-6.5 release of IRIX, or on a clean disk.

Who should use these instructions?
Use this procedure if your system has a graphical interface and has not yet been upgraded to IRIX 6.5, or if your system has a clean disk. If your system does not have a graphical interface, see "Installations for Nongraphical Systems" on page 49.

If you are unsure if your system is running a pre-6.5 release of IRIX, enter `uname -R` in a shell window. If this does not work, enter `uname -r` (if you need to enter this command, you have a pre-6.2 release of IRIX).

How long will it take?
This procedure should take one to two hours, depending on your system (faster processors mean faster installations).

This section includes:

Quick Summary for Experienced Users

SGI recommends that all users follow the steps in "Installation Procedure" on page 34. However, this section provides a quick summary of the process for experienced Inst users.

1. **Preparation Summary**

   - Print or check the Start Here pages for information you need before you begin, such as minimum system requirements, CD contents, and any major installation caveats for this release. (See "How to Access the Start Here Pages" on page 77.)
   - Collect the CDs you need (listed in Step 1 of "Installation Procedure" on page 34).

2. **Preinstallation Summary**

   - If you are using CDs, insert the IRIX 6.5.*x* Installation Tools and Overlays CD now.
   - Go to the miniroot.

3. **CD or Distribution Reading Summary**

Before you make any selections, **you must open all CDs** (as described in Steps 7 through 12 of the “Installation Procedure” that begins on page 34) so that Inst can read the product descriptions on *each* of the CDs or distribution directories. (This prevents *many* installation conflicts.)

Important:

- Open IRIX 6.5.*x* Installation Tools and Overlays first. (It should already be in the drive.)
- If you have not previously done so, you are prompted to choose a release stream. See “Choosing Release Streams” on page 10 for details.

4. **Product Selection Summary**

Refer to the following to install upgrades and related (prerequisite) products:.

Type of Upgrade	Commands to Enter
Typical upgrade with no stream switch (not used in base release installations)	`keep *` `install standard`
Switching from feature to maintenance stream	`install maint`
Switching from maintenance to feature stream	`install feature`

5. **Installation Summary**

Enter `go`, and resolve conflicts if necessary. Inst prompts you to open specific CDs when they are needed.

In some cases, the message that indicates which CD to insert may include `Error/Interrupt Menu`—this does not signify a problem. Load the requested CD, and at the prompt enter `3` (that is, `continue`).

6. **Postinstallation Summary**

   Although every product has an associated release note that informs you of major bugs and workarounds, SGI has collected information on bugs that could most *significantly* affect your experience once you upgrade and has posted it as “Caveats to Read After Upgrading.” This document is installed on your system by default as part of the Welcome document. To see it, bring up a Web browser and enter this address: file:///var/www/htdocs/WhatsNew/precaveats.html.

   In addition to reviewing this document, you may want to check “Caveat and Release Note Updates” for this release on Supportfolio Online at http://support.sgi.com/irix/6.5/ for any late-breaking information.

Installation Procedure

Follow this procedure closely. Each subsection is *critical* to a successful installation.

> **Note:** Since you are upgrading from a pre-6.5 release of IRIX, you cannot perform a live install. Therefore, you will be installing from miniroot, the core operating system included on the installation CDs (or installation distribution).

Preparation

1. Confirm that you have the right CDs (or distributions). At the minimum, you need:

   - The latest IRIX 6.5.*x* Installation Tools and Overlays CDs
     (Use this *instead* of the IRIX 6.5 Installation Tools CD.)

   - Any other CDs that came with the IRIX 6.5.*x* release package

- From the IRIX 6.5 base release package:
  - IRIX 6.5 Foundation 1
  - IRIX 6.5 Foundation 2
  - IRIX 6.5 Applications (use only if a newer Applications CD was not included in the intermediate release package)
  - IRIX 6.5 Development Foundation (use if you are a developer)
  - IRIX 6.5 Development Libraries (use if you are a developer)
- In addition to the CDs listed above, you probably received other CDs with your IRIX 6.5 package, depending on your configuration. For example, there are separate CDs for NFS and SoftWindows. If you have already installed older versions of any of these products, upgrade them during this installation. If you do not open a CD that contains a product you have previously installed, "conflict" messages during installation prompt you to open it.

2. Print or check the Start Here pages for information you need before you begin, such as major installation caveats and the contents of each CD.

   See "How to Access the Start Here Pages" on page 77.

   Note: Because this is a miniroot installation, **do not install the "Installation tools support for overlays" patch.**

Preinstallation

3. (Skip this step if you are installing from a remote or tape distribution.)

   Load the first IRIX 6.5.*x* Installation Tools and Overlays CD in the CD carriage. (Press the CD carriage release button to open.)

4. In this step, you will boot the system then bring up the System Maintenance Menu:

   • **If you are installing on a clean disk:**

     Boot up the system (if applicable, it will boot up automatically following a reformat/repartition by the `fx` disk utility).

     Press Esc when you seethe message `Starting up the system`.

   • **If you are installing on a pre-6.5 release of IRIX.**

     From the **Toolchest**, choose **System > System Shutdown**.

     If a **Shutdown** dialog appears, click **OK**.

     When you seethe message `Okay to power off`, press the Esc key.

     Then, **quickly** press the Esc key again when you see the message `Starting up the system`

     The **System Maintenance Menu** displays. (If it does not, you did not press the Esc key when prompted: reboot your system to redo this step by selecting **System > Restart System**.)

5. Click **Install System Software** on the menu screen.

6. Specify the location of the new software to install.

If installing from a CD connected to *your system*:

- Click **Local CDROM**.
- Click **Install**.
- Click **Continue** in the dialog box that appears.
- If you are installing onto a clean disk, see the following Note.

If installing from a *remote system*:

- Click **Remote Directory**.
- Enter the name of the remote system that contains the distribution.
- Enter the pathname of the distribution source on the remote system. For example, if the source is a CD, enter `/CDROM/dist`.
- Click **Install**.

  If a network error message appears, refer to “Troubleshooting Remote Installations” on page 71.

The installation tools are loaded and the Inst command-line interface appears.

Note: If you are installing on a *clean disk,* a message appears that includes `make new filesystem`, and ends with `[yes/no/sh/help]`. Enter `yes` to make the new filesystem. When asked to confirm this, enter `y`. You are then asked to enter a block size. If you do not know your block size, enter `4096`. Once you have confirmed for the new filesystem, the **Inst *X.X* Main Menu** displays.

CD or Distribution Reading

Before you select any products for installation, **you must follow Steps 7 through 12 (beginning next page) to open all the CDs or distribution directories** so that Inst can read the product descriptions.

Note: If you have not yet determined which CDs you need, refer to Step 1 of this procedure.

You *must* open all CDs listed in Step 1.

7. Enter the correct command at the Inst prompt to instruct Inst to open the Installation Tools and Overlays distribution first. This is determined by where the software is located.

Location	How to Open
Local CD	Enter `open /CDROM/dist`.
Remote CD	Open the CD distribution directory on the remote system. For example, if the system is named `mars`, enter `open mars:/CDROM/dist`.
Distribution directory	Open the pathname for the Installation Tools. For example, if the system is named `mars`, enter: `open mars:/path/to/irix_x.x/install_tools`.

A README message may appear. Note this message. Press the spacebar to scroll through the message.

8. If you have not previously chosen a release stream, you see the following message. (If you do not see it, proceed to the next step.)

```
1. Place me on the maintenance stream.
2. Place me on the feature stream.
3. Cancel
```

Enter `1` or `2`.

If you are not sure which stream to choose, see “Choosing Release Streams” on page 10.

9. When you see a message similar to the following, replace the current CD or distribution directory with the next one, using the following table as a guide.

```
Install software from:[/CDROM/dist]
```

Location	**How to Open**
Local CD	Eject the current CD by pressing the eject button on the CD-ROM drive. Insert the new CD.
Remote CD	To eject the current CD, press the right mouse button on the **CDROM** icon on the remote desktop and select **Eject** from the pop-up menu. (Or, enter `eject /CDROM` in a shell on the remote system.) Insert the new CD.
Distribution directory	Open the next directory, for example: `open` *systemname*`:/`*path*/*to*/*next_CD*

When installing from a CD, make sure that the prompt indicates that the installation is from the `/CDROM/dist` directory. For example, if the prompt changes to reflect the `/CDROM/dist/dist6.5` directory, enter `/CDROM/dist` at the prompt.

10. Press the Enter key to instruct Inst to read the new CD or distribution directory.
11. Continue to replace and open each CD or distribution directory. (Use all the CDs you collected in Step 1, page 34.) **You must open all CDs listed in Step 1.**

    The installation tool will prompt you to enter **`done`**. **Do not enter `done` until all the CDs or distribution directories have been read.** If you enter `done` too early, you can open the rest of the CDs, but you will have to use the `open` command (as described in Step 7, page 39) for each one.
12. When all the relevant CDs or distribution directories have been read, enter `done`. Disregard this step if you entered `done` earlier.

Product Selection

13. Choose from the following commands, based on the type of upgrade you are performing. These commands select upgrades and related (prerequisite) products.

Note: If you are installing onto a clean disk, these commands select and install all standard software, plus prerequisite software and patches.

Type of Upgrade	Commands to Use
Typical upgrade (no stream switch)	`install standard`
Switching from feature to maintenance stream	`install maint`
Switching from maintenance to feature stream	`install feature`

- You may see `no matches` messages. This does not indicate an error.
- If you are familiar with using Inst, you can also choose to install new products now. Otherwise, proceed to the next step.
- Type `help` at the Inst prompt if needed.

Tip: For information on viewing or altering the products that are marked for installation, save your place on this page and refer to Step 17 of "How to Install IRIX 6.5.*x* on a Nongraphical System Running Pre-6.5 IRIX" on page 61.

Installation

14. Enter `go`.

    A preinstallation check takes place. This takes several minutes.

15. You are asked to reopen CDs as Inst requires them with a message similar to:

    ```
    Please insert the "CD title" CD
    Type Ctrl-C to interrupt
    ```

    Note: Entering A Control+C will stop this process. If the installation tools should request a CD, simply eject the CD carriage, load the requested CD, and press the Enter key.

    If the **Error/Interrupt Menu** should display, enter `3` at the `Interrupt>` prompt to Continue the go command.

16. If there are no Conflict" message, proceed to Step 20 on page 47. Otherwise, go to the next step.

17. If your installation selections have generated conflicts, Inst asks if you want to address them now.

    Enter `1` for `Address these conflicts now.`

18. **To resolve** conflicts, enter

    `conflicts` *choice choice.*

    You can enter `c` as an abbreviation for `conflicts`.

    For example, enter `conflicts 1b 2a` to indicate that for conflict 1 you choose choice b and for conflict 2 you choose choice a. (You can type several conflict choices on the same line and you can enter multiple conflict resolution commands.)

Too Many Conflicts?

If you have many conflicts (for example, over twenty):

- You may not have opened all the CDs or distributions you needed to open. **You must open all CDs listed in Step 1.** To reopen each one, use the `open` command (examples are given in the table in Step 7, page 39), then proceed to Step 13, page 41.
- You may not have used the selection command(s) recommended in Step 13. Try reviewing and repeating Step 13, page 41.

See "Important Notes on Resolving Conflicts" on the next page.

Important Notes on Resolving Conflicts

- If you need to resolve conflicts by opening a CD, the installation selections you already made may be altered on the CD you open. Review what is selected on the CD and deselect or reselect as needed, or reenter the command(s) you used in Step 13 on page 41.
- If the list of conflicts is long, enter `q` to stop viewing the list and resolve the conflicts currently visible on the screen. Once you have resolved the visible conflicts, enter `conflicts` again to view the remaining conflicts. The other option is to write down all of your choices before you enter them.
- If a conflict gives you the option of deselecting a product with "eoe" or "Execution Environment" in the product name, *do not* choose to deselect the product. The operating system needs "eoe" products to function properly. ***Exception****: You do not have to install "eoe" products that are man (manual) pages, relnotes (release notes), or books.*
- If you deselected subsystems, conflicts may be generated by dependencies on those subsystems.
- If you deselected subsystems, conflicts may be generated by remaining patches that go with the deselected subsystems. However, because such patches go with subsystems you are not installing, you do not need to install those patches.
- If you are switching release streams, you may need to open one or more of the base operating system CDs. If this occurs, you are

prompted with conflict messages that say which products cannot be installed. These messages begin with the following (or a similar warning):

`Overlay product` *product.name* `(##########)cannot be installed...`

If this occurs, you should choose to open the new distribution to resolve the conflict when you select how to resolve the conflict.

Insert the CD that contains the missing product. (If you do not know which CD contains the product in question, a list of CD contents can be found on the Start Here pages. See "How to Access the Start Here Pages" on page 77, for further information.)

Enter `/CDROM/dist` (for remote distributions, enter `open` *source*`:/CDROM/dist`.)

If you wish to see a list of the CD contents at this point, enter `list`.

Enter `install` *product_name*.

Continue with the installation.

19. When you have resolved all conflicts, enter `go`.

    When the preinstallation check concludes, Inst indicates that the installation is finished with the following message:

    ```
    Installations and removals were successful. You may
    continue with installations or quit now.
    ```

20. Enter `quit`.

    You will see the following message:

    ```
    Requickstarting ELF files (see rqsall(1))...XX%
    ```

    The requickstarting process searches for old file types to be replaced with new file types. It will take several minutes.

21. When you see the following message, enter `y`.

    ```
    Ready to restart the system. Restart?
    ```

Postinstallation

Now that the IRIX operating system is upgraded, you can use Software Manager to select and install new products that were included with your 6.5.*x* package. See "How to Install Applications" on page 67.

Although every product has an associated release note that informs you of major bugs and workarounds, SGI has collected information on bugs that could most *significantly* affect your experience once you upgrade and has posted it as "Caveats to Read After Upgrading." This document is installed on your system by default as part of the Welcome document. To see it, bring up a Web browser and enter the following address: file:///var/www/htdocs/WhatsNew/precaveats.html

In addition to reviewing this document, you may want to check "Caveat and Release Note Updates" for this release on Supportfolio Online at http://support.sgi.com/irix/6.5/ for any late-breaking information.

Installations for Nongraphical Systems

Who should use these instructions?
Use these instructions if your system does not have a graphical user interface.

How long will it take?
If you need to follow "How to Install Applications on a Nongraphical System," it may take anywhere from about 5 to 30 minutes. This depends on the size of the installation, whether or not you customize it, and the speed of your system processor.

If you need to follow "How to Install IRIX 6.5.x on a Nongraphical System Running IRIX 6.5 or Later" or "How to Install IRIX 6.5.x on a Nongraphical System Running Pre-6.5 IRIX," (see below) it should take approximately one to two hours, depending on your installation knowledge and the speed of your system processor.

This section includes instructions for three different situations:

- "How to Install Applications on a Nongraphical System" on page 50
- "How to Install IRIX 6.5.x on a Nongraphical System Running IRIX 6.5 or Later" on page 51
- "How to Install IRIX 6.5.x on a Nongraphical System Running Pre-6.5 IRIX" on page 53

How to Install Applications on a Nongraphical System

If you are installing application software only on a nongraphical system, it is not necessary to restart the system and perform the installation from the miniroot. Instead:

1. Open a shell and enter `su` to become superuser.
2. Enter `inst`.
3. Enter `from` followed by the distribution path.

   For example, if you are installing from a local CD-ROM drive, enter `from /CDROM/dist`.
4. Proceed to the "Product Selection" subsection of "How to Install IRIX 6.5.x on a Nongraphical System Running Pre-6.5 IRIX" on page 53, but **skip "Postinstallation"** on page 66. Also, you may not have to restart the system after installation. Inst prompts you to restart only if necessary.

How to Install IRIX 6.5.*x* on a Nongraphical System Running IRIX 6.5 or Later

If you are installing onto a system running IRIX 6.5 or later, you can perform a live (non-miniroot) intermediate release upgrade if you first install the latest version of the "Installation tools support for overlays" patch.

To perform the live installation:

1. Install the "Installation tools support for overlays" patch from the `installtools` directory of the intermediate release Installation Tools and Overlays CD:
   - Open a shell and enter `su`.
   - Enter `inst`.
   - Enter `from` followed by the distribution path. For example, if you are installing from a local CD-ROM drive, enter `from /CDROM/installtools`.
   - Select the "Installation tools support for overlays" patch.
   - Enter `go`.
   - When Inst indicates that the installation is finished, enter `quit`.
2. Gather the CDs you will use for this upgrade.

   If you want to switch to the other release stream during this installation, you should have the core CDs from the base operating system release on hand.

3. Print or check the Start Here pages for information you need before you begin, such as minimum system requirements and major installation caveats. The Start Here pages include additional useful information, such as CD descriptions.

   Save your place here and see "How to Access the Start Here Pages" on page 77.

4. Enter `inst`.
5. Enter `from` followed by the distribution path.

   For example, if you are installing from a local CD-ROM drive, enter `from /CDROM/dist`.

6. Proceed to the "CD or Distribution Reading" subsection of "How to Install IRIX 6.5.x on a Nongraphical System Running Pre-6.5 IRIX" on page 53.

   Important: If you are switching from the feature to the maintenance stream, use the core IRIX 6.5 CDs (in addition to the intermediate release CDs) during the CD or Distribution reading.

How to Install IRIX 6.5.*x* on a Nongraphical System Running Pre-6.5 IRIX

If you are installing onto a system running a pre-6.5 version of IRIX, follow all the steps below. You may also be interested in the “Quick Summary for Experienced Users” on page 30.

Follow these steps sequentially, from Preparation through Postinstallation. Each subsection is a *necessary* part of the process.

Preparation

1. Confirm that you have the appropriate CDs or distributions. At the minimum, you need:
   - The latest 6.5.*x* Installation Tools and Overlays (use this *instead* of the base release Installation Tools.)
   - Any other CDs included in your intermediate release package.
   - These CDs from the 6.5 base release package:
     – IRIX 6.5 Foundation 1

     – IRIX 6.5 Foundation 2

     – IRIX 6.5 Applications (use if you did not receive a new Applications CD in the Overlay package)

     – IRIX 6.5 Development Foundation (use if you are a developer)

  - IRIX 6.5 Development Libraries (use if you are a developer)

- In addition to the CDs listed above, you probably received other CDs with your IRIX 6.5 package, depending on your configuration. For example, there are separate CDs for NFS and SoftWindows. If you have already installed older versions of any of these products, upgrade them during this operating system upgrade. If you do not open the CDs that contain products you have installed, “conflict” messages during installation prompt you to install a subsystem.

2. Print or check the Start Here pages for information you need before you begin, such as minimum system requirements and major installation caveats for this release. The Start Here pages include additional useful information, such as CD descriptions.

   Save your place here and see “How to Access the Start Here Pages” on page 77.

Preinstallation

3. Insert the 6.5.*x* Installation Tools and Overlays CD in the CD-ROM drive. (It is important that you load this CD first.)

   Note: If you are using a distribution directory instead of a CD, skip this step—you will load the Installation Tools directory in a future step.

4. Become superuser and shut down the system:

```
% su
# shutdown
```

5. You see the following message.

   ```
   Do you want to continue with the shutdown (yes/no) [no]
   ```

   Enter `yes`.

6. If prompted, choose `Restart`, then press Esc to select **Stop for Maintenance**. (If you do not see this prompt, proceed to the next step.)

7. You are given a list of choices at the system maintenance menu. Enter `2` to select **Install System Software**.

8. Specify the distribution location as specified in the following instructions.

If installing from a CD connected to *your system*:

- Enter the number for the local CD-ROM selection. (You may have to press Enter twice.)

If installing from a *remote system*:

- Enter the number for the remote directory selection.
- When prompted, enter the name of the remote system.
- Enter the pathname of the software location on the remote system. For example, if the source is a CD, enter `/CDROM/dist`.

9. Press Enter to start the miniroot and Inst.

   Rows of dots and various messages appear. Wait for the Inst prompt.

   Note: If a network error message appears, refer to "Troubleshooting Remote Installations" on page 71.

CD or Distribution Reading

Before you make any selections, you **must correctly open all CDs or distribution directories** so that Inst can read the product descriptions. (This prevents *many* installation conflicts.)

10. Instruct **Inst** to read the Installation Tools and Overlays distribution by entering the appropriate command at the prompt, as described below (depending on the software location):

Location	How to Open
Local CD	Enter `open /CDROM/dist`.
Remote CD	Open the CD distribution directory on the remote system. For example, if the system is named `mars` enter: `open mars:/CDROM/dist.`

Location	How to Open
Distribution directory	Open the pathname for the Installation Tools and Overlays CD. For example, if the system is named `mars`, enter: `open mars:/irix/tools`.

A README message may appear. Press the spacebar to scroll through the message.

11. If you have not chosen a release stream during a previous upgrade, you see this message:

```
1. Place me on the maintenance stream.
2. Place me on the feature stream.
3. Cancel
```

Enter `1` or `2`.

If you are not sure which stream to choose, see “Choosing Release Streams” on page 10.

12. When you see a message similar to the following, replace the current CD or distribution directory with the next one, using the following table as a guide.

```
Install software from:[CDROM/dist].
```

Location	How to Open
CD	Eject the current CD by pressing the manual eject button on the CD-ROM drive. (Or, enter `eject /CDROM` in a shell.) Insert the new CD.
Distribution Directory	Open the next directory, for example: `open` *systemname*`:/irix/cd2`

When installing from a CD, make sure that the prompt indicates that the installation is either from the `/CDROM/dist` directory or, in some cases, the correct `/CDROM/dist` subdirectory. If the prompt changes to reflect the `/CDROM/dist/dist6.5` directory and this is incorrect, you can enter `/CDROM/dist` at the prompt to return to the `/CDROM/dist` directory. In some cases, the software may need to be installed from a subdirectory of the `/CDROM/dist` directory, such as the `/CDROM/dist/dist6.5` directory or the `/CDROM/dist/unbundled` directory.

13. Press the Enter key to instruct Inst to read the new CD or distribution.
14. Continue to replace and open each CD or distribution directory in the manner described in the previous two steps. (Use the CDs you collected in Step 1, page 53.)

    The installation tool will prompt you to enter `done`. **Do not enter `done` until all the CDs or distribution directories have been read.** If you enter "done" too early, you can continue to open the rest of the CDs, but you will have to use the `open` command (as described in Step 10, page 56) each time.
15. When all the relevant CDs or distribution directories have been read, enter `done`.

Product Selection

16. Choose from the following commands, based on the type of upgrade you are performing. These commands select upgrades and related (prerequisite) products.

    Note: If you are installing onto a clean disk, these commands select and installallstandardsoftware,plusprerequisitesoftwareandpatches.

Type of Upgrade	Commands to Use
Typical upgrade (no stream switching)	`keep *` `install standard`
Switching from feature to maintenance stream	`install maint`
Switching from maintenance to feature stream	`install feature`

    Note: You may see `no matches` messages. This does not indicate an error.

17. *(Optional)* If you want to view or alter the products that are marked for installation, enter `list`.

    Each product is marked as follows:

    – The status of products appears as follows: `N`=new, `U`=upgrade, `S`=same, `D`=downgrade.

    – The selection command that is currently applied to a product appears as follows: `i`=install, `r`=remove, `k`=keep, where "keep" means that the product is not marked for installation.

    – Product types appear in brackets, as follows: `[b]`=reBoot needed after installation is complete, `[d]`=Default, `[r]`=Required, `[p]`=Patch, `[o]`=Overlay, `[c]`=Client only.

    You may change the installation status of any product in the distribution listed. For example:

    - To select software that is not already selected, use the `install` command. For example, `install ViewKit_dev.sw.lib`
    - If there is software you do not wish to install, use the `keep` command. For example, `keep ViewKit_dev.sw.lib`

    You can also use the `step` command on the Inst **Main** menu to display items on the distribution individually and make your selections as each item is displayed. To find out more information about the `step` command, enter `help step` at the Inst menu.

Installation

18. Enter `go`.

    If there are no Conflict messages, proceed to Step 22, page 64.

19. If your installation selections have generated conflicts, Inst asks you if you want to address them now.

    Enter 1 for `Address these conflicts now.`

20. If you need to resolve conflicts, enter `conflicts` *choice choice.* For example, enter `conflicts 1b 2a` to indicate that for conflict 1 you choose choice b and for conflict 2 you choose choice a. (You can type several conflict choices on the same line.)

    - If you need to resolve conflicts by opening a CD, the installation selections you already made may be altered on the CD you open. Review what is selected on the CD and deselect or reselect as needed, or reenter the command(s) you used in Step 16, page 60.
    - To review what you selected on the CD, use the `step` command on the Inst **Main** menu to display items on the distribution individually and make your selections as each item is displayed. To find out more information about the `step` command, enter `help step` at the Inst menu. You can also use the `list` command to display a list of all subsystems in the distribution inventory.

- If the list of conflicts is long, enter `q` to stop viewing the list and resolve the conflicts currently visible on the screen. Once you have resolved the visible conflicts, enter `conflicts` again to view the remaining conflicts. The other option is to write down all of your choices before you enter them.
- If a conflict gives you the option of deselecting a product with "eoe" or "Execution Environment" in the product name, *do not* choose to deselect the product. The operating system needs "eoe" products to function properly. ***Exception****: You do not have to install "eoe" products that are man (manual) pages, relnotes (release notes), or books.*
- If you deselected subsystems, conflicts may be generated by remaining patches that go with the deselected subsystems. However, because such patches go with subsystems you are not installing, you do not need to install those patches.
- If you are switching release streams, you may need to open one or more of the base operating system CDs. If this occurs, you are prompted with conflict messages that say which products cannot be installed. These messages begin with the following (or a similar warning):

  `Overlay product` *product.name* `(##########)cannot be installed...`

  If this occurs, you should choose to open the new distribution to resolve the conflict when you select how to resolve the conflict.

Insert the CD that contains the missing product. (If you do not know which CD contains the product in question, a list of CD contents can be found on the Start Here pages. See "How to Access the Start Here Pages" on page 77, for further information.)

Enter `/CDROM/dist` (for remote distributions, enter `open` *source*`:/CDROM/dist`.)

If you wish to see a list of the CD contents at this point, enter `list`.

Enter `install` *product_name*.

Continue with the installation.

21. When there are no more conflicts, enter `go`.

    A preinstallation check begins.

22. If Inst so requires, you are asked to reopen specific CDs.

    When you see a message similar to the following, insert the specified CD in the CD-ROM drive or open the associated distribution directory.

    ```
    Please insert the "CD title" CD
    Type Ctrl-C to interrupt
    ```

    Tip: Save your place here and refer to the table in Step 12, page 58, for details on ejecting and opening CDs.

    In some cases, a message that indicates which CD to insert may include **Error/Interrupt Menu**—this does not signify a problem. Insert the requested CD, and at the interrupt prompt enter `retry`.

It may take several minutes for each CD to install. Eventually a new message prompts you to insert the next CD; or Inst indicates that the installation is complete.

23. When Inst indicates that the installation is finished, enter `quit`.

    You will see the following message:

    ```
    Requickstarting ELF files (see rqsall(1))...XX% Done.
    ```

    The requickstarting process improves startup times for applications that use shared libraries. It may take several minutes.

24. When you see the following message, enter y.

    ```
    Ready to restart the system. Restart?
    ```

Postinstallation

> **Note:** This does not apply if you are working on a nongraphical system.

Although every product has an associated release note that informs you of major bugs and workarounds, SGI has collected information on bugs that could most *significantly* affect your experience once you upgrade and has posted it as "Caveats to Read After Upgrading." This document is installed on your system by default as part of the Welcome document. To see it, bring up a Web browser and enter this address: file:///var/www/htdocs/WhatsNew/precaveats.html

In addition to reviewing this document, you may want to check "Caveat and Release Note Updates" for this release on Supportfolio Online at http://support.sgi.com/irix/6.5/ for any late-breaking information.

How to Install Applications

Who should use these instructions?
Use these instructions if you need to install individual applications, rather than an operating system. After you upgrade the IRIX operating system, you can use these instructions to select and install new software products that were included with your IRIX package.

How long will it take?
Installing individual applications may take anywhere from about 5 minutes to 30 minutes, depending on the size of the installation, whether or not you customize it, and the speed of your system processor.

This section includes:

- "How to Install Applications From a Local CD-ROM drive" on page 68
- "How to Install Applications From a Remote CD-ROM drive" on page 69

Note: For more details about software installation, including how to customize your installation and troubleshoot, refer to the Software Manager **Help** menu.

How to Install Applications From a Local CD-ROM drive

To install applications from a CD-ROM drive that is connected to your system:

1. Insert the CD in the CD-ROM drive.
2. Open Software Manager by double-clicking the **CDROM** icon on your desktop.
3. To install all upgrades and new products, proceed to Step 4; otherwise, click **Customize Installation** to select specific products:
   - After the Software Inventory is displayed, click to select the products you want to install.
   - If a product has release notes, the product name turns blue when you click it. Click again to display release notes, or choose Selected **>** Release Notes.
4. Click the **Start** button.
5. When the installation is complete, choose **File > Quit**.
6. Eject the CD from the drive:

   Select the **CDROM** icon, hold down the right mouse button, and choose **Eject**.

How to Install Applications From a Remote CD-ROM drive

To install applications from a CD-ROM drive that is connected to another system on your network:

1. Insert the CD in the remote CD-ROM drive.
2. From the Toolchest on your system, choose **System > Software Manager**.
3. In the **Available Software** field, enter the remote system's name and the distribution directory path. For example:

   systemname`:/CDROM/dist`

   Note: If a network error message appears, refer to "Troubleshooting Remote Installations" on page 71.
4. Click the **Lookup** button.
5. To install all upgrades and new products, proceed to Step 6; otherwise, click **Customize Installation** to select specific products:
   - After the **Software Inventory** is displayed, click to select the products you want to install.
   - If the product has release notes, the product name turns blue when you click it. Click again to display release notes, or choose **Selected > Release Notes**.

6. Click the **Start** button.
7. When the installation is complete, choose **File > Quit**.
8. Eject the CD from the drive:

   Select the **CDROM** icon on the remote system's desktop, hold down the right mouse button, and choose **Eject**.

Troubleshooting Remote Installations

When a network error message appears during a remote installation, review the following troubleshooting items to see if they apply to your situation:

- Check the network connection; make sure that the cables are secure.
- If you see an error similar to `Cannot load network (0) bootp()`*systemname*`:/CDROM/dist`, check that `tftp` access to the CD-ROM is enabled on the *remote* system.
- *(Only applicable when installing installation tools.)* If your system does not have its IP address correctly set in nvram, you will see these messages in the system monitor when your system tries to reach a remote distribution:

  `Unable to execute network(0)bootp()`<*distribution path*>

  `could not connect to server`

  `Cannot load network(0)bootp()`<*distribution path*>

  `could not connect to server`

  `Unable to continue; press <enter> to return to the menu.`

These messages indicate that you need to change the nvram IP address entry to match the IP address that is being used by UNIX. This procedure is described in the following steps:

1. When you see the error messages shown above in the System Monitor, press **`Enter`** to clear messages.
2. From the system maintenance menu, click **Enter System Monitor** (or press `5`)
3. Enter `printenv netaddr` to display the IP address currently set in nvram.
4. If the address displayed is correct, then stop. Your nvram is set correctly, and there is a different problem preventing you from reaching the distribution server. If the address displayed is incorrect (or if you are not sure), proceed to the next step.

5. This step depends on whether you know the correct IP address:

If you know your system's correct IP address:	If you do not know your system's correct IP address:
■ Proceed to Step 15, page 75.	■ If your system was not working properly before starting the installation, or if you are installing on a clean disk, you must stop, find out the correct IP address from your network administrator, and proceed to Step 15, page 75. ■ If your system was working properly and was already running IRIX, proceed to Step 6 below.

6. Enter `exit` or click **Done** to return to the maintenance menu.
7. Choose **Start System** (or press `1`). Wait until your system starts up, then log in normally.
8. From the **Toolchest**, choose **Desktop > Open Unix Shell**.

9. In the shell window, enter:

   `/usr/etc/netstat -in`

10. Your IP address is listed as a series of four numbers separated by periods (such as `10.10.61.2`) under the `Address` column, usually in the first line of output. (Ignore the `lo0` line and the `127.0.0.1` address.)

11. To confirm your address, enter:

    ``grep `hostname` /etc/hosts``

    Be sure to use backward apostrophes (`).

    You should see your system's hostname and the same IP address you saw in the previous step.

12. Write down your IP address.

13. From the **Toolchest**, choose **System > System Shutdown**, then:

    – If a *Shut Down* dialog appears, click `OK`.

    – Press the Esc key when you see `Okay to power off`.

    – Press the Esc key immediately again when you see `Starting up the system`.

    The **System Maintenance** menu screen should appear now. (If it does not, you probably did not press the Esc key soon enough; begin this step again by restarting the system.)

14. Click **Enter System Monitor** on the menu screen (or press `5`).
15. Enter `setenv netaddr` followed by your IP address.

    For example: `setenv netaddr 10.10.61.2`
16. Enter `exit` or click **Done** to return to the maintenance menu.
17. Return to the installation instructions you were originally following.

Additional Installation Information

This section contains directions on accessing more installation-related information:

- *(Required for IRIX Operating System Installations Only)* Follow the instructions in "How to Access the Start Here Pages" on page 77 before you install IRIX.
- *(Optional)* See "How to Access Inst Troubleshooting" on page 79 if you want to print out troubleshooting documentation for Inst, the program used for installing an operating system.
- *(Optional)* See "How to Access Release Notes" on page 81 to find out how to view product release notes. Product release notes typically include known bugs and workarounds, a description of changes particular to the product release, and compatibility information.

How to Access the Start Here Pages

Reviewing the Start Here pages is the first step in upgrading an IRIX operating system, but is not applicable for single application upgrades or installations.

If you are installing on a previously-installed system:

1. Insert the Installation Tools and Overlays CD that came with your most recent release.
2. Open a Web browser and enter this address:

   file:///CDROM/WhatsNew/yourSystem.html

   (Literally type `yourSystem.html`; do not type your system name.)
3. Click the **Start Here** link.

If you are installing to a clean disk:

1. Open a Web browser on another system and enter this address:

   http://support.sgi.com/irix/6.5/

   From here you will be able to view Supportfolio Online, from which you can find links to Start Here pages for IRIX 6.5.*x* releases.

In addition to these instructions, the Start Here pages include key information such as minimum system requirements, major caveats for this release, CD descriptions, and an overview of the new software included in the release.

Note: After you complete your installation, a **Welcome_to_SGI** icon appears on your desktop. You can access the Start Here pages by double-clicking this icon.

When you are finished with the Start Here pages, return to the page that referred you here.

If you did not save your place, it was probably in one of these sections:

- "Introduction" on page 13
- "How to Install IRIX 6.5.x on a Pre-6.5 Release or a Clean Disk" on page 29
- "Installations for Nongraphical Systems" on page 49

How to Access Inst Troubleshooting

There is information about troubleshooting network errors during remote installations in “Troubleshooting Remote Installations” on page 71.

For information on general Inst troubleshooting, you may also want to access (or print out) the troubleshooting section of *IRIX Admin: Software Installation and Licensing*. To access it:

1. Log in.
2. Insert the IRIX 6.5 Base Documentation CD into the CD-ROM drive.
3. On IRIX 6.5.17 or later, you can view books directly from the documentation CD using a web browser. Point the web browser at the library on the documentation CD:

http:///CDROM/usr/share/Insight/library/SGI_bookshelves/index.html

Alternately, on any IRIX 6.5 release, you can launch the IRIS InSight book viewer with the following procedure:

- Open a shell: From the **Toolchest**, choose **Desktop > Unix Shell**.

- Go to the CDROM directory. The default CD-ROM directory location is `/CDROM`, so at the shell prompt, enter `cd /CDROM`.

- Enter `./CDinsight` to launch the IRIS InSight book viewer.

4. Click the **SGI Admin** tab and double-click the **IRIX Admin: Software Installation and Licensing** book icon. The Troubleshooting section is the last section of the book.

   Note: You can also find this book at the Technical Publications Library Web site at `http://techpubs.sgi.com`.

How to Access Release Notes

To view product-specific release notes, use the following procedure to launch the release notes viewer:

1. Log in.
2. Insert the IRIX 6.5 Base Documentation CD into the CD-ROM drive.
3. Open a shell: From the **Toolchest**, choose **Desktop > Unix Shell**.
4. Go to the CDROM directory.

   The default CD-ROM directory location is `/CDROM`, so at the shell prompt, enter `cd /CDROM`
5. Enter `./CDgrelnotes` to launch the IRIS InSight book viewer.

Installing Software Keys

SGI uses FLEXlm to license its products. The sections that follow describe how FLEXlm node-locked and floating or concurrent keys are installed using License Manager. (The terms “floating key” and “concurrent key” are interchangeable.)

Additional licensing information regarding software keys can be found at http://www.sgi.com/support/licensing/.

For products that require a software key, you should have received an Entitlement ID number from SGI. The Entitlement ID is a unique, randomly generated, numeric, 16-digit identifier that is used by SGI to verify proof of purchase for keyed software products. This number is required by SGI when customers request their permanent keys from http://www.sgi.com/support/licensing/. If you do not have this number, contact SGI or your local support provider.

Installing a FLEXlm Node-locked Key

To install FLEXlm node-locked keys, you must invoke License Manager. If you are installing a key for XFS Volume Plexing or any other product that must be installed in a directory other than `/var/flexlm`, then refer to the product's release notes for software key installation instructions.

To install the key, follow this procedure:

1. Choose **System > License Manager** from the **Toolchest** to open License Manager.
2. Click the **Install** button.
3. Select **FLEXlm Nodelock**.
4. Click the **OK** button.
5. Copy the entire key into the window labeled **License Manager: Install FLEXlm Nodelock License**.
6. Click the OK button.
7. Repeat Steps 2 through 6 until all keys are installed.
8. Click the **Close** button on the main License Manager window.

You are finished installing the key(s). Save the entitlement ID and a copy of the software key; you may need them again later to reinstall your key(s).

Note: You may also use the Manual Installation Instructions to add software keys directly to `/var/flexlm/license.dat`. These instructions accompany the software keys that are issued from SGI.

Installing a FLEXlm Floating (Concurrent) Key

Note: The information in this section should be used only by the system administrator of the license server system. If you are an end user of client software with a floating key that is not functioning, contact your system administrator.

If you are installing a key for a product that must be installed in a directory other than `/var/flexlm`, refer to the specific product's release notes for license installation instructions.

Floating keys require a network license server. The subsystem `license_eoe.sw.flexlm_server` must be installed on that system. Verify that it is installed by opening a UNIX shell and entering

```
showprods -s3 license_eoe.sw.flexlm_server
```

If the result is `license_eoe.sw.flexlm_server`, the subsystem is installed; if the result is nothing, you must install `license_eoe.sw.flexlm_server`.

With FLEXlm, a floating key must be installed on the license server and the license file copied to every client system. The license manager daemon, `lmgrd`, should then be started on the license server. You do not need to start license daemons on client systems.

To install the key on the license server system using License Manager, follow this procedure:

1. Choose **System > License Manager** from the **Toolchest** to open License Manager.
2. Click the **Install** button.
3. Click **FLEXlm Floating**.
4. Click the **OK** button.
5. If necessary, enter the **Server Host Name** in the corresponding field. (To find the name, enter the UNIX shell command `uname -n` on the server.)
6. Copy the entire key into the **License Manager-Install FLEXlm Floating License** window.
7. Click the **OK** button.
8. Repeat Steps 2 through 7 until all keys for the server are installed.
9. Click the **Close** button on the main License Manager window.

   Note: You may also use the Manual Installation instructions to add software keys directly to `/var/flexlm/license.dat`. These instructions accompany the software keys that are issued from SGI.

To configure and start the FLEXlm license daemon (only on the license server system):

1. Open a UNIX shell and enter `su` to Become superuser.
2. Enter `chkconfig flexlm on`.
3. Stop the `lmgrd` daemon by entering `/etc/init.d/flexlm stop`.
4. Edit `/etc/config/lmgrd.options` and `/etc/config/lmdown.options` to reference `/var/flexlm/license_`*server_name*`.dat` instead of the default `/var/flexlm/license.dat`.
   Note: `/etc/config/lmdown.options` appears only in IRIX 6.5.16 and later.
5. Start the `lmgrd` daemon by entering `/etc/init.d/flexlm start`.
6. Exit the root account by entering `exit`.

On any system you wish to access this key from, you must copy (or mount) the license file (`/var/flexlm/license_`*server_name*`.dat`) from the server system into the `/var/flexlm/license_`*server_name*`.dat` file (on all client systems).

You are finished installing the key. Save the Entitlement ID and a copy of the software key; you may need them again later to reinstall your key(s).

Troubleshooting FLEXlm Software Keys

Use the methods described in this section for basic troubleshooting.

- To analyze the keys in the license files, enter either of the following UNIX commands:

  `/usr/sbin/lmdiag -c /var/flexlm/license.dat`

  `/usr/sbin/lmdiag -c /var/flexlm/license_`*serverhost*`.dat`

  If you see an error message that says the HOSTID is incorrect, do the following:

  – For a node-locked key, enter the UNIX command `/usr/sbin/lmhostid`. If the result does not match one of the entries in the HOSTID string for that product in the license file, this is the problem.

  – For a floating key, on the server system, enter the UNIX command `/usr/sbin/lmhostid`. Compare the results with the second argument on the SERVER line, which corresponds to the product in question. If the two numbers are not identical, this is the problem.

  Conditions that might cause the `/usr/sbin/lmhostid` results and the HOSTID to be different include:

  – The key may be for a system different from the one it is installed on.

  – The HOSTID may have been entered incorrectly.

- The HOSTID on the system may have changed (replacing the system board or I/O board can change the HOSTID).
- The system may have been partitioned, or the license may be for a different partition.

• **Note:** The following troubleshooting procedure works only for IRIX 6.5.16 and higher. Prior to IRIX 6.5.16, `lmdown` and `lmgrd` shared the same configuration file. In pre-6.5.16 systems, adding `-l` *logfile* to the `lmgrd.options` file (as described in this procedure) causes `lmdown` to fail and breaks the `/etc/init.d/flexlm stop` command.

For trouble with a floating FLEXlm key in IRIX 6.5.16 and higher, configure the `lmgrd` daemon on the server to send its output to a log file by adding the following to the `/etc/config/lmgrd.options` file (note that `-l` is the lowercase letter *l*, not the number one):

```
-l /var/tmp/flexlm.log
```

Do not update the `/etc/config/lmdown.options` file. Also, double-check the path of the license file named in the `-c` option in both `lmgrd.options` and `lmdown.options`; the path should specify the `/var/flexlm/license_`*server_name*`.dat file`.

In a UNIX shell, enter

```
/etc/init.d/flexlm stop; /etc/init.d/flexlm start
```

Note: If the `lmdown.options` file is not configured correctly, the `flexlm stop` command fails. The `flexlm start` command also fails and logs messages that `lmgrd` is already running. The only way to fix this problem is to kill all the `lmgrd` and `sgifd` processes manually (`killall -v lmgrd sgifd`).

In systems running IRIX 6.5.18 and earlier, the `stop` command fails silently. Systems running IRIX 6.5.19 and later display an error in the `/etc/init.d/flexlm stop` process alerting users to the problem.

Look at the log file for error messages.

If the application program (or `lmstat`*)* cannot connect to the license server, one of several things may be wrong:

– The license server may be down, or there may be a network problem. Verify that the client system can communicate with the server. In a UNIX shell on the server, enter this command:

  `setenv LM_LICENSE_FILE /var/flexlm/license_`*server_name*`.dat`

  Then, enter `/usr/sbin/lmstat -a` to verify that the vendor daemon is running.

  In a UNIX shell on the client system, enter `lmstat -a` to check if the system can contact the vendor daemon on the server. Then, from the client system, enter the command `telnet` *hostname portnumber*, where *hostname* and *portnumber* match the SERVER line in the license file.

- The SGI vendor daemon may not be running. On the server, verify that it is running by entering the UNIX command `ps -ef | grep '[s]gifd'`. If nothing is returned, then the vendor daemon is not running.
- The application may not be looking at the expected license file. The default license file for SGI products is `/var/flexlm/license.dat`. Verify the contents of `/var/flexlm/licensefile.db` to see what files are being looked at. To view contents lists of all expected license files, enter:

```
more /var/flexlm/licensefile.db
```

- If a warning message appears stating that the license expires in an incorrect number of days, remove or comment out temporary or evaluation key(s) in the `/var/flexlm/license.dat` file for this product.
- The License Password may have been entered incorrectly. Check that the letters *l* and *O* were not typed in place of numerals 1 (one) and 0 (zero).
- Run the `date` command by entering `date`. Make sure the date is not earlier than the Start Date (the date you received the key) or later than the Expiration Date (the date listed in the key).
- Scan all license files, those named in the directory and those in the directories named, for matching features. Older duplicate entries might cause problems.

- Run `env|grep LM` and see if it returns a `LM_LICENSE_FILE` variable. This environment variable overrides any defaults. This variable may point to a third party license file.

For more information on troubleshooting, refer to the *FLEXlm End User Manual*.