Chapter 7

Maintenance Tips

This chapter contains procedures that may be necessary to keep the software installation at your site up to date. The chapter contains these sections:

- "Installing a Software Update"
- "Installing Optional Software Products"
- "Installing Patch Releases"
- "Installing Software for Hardware Upgrades"
- "Installing Reference Pages"
- "Reinstalling an Older Software Release"
- "Avoiding Compatibility Problems"
- "Removing All Software"

Installing a Software Update

When you receive a software update, it might be delivered on multiple CDs. Use the sequence numbers on the CD labels or the directions in "Planning the Order of Installation" on page 22 to determine the order in which you should install the updates. Updates are not necessarily included for all products, since not all products are updated at the same time.

When you install a software update, replace or remove all, not just some, of the older subsystems in each product that you install. When a server or workstation contains software subsystems from different releases of a product, compatibility problems result that can be very difficult to diagnose. Use *showprods* with the *–n* argument to detect subsystems that are not from the same product release.

When Inst makes its initial installation selections, it automatically selects any updates to subsystems that are already installed. In addition, it selects subsystems that are new with this release and designated as default ("Required and Default Subsystems" on page 7).

Subsystems that you omitted from the previous installation, even subsystems with a default designation (*d* in *list* output) are not selected for installation. In many cases, you can examine the selections with *list* and give the *go* command without making any selection changes.

If you see a message about changed configuration files after the installation is complete, follow the directions in "Merging Configuration Files" on page 63 to merge configuration files. If you do not merge changed configuration files, a message about changed configuration files is posted during the next several system reboots.

Installing Optional Software Products

Software options are products that you may or may not choose to run on a system. They are usually purchased separately from a computer system, but may also be shipped as a complimentary offering with a new system or when a new version of a purchased option is released. When you install a software option, keep these points in mind:

- The release notes for a software option explain whether a miniroot installation is required.
- If the software option requires miniroot installation, use the installation tools that accompanied the version of *eoe* that is already installed on your system.
- If you have several software options to install and they are on more than one CD or distribution directory, use the CD sequence numbers, release notes information, or information in "Planning the Order of Installation" in Chapter 2 to determine the installation order. If the installation order is wrong, Inst will advise you when you launch the installation.

Installing Patch Releases

A patch release contains replacement files that can be installed to modify a particular software product. Installing patches is optional; review the online release notes that accompanied the patch to determine whether to install it or not.

In Inst subsystem listings, patches are identified by their patch number and product subsystem name. For example, *patchSG0000034.bvo_sw.bvo* identifies a patch to a subsystem of the Broadcast Video Option product.

When you install a patch, Inst automatically moves the original files before installing their patch replacements. The original files are copied to a directory that Inst creates specifically to save such files, */var/inst/patchbase*. This makes it possible to remove a patch and replace it with the original version of the product files.

Patch Installation Procedure

Use this procedure as a guideline for installing a patch release:

1. Invoke Inst (from the miniroot, if necessary).

   Check the release notes for installation instructions. Invoke Inst from the miniroot if the patch requires a miniroot installation; otherwise, invoke Inst from the IRIX command line.

   Note: For live installations, you can use *inst -f* and specify the location of the patch distribution in your command.

2. Select the patch subsystems for installation.

   Use the *install* command from the Inst Main menu to select all subsystems in the patch (installing a subset of patch subsystems is not recommended). If the distribution contains several patches, select the subsystems in any additional patches that you want to install.

   ```
   Inst> install patchname
   ```

3. Enter the *go* command to launch the installation.

4. Resolve any conflicts.

   Patches contain no known conflicts with standard installed products; however, conflicts might occur with other patches that you have installed. Use the resolution suggested in the conflicts message to determine your course of action.

5. Exit Inst.

Removing Patches

You can remove a patch after it is installed if you wish. When you remove a patch, the original product files in */var/inst/patchbase* are automatically reinstalled on the system. Use this procedure as a guideline for removing patches.

1. Invoke Inst (from the miniroot, if necessary).

   Check the release notes for the product. If the product requires a miniroot installation, invoke Inst from the miniroot to remove the patch (the miniroot is required to reinstall the original product files, in the case); otherwise, invoke Inst from the IRIX command line.

2. Select the patch for removal.

   Use the *remove* command from the Inst Main menu to remove the patch:

   ```
   Inst> remove patchname
   ```

   Note: Do not remove portions of patches; to preserve the integrity of the software product, remove the entire patch.

3. Enter the *go* command to complete the removal.

Removing Original Product Files

Sometimes it may be necessary to remove original product files from */var/inst/patchbase* (to save disk space, for example). A special argument to the *versions* command removes the files that a patch has replaced. However, there are important reasons why you should create a backup copy of */var/inst/patchbase* before removing any of its contents:

- Original product files are not recoverable after they are removed from */var/inst/patchbase*.
- Original product files are sometimes required for subsequent patches to the product.

Use the *versions* command with the *removehist* argument to remove original product files from */var/inst/patchbase*.

Caution: Before you use this command, make a backup copy of */var/inst/patchbase*:

```
# versions removehist patchname
```

Installing Software for Hardware Upgrades

In some cases, changes to software are required when you install a hardware upgrade on a system that is already in service. As a general rule, adding memory, bitplanes, and disks requires no change to the software, but other hardware upgrades require changes to the installed software. The documentation that accompanies the upgrade explains whether a software installation is necessary for the upgrade.

Installing Accompanying Product Releases

Some hardware upgrades are shipped with a software distribution in the form of a software product release. Use the directions in "Installing Optional Software Products" on page 94 to install this type of software distribution. If the software distribution contains installation tools, you must use them.

Reinstalling the Same Software

Some hardware upgrades are not shipped with a software distribution, but they require that you reinstall some software after the hardware upgrade is completed. For example, upgrades to a CPU board or the graphics subsystem require a software reinstallation. In such cases, the reinstallation is necessary because the hardware-specific files that were installed for the original hardware are not appropriate for the new hardware.

When reinstalling software after a hardware upgrade, be sure to follow the directions in "Planning the Order of Installation" on page 22 to determine installation order. Reinstallations require a miniroot installation.

When Inst determines that a system contains new hardware, it notifies you that it has selected a new set of hardware-dependent files for installation:

```
Your system hardware configuration has changed since you
last installed software, and some subsystems will therefore
```

```
need to be re-installed for proper operation.
```

Use this procedure to reinstall all software:

1. Select all installed software for installation.

   Since you are reinstalling the same software, Inst automatically marks previously installed subsystems (including the hardware-specific subsystems that require replacing) with a `k` (keep). For this reason, you must explicitly select subsystems for installation to force Inst to perform the installation. This command selects all previously installed software for reinstallation:

   ```
   Inst> install I
   ```

2. Check the output of *list* after your entry.

   Every subsystem in the distribution inventory that is marked with an `I` (installed) in the second column should also contain an `i` (install) in the first column.

3. Launch the installation.

   ```
   Inst> go
   ```

4. Quit Inst.

   ```
   Inst> quit
   ```

Installing Reference Pages

The reference pages (manual pages) that apply to a product are shipped as a software component of the product. For example, all reference pages and software for Digital Media Development software are shipped in a subsystem of the *dmedia_dev* product. The subsystems containing reference pages consist exclusively of reference pages.

The software subsystems in a product usually have a corresponding reference page subsystem. The names of the software and reference page subsystems differ only in the image segment of the name. The name for a reference page subsystem always contains the letters *.man* in the image segment. For example, *dmedia_dev* contains the software subsystem *dmedia_dev.sw.movie* and a reference page subsystem called *dmedia_dev.man.movie.*

When release notes accompany a product, the product contains an additional *.man* image that contains the release notes—*dmedia_dev.man.relnotes*, in this case. Some reference page subsystems contain reference pages for more than one software subsystem. When you

receive your workstation and when you install a software option for the first time, be sure to check the status of reference page subsystems to verify that the reference pages that you want are installed.

The commands that follow are useful for checking and installing reference page subsystems.

- Check to see what reference page subsystems are installed:

  ```
  # showprods '*.*man*'
  ```

- List all reference page subsystems available for installation:

  ```
  Inst> list *.*man*
  ```

- Select all reference page subsystems, but not release notes, for installation:

  ```
  Inst> install *.*man*
  Inst> keep *.*.relnotes
  ```

Reinstalling an Older Software Release

Inst is designed to install software products that are new to your workstation or newer than the currently installed version. When you want to install a version of *eoe* that is older than the currently installed version, the installation procedure must be modified. If you do not follow this modified procedure (for example, you use *set neweroverride on* instead), you may be left with configuration files that do not match the rest of the software. This can inhibit system reboots and make it difficult to diagnose compatibility problems.

The steps below describe the procedure for installing an older IRIX release after you have installed the new release. You should perform a complete system backup before performing this procedure.

In the procedure you will back up your new, modified system configuration files, remove your new system software, and then install an older version. The final step is to integrate any modifications you made to your new configuration files into the restored, older configuration files.

Note: This procedure begins from the miniroot, not from IRIX.

Before beginning this procedure you should locate the older software distribution you will be downgrading to. Be sure that you have the installation tools (*sa* file) that accompanied the older distribution.

1. Load the miniroot from your current distribution.

   Begin by loading the miniroot from your *current* distribution. (Refer to "Starting a Miniroot Installation" in Chapter 3 for information on how to load the miniroot).

2. Invoke an IRIX shell.

   Use the *shroot* command to escape to a root shell, enter *sh* to start a Bourne shell, and then use *showfiles* to create a list of modified configuration files:

   ```
   Inst> shroot
   # sh
   # showfiles -s -c -m > /usr/tmp/configlist
   ```

3. Edit the configuration files list (optional).

   If you want to edit the list of configuration files to add additional files or remove unnecessary files, you can do so now by setting your *TERM* variable and using *vi(1)*:

   ```
   # TERM=vt100; export TERM
   # vi /usr/tmp/configlist
   ```

4. Create backup configuration files.

   When you are satisified with */usr/tmp/configlist*, create the backup configuration files and then quickly replace the password and hosts files (in case of disaster while performing the rest of the procedure):

   ```
   # sh -c 'while read fname; do mv $fname $fname.bak; done' <
   /usr/tmp/configlist
   # cp /etc/hosts.bak /etc/hosts
   # cp /etc/passwd.bak /etc/passwd
   # exit
   # exit
   Inst>
   ```

   Note: The **<** */usr/tmp/configlist* portion that appears on the second line of this example should be included at the end of the first line in your entry.

5. Remove target software.

   Remove all currently installed software. At the Inst prompt, enter the commands shown below. It is critical that you not give any other commands at the Inst prompt at this time.

   ```
   Inst> set rulesoverride true
   Inst> view targ
   Inst> remove I
   Inst> go
   ```

If you receive a device busy error at this point and receive the Interrupt menu, select *Continue*. When Inst is finished and you quit, you may be asked if you really want to quit. Enter *y* for yes.

```
Inst> quit
Please wait ...
Ready to restart the system. Restart? { y(es), (n)o, (sh)ell,
(h)elp } sh
```

6. Enter the *sh* command to get a shell prompt.
7. Remove installation history files.

   After escaping to the shell, remove all files that make up what is known as your installation history, and then restart the system:

   ```
   # rm -rf /root/var/inst
   # exit
   Ready to restart the system. Restart? { y(es), (n)o, (sh)ell,
   (h)elp } y
   ```

8. Load the miniroot from the *older* distribution.

   Use the older software distribution that you located at the beginning of this procedure to load the miniroot and invoke Inst; be sure the installation tools and the software version match.

9. Install the older software version.

   Remember that Inst no longer has valid software installation information about this system, so its initial selections are the default selections (see "Required and Default Subsystems" on page 7). Use Inst to specifically select for installation any additional software you wish to install.

10. Reboot your system.
11. Merge configuration files.

    In IRIX, merge your config.bak files (listed in */usr/tmp/configlist*) with the restored configuration files.

    - If you created a backup copy of customized configuration files (described in "Backing Up the Target Systems" on page 21) when you were running this release earlier, you should be able to restore the configuration files from that backup and use them. Add any new configuration information that has been added since they were last used.
    - If you have no backup of the current system files, compare the *.bak* and installed versions of the files in */usr/tmp/configlist*, then make the required changes using

a process similar to the one for merging configuration files described in "Merging Configuration Files" on page 63. Be careful not to introduce new features from the later release.

If you modified any configuration files, you should restart the system now to boot from the desired configuration.

Avoiding Compatibility Problems

Although some compatibility information is contained in the product descriptions that Inst reads when it accesses a software distribution, Inst allows you to install incompatible software in many situations. The list below contains guidelines for avoiding compatibility problems.

- Inst tells you about incompatible subsystems when you try to install them. To learn about these incompatibilities earlier, check the release notes for the products that you plan to install.
- All subsystems of a product should have the same release number. When in doubt, give the *showprods* command with the *-n* argument:

  ```
  % showprods -n names
  ```

  The column that normally contains the installation date contains a number instead. Make sure that all subsystems in each product have the same number. If there are subsystems from different releases in the same product, compatibility problems might result.
- When you receive a software update, install the new versions of all of the products you receive, not just some of them.
- If any subsystems that you want to install require a miniroot installation, perform all installations during a single miniroot installation session. Performing a single installation prevents incompatibilities that can occur when you switch from one installation session to another.

Removing All Software

To remove all installed software from the target system, you must perform a miniroot installation; you cannot remove all software during a live install, since the miniroot is needed to supply the functions that sustain the system until critical software is replaced. Because removing all software is not desirable under most circumstances, Inst behavior is overridden to perform this procedure.

Follow these instructions to remove all installed software.

1. Override Inst rules:

   ```
   Inst> set rulesoverride on
   ```

2. Select installed subsystems for removal:

   ```
   Inst> remove I
   ```

3. Start the removal:

   ```
   Inst> go
   ```

When you remove subsystems with *remove*, any configuration files that have been modified are not removed. This preserves any local information that might have been added. To list configuration files, enter the *showfiles -cCH* command from an IRIX shell.