Installing SunSoft Workshop Products on Solaris

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Preface

You can use the instructions in this guide with either the 2.x or 1.x CD. This guide describes how to install SunSoft Developer™ Software, which includes:

- SPARCworks™ Software
- SPARCompiler™ Software
- SPARCworks™/Ada Software
- SPARCompiler™ Ada Software
- SPARCworks/TeamWare™
- SPARCworks/iMPact™
- SPARCworks/iMPact™ Ada
- SPARCworks/Visual™
- SunSoft Developer Licensing Software
- AnswerBook®

Getting Started

The following is a general list that describes the installation process. This list explains where you can find everything necessary to install your SunSoft Developer Software.

1. **Install the Software.**
   Installation scripts can install product software, licensing software, and AnswerBook documentation at the same time. See Chapter 2 for information on what software you need to install.

2. **Gather licensing information and obtain a password.**
   See Chapter , “Installing Your License.”

3. **Configure your system.**
   If you have installed your SunSoft Developer Product software somewhere other than the default directories, you can configure your system with specific environment variables. See Chapter 4.

4. **Read the on-line** `README` **for the new product.**
   The `README` has information that came too late to be included in this manual. Product READMEs are located in `/opt/SUNWspro/READMEs` and patch `READMEs` are located in the `Patches` directory.

   When you have finished these steps, the new product is ready to use. See the documentation that came with the product for more information.

Installation Prerequisites

All of the SunSoft Developer products run in either the Solaris® 2.x or Solaris 1.x operating environment.

Requirements for Solaris 2.x are:

- Solaris™ 2.3 or higher operating system
- SPARC® computer, either a server or a workstation
- OpenWindows™ 3.3 or higher application-development platform

For SPARCworks/Visual you need:

- Solaris™ 2.4 or higher

For SPARCworks/Ada you need:

- Solaris™ 2.4 or higher

For GXV-Ada you need:

- OpenWindows™ 3.2 or higher application development platform
- OpenWindows Developer's Guide 3.1 (commonly referred to as Devguide)

For installation procedures for these products, see the documentation that accompanies them.

Requirements for Solaris 1.x are:

- SunOS 4.1.x operating system (this includes 4.1.1, 4.1.2, 4.1.3, 4.1.3_U1, 4.1.4 and optional patches)
- SPARC computer, either a server or a workstation
- OpenWindows 3.0 application development platform

Organization

This manual includes the following chapters:

- Chapter 1, “Preparing For Installation”
  This chapter covers any preparation you may need to make before you begin installing SunSoft Developer Software on either Solaris 1.x or Solaris 2.x. This includes space requirements and package components for your SunSoft Developer Software.
- Chapter 2, “Installing Your License”
  This chapter describes how to install the product from the CD-ROM using `spro_install_tool` (for Solaris 2.x or Solaris 1.x). This chapter is designed for a quick default installation.
- Chapter 3, “Basic Software Installation”
  This chapter describes how to set up licensing so that you can run the new product. It also gives you directions for contacting the License Distribution Center so that you can get a password.
- Chapter 4, “Acquiring and Installing Domain-Based Passwords”
  This chapter contains instructions for acquiring and installing domain-based passwords.
- Chapter 5, “Additional Installation Information for Users”
  This chapter includes instructions for remote installation and a variety of ways to configure your system. This chapter also includes a complete list of the SunSoft Developer products that can be installed.
- Chapter A, “
  This chapter provides you with advanced information about your SunSoft Developer license. You can copy this section and distribute it to users of SunSoft Developer’s licensing software.
- Appendix B, “Glossary”
  This chapter defines the most commonly used terms in this book.

What Typographic Changes Mean

The following table describes the typographic changes used in this book.

Table P-1 Typographic Conventions

Typeface or Symbol	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% You have mail.`
`AaBbCc123`	What you type, contrasted with on-screen computer output	`machine_name% su` `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type `rm` *filename*.
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in *User's Guide*. These are called *class* options. You *must* be root to do this.

Preparing For Installation 1

This chapter covers any preparation you may need to make before you begin installing SunSoft Developer Software on Solaris 1.x and Solaris 2.x. These installation instructions assume the following:

- You have a CD-ROM installed locally or on a network-accessible machine
- You have enough disk space on your machine (See Tables 1-4 and 1-5 for disk space requirements)
- You are running OpenWindows
- You are using `spro_install_tool` (GUI) or `spro_install` (`tty` interface) for either Solaris 2.x or 1.x
- You are installing software in the default directory (`/opt` for Solaris 2.x and `/usr/lang` for Solaris 1.x)

Table 1-1 Component Products

If you Bought...	**You Need A License for...**	**License File Feature ID**
SPARCompiler Ada 3.0	SPARCompiler Ada	`sunpro.ada`
SPARCompiler C 4.0	SPARCompiler C	`sunpro.c`
SPARCompiler C++ 4.1	SPARCompiler C++	`sunpro.cc`
SPARCompiler Pascal 4.0	SPARCompiler Pascal	`sunpro.pc`
SPARCompiler FORTRAN 4.0.	SPARCompiler FORTRAN	`sunpro.f77`
SPARCompiler Fortran 90 1.1	SPARCompiler Fortran 90	`sunpro.f90`
SPARCworks/Ada 3.0	SPARCworks/Ada SPARCworks Common Tools	`sunpro.sparcworks.ada` `sunpro.common`

Table 1-1 Component Products *(Continued)*

If you Bought...	You Need A License for...	License File Feature ID
SPARCworks/Visual 1.1	SPARCworks/Visual	`sunpro.visu`
SPARCworks/Visual MFC Extension	SPARCworks/Visual MFC Extension	`sunpro.visu.xp`
SPARCworks Tools 3.1	SPARCworks Tools SPARCworks Common Tools	`sunpro.sparcworks.tools` `sunpro.common`

Table 1-2 Professional Products

If you Bought...	You Need A License for...	License File Feature ID

SPARCworks Professional Ada 3.0	SPARCompiler Ada
	SPARCworks/Ada
	SPARCworks Common Tools
		`sunpro.ada`
		`sunpro.sparcworks.ada`
		`sunpro.common`

SPARCworks Professional C 4.0.	SPARCompiler C
	SPARCworks Tools
	SPARCworks Common Tools
		`sunpro.c`
		`sunpro.sparcworks.tools`
		`sunpro.common`

SPARCworks Professional C++ 4.1	SPARCompiler C++
	SPARCworks Tools
	SPARCworks Common Tools
		`sunpro.cc`
		`sunpro.sparcworks.tools`
		`sunpro.common`

SPARCworks Professional Pascal 4.0	SPARCompiler Pascal
	SPARCworks Tools
	SPARCworks Common Tools
		`sunpro.pc`
		`sunpro.sparcworks.tools`
		`sunpro.common`

SPARCworks 3.1	SPARCworks Tools SPARCworks Common Tools	`works.tools` `sunpro.common`

SPARCworks Professional Fortran 90 1.1	SPARCompiler Fortran 90
	SPARCworks Tools
	SPARCworks Common Tools
	SPARCompiler Fortran
		`sunpro.f90`
		`sunpro.sparcworks.tools`
		`sunpro.common`
		`sunpro.f77`

SPARCworks Professional FORTRAN 77 4.0	SPARCompiler FORTRAN
	SPARCworks Tools
	SPARCworks Common Tools
		`sunpro f77`
		`sunpro.sparcworks.tools`
		`sunpro.common`

SPARCworks/TeamWare 1.0.4	SPARCworks TeamWare SPARCworks Common Tools	`sunpro.sw_teamware` `sunpro.common`
Tools.h++ Source Code 6.0.4	Tools.h++ Source Code	`sunpro.tools_h.source`
SPARCworks/iMPact 3.0	SPARCworks/iMPact	`sunpro.mpmt`
SPARCworks/iMPact Ada 2.0	SPARCworks/iMPact Ada	`sunpro.mpmt.ada`
SunSoft Performance Library 1.1	Performance Library	`sunpro.perf`

Table 1-3 WorkShop[1] Products

If you Bought...	You Need A License for...	License File Feature ID

WorkShop for SPARCompiler Ada 2.0	SPARCompiler Ada
	SPARCworks/Ada
	SPARCworks Common Tools
	SPARCworks TeamWare
	SPARCworks/iMPact Ada
	SPARCompiler C
	SPARCworks
		`sunpro.ada`
		`sunpro.sparcworks.ada`
		`sunpro.common`
		`sunpro.sw_teamware`
		`sunpro.mpmt.ada`
		`sunpro.c`
		`sunpro.sparcworks.tools`

WorkShop for SPARCompiler C 2.0	SPARCompiler C
	SPARCworks
	SPARCworks Common Tools
	SPARCworks /iMPact
	SPARCworks/TeamWare
		`sunpro.c`
		`sunpro.sparcworks.tools`
		`sunpro.common`
		`sunpro.mpmt`
		`sunpro.sw_teamware`

Visual WorkShop for C++ 2.1	SPARCompiler C++
	SPARCompiler C
	SPARCworks
	SPARCworks Common Tools
	SPARCworks /iMPact
	SPARCworks/TeamWare
	SPARCworks/Visual
		`sunpro.cc`
		`sunpro.c`
		`sunpro.sparcworks.tools`
		`sunpro.common`
		`sunpro.mpmt`
		`sunpro.sw_teamware`
		`sunpro.visu`

WorkShop for SPARCompiler FORTRAN 2.0	SPARCompiler Fortran
	SPARCompiler C
	SPARCworks
	SPARCworks Common Tools
	SPARCworks/ iMPact
	SPARCworks/TeamWare
		`sunpro.f77`
		`sunpro.c`
		`sunpro.sparcworks.tools`
		`sunpro.common`
		`sunpro.mpmt`
		`sunpro.sw_teamware`

Performance WorkShop for Fortran 90 1.1	SPARCompiler Fortran 90
	SPARCompiler FORTRAN 77
	SPARCompiler C
	SPARCworks
	SPARCworks Common Tools
	SPARCworks/ iMPact
	SPARCworks/TeamWare
	SunSoft Performance Library
		`sunpro.f90`
		`sunpro.f77`
		`sunpro.c`
		`sunpro.sparcworks.tools`
		`sunpro.common`
		`sunpro.mpmt`
		`sunpro.sw_teamware`
		`sunpro.perf`

1. If using a multithreading application (except Ada), you need the `sunpro.mpmt` license as well as the product license.

Note – All compilers (except Ada) have common components that are approximately 10 Mbytes in size and are installed with the product. If you install more that one product, common components are only installed once.

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Space Requirements For Solaris 2.x

Table 1-4 shows the *approximate* size of the various software files as well as the default installation directory.

Table 1-4 Software Sizes and Default Directories for Solaris 2.x

Software	Size (Mbytes)	Default Directory
SPARCompiler C 4.0	20	`/opt/SUNWspro/SC4.0`
SPARCompiler FORTRAN 4.0	26	`/opt/SUNWspro/SC4.0`
SPARCompiler Fortran 90 1.1	32	`/opt/SUNWspro/SC4.0`
SPARCompiler Pascal 4.0	20	`/opt/SUNWspro/SC4.0`
SPARCompiler C++ 4.1	27	`/opt/SUNWspro/SC4.0`
SPARCompiler Ada 3.0	92	`/opt/SUNWspro/Ada3.0` `/opt/SUNWspro/GAda3.0`

SPARCworks / Ada 3.0	14	`/opt/SUNWspro/SWAda3.0`
		`/opt/SUNWspro/FileMerge`
		`/opt/SUNWspro/swmgr`
		`/opt/SUNWspro/dt`

SPARCworks / TeamWare 1.0.4	11	`/opt/SUNWspro/CodeManager`
		`/opt/SUNWspro/VersionTool`
		`/opt/SUNWspro/Freezepoint`
		`/opt/SUNWspro/ParallelMake`
		`/opt/SUNWspro/FileMerge`
		`/opt/SUNWspro/swmgr`

SPARCworks 3.1	14	`/opt/SUNWspro/SW3.1`
		`/opt/SUNWspro/FileMerge`
		`/opt/SUNWspro/swmgr`

SPARCworks / iMPact 3.0	67	`/opt/SUNWspro/SC4.0`
SPARCworks / iMPact Ada 2.0	27	`/opt/SUNWspro/Ada3.0`
SPARCworks / Visual 1.1	15	`/opt/SUNWspro/visu1.1`
SunSoft Developer Licensing Software	6	`/opt/SUNWste`
Tools.h++ 6.0.4	2	`/opt/SUNWspro/SC4.0/src`
XEmacs 19.12	60	`/opt/SUNWspro/XEmacs-19.12`
SunSoft Performance Library 1.1	63	`/opt/SUNWspro/SC4.0/lib`
SPARCworks and SPARCompiler AnswerBooks	68	`/opt/SUNWspro`

Space Requirements For Solaris 1.x.

Table 1-5 Software Sizes and Default Directories for Solaris 1.x

Software	Size (Mbytes)	Default Directory
Sun ANSI C 3.0.1	17	`/usr/lang/SC3.0.1`
Sun Fortran 3.0.1	20	`/usr/lang/SC3.0.1`
Sun Pascal 3.0.1	16	`/usr/lang/SC3.0.1`
Sun C++ 3.0.1	27	`/usr/lang/SC3.0.1`

SPARCworks/TeamWare 1.0.3	13	`/usr/lang/CodeManager`
		`/usr/lang/VersionTool`
		`/usr/lang/Checkpoint`
		`/usr/lang/ParallelMake`

SPARCworks 3.0.1	10	`/usr/lang/SW3.0.1`
		`/usr/lang/FileMerge`
		`/usr/lang/swmgr`

Sun Performance Library	18	`/usr/lang/SC3.0.1`
Tools.h++	2	`/usr/lang/SC3.0.1/src`
SunTech License	3.1	`/usr/lang/SunTech_License`
SPARCworks and SPARCompiler AnswerBooks 3.0.1	75	`/usr/lang`

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Installing Your License 2

This chapter describes how to install and use your SunSoft Developer license.

Note – Do *not* install the licensing software on a diskless client. The current license daemon is not intended for use on a diskless client. The easiest and most reliable programs to install licenses are `lit` or `lit_tty`.

There are two circumstances under which you can install a license:

1. **If you are installing the licenses for the new 4.0 SunSoft Developer products:**
   Follow the instructions provided in this section: “How to Get Your SunSoft Developer License” on page 8

2. **If you are upgrading your license server to handle all SunSoft Developer products:**
   If your license server was handling 2.0 and 2.0.1 software, follow the instructions in this section.

SunSoft Developer software uses network-based *floating* (also called *concurrent usage*) licenses. Therefore, when two or more users attempt to use the same application at the same time, they are considered “concurrent users.” You may not need to purchase a license for every individual user. When you invoke a compiler or tool, a license, if one is available, is automatically checked out. SunSoft Developer uses the latest Globetrotter FLEXlm™ licensing technology to make licensing as easy as possible.

2

Inside your product kit you will find a certificate. The certificate contains a serial number which you can redeem for the correct number of license Right To Use (RTUs).

Note – The license software installed for 2.x products will *not* support 3.0.1 products. In order to use the product software on this CD-ROM, make sure that you install and run the latest licensing software, which is included on the CD-ROM.

How to Get Your SunSoft Developer License

This section of the manual describes:

- How to select the license server(s) (page 8)
- What information you need to provide the Sun License Center (page 9).
- How to Install your license (page 11 through page 23).

Select the License Server(s)

If you are installing the product and the license on the same server, you can skip this section, and go to “Gathering Information for Your License” on page 9.

Before you can get the license password for your SunSoft Developer product, you must select the machine you will use as a license server. Select the most stable machine(s) to serve as license server(s). Do not select a machine that is frequently shut down and rebooted.

With this license system you can use any of the following types of server configurations:

- Single independent server — All product licenses are handled by a single server.
- Multiple independent servers — Each server acts separately to administer a subset of the product license(s).
- Three redundant license servers — A collection of servers, effectively acting as one server, jointly administering a set of product licenses.

Note – Once you have selected a machine as a single, multiple or redundant license server, that machine cannot be used in a different licensing configuration.

For more information on *servers* and other terms, see Appendix B, "Glossary."

The default is a single server. This is the easiest to install and the most widely used configuration. Your license server(s) can administer licenses for multiple products.

If you install the license software, and do not install new licenses, you must take down the license daemon and bring it back up again. For information on how to do this, see "Take Down the License Daemon" on page 27.

Gathering Information for Your License

This section describes the process you will need to go through when you contact the Sun License Center to get your license:

- What information you will need to provide to the Sun License Center.
- How to contact the Sun License Center.
- What you will get back from the Sun License Center.

What you will need to provide

Before you contact the Sun License Center to get your password, obtain the following information:

- Serial number from your SunSoft Developer license certificate
- Hostname of the license server
  (three hostnames, if using redundant servers)
  To get the hostname of a machine, type `uname -n` for Solaris 2.x, and `hostname` for Solaris 1.x.
- Hostid of the license server
  (three if you are using redundant servers)
  To get the hostid of a machine, type the following: `/etc/sysdef -h` for Solaris 2.x, and `hostid` for Solaris 1.x.

Your SunSoft Developer product package includes a License Certificate with the following information:

```
Product:                        SPARCompiler C
Version:                        4.0
Rights to Use:                  10
Serial #                        1213 6212 2013 0418
```

How to contact the Sun License Center

You can contact the Sun License Center in one of the following ways:

- **Email:** Use the email template found in the following files:
  For Solaris 2.x: `../SUNWste/license_tools/License_Request_Form`
  For Solaris 1.x: `/usr/lang/SunTech_License/License_Request_Form`
  Fill out all information requested on template and email to the following address:

U.S.A., Canada	`license@sun.com`
Europe	`eu-licensing@UK.sun.com`
Japan	`license@rrd.co.jp`
All other countries	`eu-licensing@UK.sun.com`

Note – If you are receiving your license via email, `lit` can read the licensing information directly from the email file that is sent from the Sun License Center. See “Receiving Your License from an Email File and Installing Using lit” on page 12.

- **Fax:** Fill out the License Request Form (or a copy of it) located in the back of the book, and fax it to:

U.S.A., Canada	`1-317-364-7220`
Europe	`44-1937-541194`
Japan	`03-3263-3844`
All other countries	`44-1937-541194`

- **Phone:** The `lit` tool provides on-line phone numbers for most of the Sun License Centers.

Country	Phone Number
Belgium	078-11-21-03
Canada	1-800-722-4786
Finland	9800-14406
France	05-90-83-41
Germany	0130-81-47-33

Italy	1678-77252
Japan	03- 3263-3821
Netherlands	06-0224198
Spain	900-97-4448
Sweden	020-793154
Switzerland	155-8096
Country	**Phone Number**
U.K.	0800-1929-112
United States	1-800-872-4SUN
European countries not listed	+44-1937-541511
All other countries	317-364-7216

What You Will Receive from the Sun License Center

Once you have contacted the Sun License Center, you will have received one of the following:

- **Email:** you will receive a license file for the license features. The entire file should be used to read your license from a file. See “Receiving Your License from an Email File and Installing Using lit” on page 12 for more information.
- **Fax or Phone:** you will receive the following information that you will use for the License Installation Tool:
  - Right To Use
  - Expiration date (if any)
  - Password
  - Data checksum
  - Password checksum

Installing Your License

Note – You must be superuser to install the license.

There are three ways to receive a license so that you can install your SunSoft Developer product. They are:

- Email—Follow the sections “Receiving Your License from an Email File and Installing Using lit” on page 12 or “Receiving Your License from an Email File and Installing Using lit_tty” on page 14.

- Fax—Follow the sections “Receiving Your License by Fax or Phone and Installing Using lit” on page 16 or “Receiving Your License by Fax or Phone Using lit_tty” on page 20.
- Phone—Follow the sections “Receiving Your License by Fax or Phone and Installing Using lit” on page 16 or “Receiving Your License by Fax or Phone Using lit_tty” on page 20.

We *strongly* recommend using email to receive your information for your license.

Be sure that you have all of the information that is needed prior to contacting the Sun License Center. For information on the requirements, see “What you will need to provide” on page 9.

The following section details each process and the steps you will need to receive your license.

Receiving Your License from an Email File and Installing Using `lit`

If you decide to receive your license via email, you can avoid mistyped information in your license file by using the license from file feature supplied with `lit`. This feature creates a new file or adds to an existing one. It does *not* replace a file.

Note – Do *not* modify the email file that is mailed to you. This might render the license useless.

Be sure you have installed SunSoft Developer’s licensing software before you begin this section.

1. **Save the email message you received from the Sun License Center.**

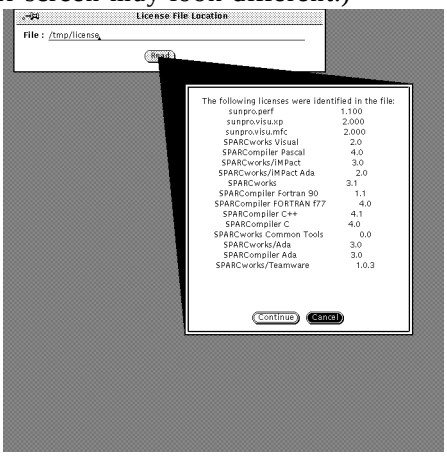
2. **If you do not have `lit` running, start `lit`.**

```
% su
# /etc/opt/licenses/lit
```

Once the `lit` tool appears on your screen, press **Select** on “License from File...”.

3. **The license file location popup menu appears. Type the absolute pathname of the file containing the license and click on Read.**
   This pathname should be the file that you want to read.

4. **The license list appears on your screen.**
   (Your screen may look different.)



5. **Click Continue in the popup window.**
   Then click OK to add the newly selected license to the list of licenses to be installed. If the list runs off the page, press Return to click Continue.

6. **Click Exit-Install Licenses on the License Installation Tool to install, quit and save your license.**

   If you have a single license server and your product is installed, your SunSoft products are ready to use.

   If you have multiple or redundant license servers or your products are installed on a different machine, please continue.

7. **Copy and run the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from the license server where `lit` was run to the remaining redundant license servers.**

Put a copy of the same license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined`.
Run this script so you will not have to run `lit` on all of the other redundant servers.

8. **Copy and run the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from where `lit` was run onto all other product servers containing your SunSoft Developer product(s).**
   If you run `lit` or `lit_tty` more than once, each of the newly created `LIC_CONFIG_SCRIPT`(s) must be run on each product server. Also, if you are setting up a new product server after running `lit` more than once on the license server, each version of the `LIC_CONFIG_SCRIPT` must be copied to and run on the new product server.

   You should look for errors (for example, encryption errors) in the start-up file `/tmp/license_log` and for errors in the `/tmp/license_errors` file.

   The `LIC_CONFIG_SCRIPT` is saved on a per session basis. Up to 10 old `LIC_CONFIG_SCRIPT(S)` are saved in `/etc/opt/licenses`.

   If you do not have enough space on your system, an error message will appear after the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` has run.

   Your installation and license configurations are complete and your product should be usable.

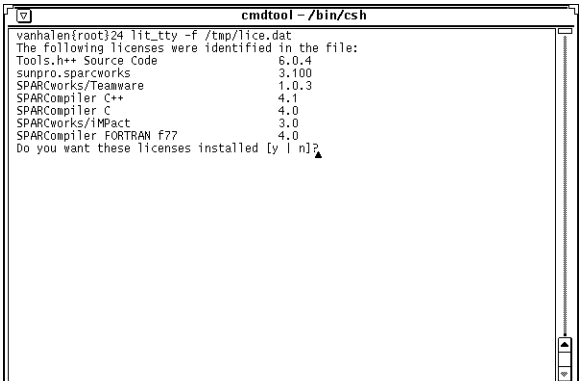
Receiving Your License from an Email File and Installing Using `lit_tty`

1. **Save the email message you received from the Sun License Center.**

2. **If you do not have `lit_tty` running, start `lit_tty` using the following `-f` option with the absolute pathname and filename of the file containing the license:**

```
% su
# /etc/opt/licenses/lit_tty -f <pathname_to license_file>
```

The pathname is the absolute path to the file containing the license that you want to read. See the sample option screen below:



3. **Type “y” to install and save your licenses.**

If you have a single license server, and your product is installed on the same machine, your SunSoft products are now ready to use. If you have multiple or redundant licenses, or your products are installed on a different machine please continue.

4. **Copy and run the** `/etc/opt/licenses/LIC_CONFIG_SCRIPT` **from the license server where** `lit` **was run to the remaining redundant license servers.**
   Put a copy of the same license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined`. Running this script is done instead of running `lit` on each redundant server.
5. **Copy and run the** `/etc/opt/licenses/LIC_CONFIG_SCRIPT` **from where** `lit` **was run onto all other product servers containing your SunSoft Developer product(s).**

If you run `lit` or `lit_tty` more than once, each of the newly created `LIC_CONFIG_SCRIPT`(s) must be run on each product server. Also, if you are setting up a new product server after running `lit` more than once on the license server, each version of the `LIC_CONFIG_SCRIPT` must be copied to and run on the new product server.

You should look for errors (for example, encryption errors) in the start-up file `/tmp/license_log` and for errors in the `/tmp/license_errors` file. If you do not have enough space on your system, an error message will appear after the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` has run.

The `LIC_CONFIG_SCRIPT` is saved on a per session basis. Up to 10 old `LIC_CONFIG_SCRIPT(S)` are saved in `/etc/opt/licenses`.

Your installation and license configurations are complete and your product is ready to use.

Receiving Your License by Fax or Phone and Installing Using `lit`

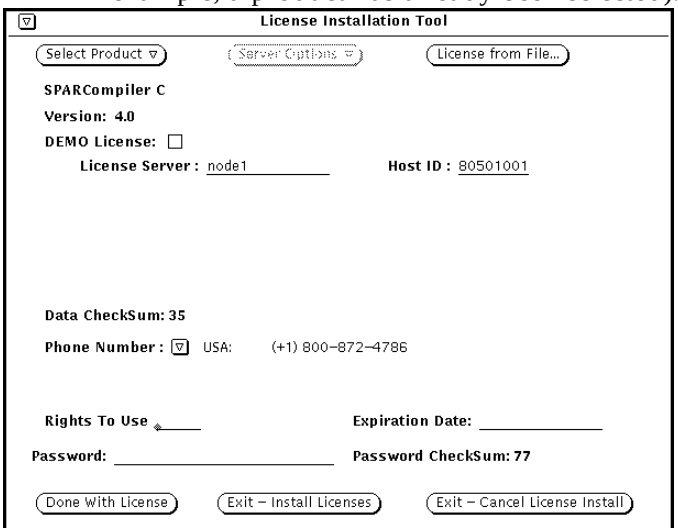
If you decide to receive your license by fax or phone, use the following instructions.

If you have used `lit` to install previous products and are using `lit` again to install new products, `lit` will modify the `licenses_combined` file to include the newly installed products, and automatically restart the daemon.

1. **If you do not have `lit` running, start `lit` by typing this command on the license server:**

```
% su
# /etc/opt/licenses/lit
```

The License Installation Tool appears on your screen as shown; (in this example, a product has already been selected).



If you are installing a Demo license, click the Demo license box in the upper portion of the screen. A demo license does not go through the same procedure as a real license. It doesn't query the server or require a license daemon or license server; it merely gives you a license.

2. **From the list provided under Select Product, select the first feature to be licensed.**

```
Select Product

[ ] SPARCompiler Ada 3.0
[ ] SPARCompiler C 4.0
[ ] SPARCompiler C++ 4.1
[ ] SPARCompiler FORTRAN f77 4.0
[ ] SPARCompiler Fortran 90 1.1
[ ] SPARCompiler Pascal 4.0
[ ] SPARCworks 3.1
[ ] SPARCworks/Ada 3.0
[ ] SPARCworks Common Tools 0.0
[ ] SPARCworks/iMPact 3.0
[ ] SPARCworks/iMPact Ada 2.0
[ ] SPARCworks/Teamware 1.0.3
[ ] Tools.h++ Source Code 6.0.4
[ ] SPARCworks Visual 2.0
[ ] SunSoft Performance Library 1.1



[ ] Exit - Save Licenses          [ ] Exit - Don't Save Licenses
** x=select product and go to license screen **
** Return=next product **
** n=Next Page    p=Previous Page
```

3. **Select the number of servers you will use from the Server Options menu.**

4. **Type the hostname and hostid of each license server.**
   By default, the system displays the hostname and hostid of the machine you are on as the license server. If you want to use a different machine as the license server or a redundant server configuration, you must specify the hostnames and hostids of those machines.

5. **Verify the data checksum number matches the information you received from the Sun License Center.**
   The data checksum field displays the value of the characters. Make sure the checksum matches what the Sun License Center says it should be. If the checksum is different, retype the data checksum.

6. **Type the number of RTUs for the license in the RTU field.**
   For demo licenses, leave this field blank.

7. **Type the expiration date (if there is one).**
   For perpetual licenses, leave this field blank.

8. **Type the password for the license.**

9. **Verify that the Password checksum number matches the information you received from the Sun License Center.**
   The checksum field next to the password displays the value of the characters. Make sure the password checksum matches what the Sun License Center says it should be. If the checksum is different, you must retype the password, number of RTUs, or the expiration date.

10. **Click SELECT on the Done With License button.**
    To enter additional licenses, repeat steps 2, 5-9 for each product and password. When you are done entering licenses, go to the next step to save the licenses and quit the installation tool. If the list of selected licenses runs off the page, press Return to continue.

11. **To save the license, click SELECT on Exit-Install Licenses.**
    If you do not want to install the license, click SELECT on Exit-Cancel License. After you click SELECT on Exit-Install Licenses, the `LIC_CONFIG_SCRIPT` automatically runs on the server where you ran `lit`. If you are installing both the license password and product on this server and it is an independent server, your installation and license configuration are complete.

If you have a single license server and your product is installed on the same machine, your SunSoft products are now ready to use.
If you have multiple or redundant licenses or your products are installed on a different machine, complete steps 12 through 14.

Note – Do not run the `LIC_CONFIG_SCRIPT` on this machine manually. It is done automatically.

---

12. **A message appears identifying the list of license servers where you need to run the** `LIC_CONFIG_SCRIPT`**.**

13. **Copy and run the** `/etc/opt/licenses/LIC_CONFIG_SCRIPT` **from the license server where** `lit` **was run to the remaining redundant license servers.**
    This will put a copy of the same license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined`.
    Running this script is done instead of running `lit` on each redundant server.

14. **Copy and run the** `/etc/opt/licenses/LIC_CONFIG_SCRIPT` **from where** `lit` **was run onto all other product servers containing your SunSoft Developer products.**

    If you run `lit` or `lit_tty` more than once to add licenses, each of the newly created `LIC_CONFIG_SCRIPT`(s) must be run on each product server. Also, if you are setting up a new product server after running `lit` more than once on the license server, each version of the `LIC_CONFIG_SCRIPT` must be copied to and run on the new product server.
    Look for errors (for example, encryption errors) in the start-up file `/tmp/license_log` and in the `/tmp/license_errors` file.

    The `LIC_CONFIG_SCRIPT` is saved on a per session basis. Up to 10 old `LIC_CONFIG_SCRIPT(S)` are saved in `/etc/opt/licenses`.

    If you do not have enough space on your system, an error message will appear after the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` has run.

    Your installation and license configurations are complete and your product is ready to use.

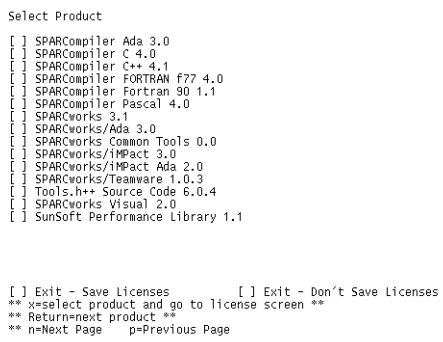
Note – If you have entered any of the previous information incorrectly, simply bring up `lit` again, follow the same steps, enter the correct information and you should be able to use your license. For more information, see “Mistyped License Information” on page 87.

Receiving Your License by Fax or Phone Using `lit_tty`

1. **If you are not running `lit_tty`, start `lit_tty` by typing the following command on the license server screen.**

```
% su
# /etc/opt/licenses/lit_tty
```

The tty-based license installation tool appears on your screen as shown:



2. **Contact the Sun License Center.**
   For information on contacting the Sun License Center, see “How to contact the Sun License Center” on page 10.
   Type **x** in the Phone Number List box on the main screen to display a list of phone numbers. Press Return to move the cursor down the list and type **x** to select the number appropriate to your location.

3. **Type x to select your product. Press Return to move between fields.**

4. **Type x to select the number of license servers you will use. Press Tab to move between fields.**
   Select multiple servers for redundant server installations only.

If you are installing a Demo license, click the Demo license box. A demo license does not go through the same procedure as a real license. It doesn't query the server or require a license daemon or license server; it merely gives you a license.

Note – Hostnames and hostids of previously selected servers appear on the screen automatically. After you select the hostnames and hostids, you cannot change them.

---

5. **After you select the correct number of license servers, press Return to move to the server names.**
6. **Type the hostname(s) and hostid(s) of the license server(s).**
   Repeat steps 3 through 5 only if your license servers have not previously been set up. Press Return to enter selections.
7. **Verify the data checksum number.**
   The data checksum field displays the value of the characters. Make sure the checksum matches what the Sun License Center says it should be. If the checksum is different, retype the information password.
8. **Type the number of Rights To Use for the license.**
   For demo licenses, leave this field blank.
9. **Type the expiration date (if there is one).**
   For perpetual licenses, leave this field blank.
10. **Type the password for this license in the password field.**
11. **Verify the Password checksum number matches the information you received from the Sun License Center.**
    The checksum field next to the password displays the value of the characters. Make sure the checksum matches what the Sun License Center says it should be. If the checksum is different, you must retype the password, number of RTUs, or the expiration date.
12. **Type x in the box labeled Done Setting Up This License.**
    You can now enter another license or save this license. To enter additional licenses, repeat steps 3 and 7 through 12 for each product and password. If you are ready to save this license and quit the installation tool, go to the next step.
13. **Type x in the Exit-Save Licenses box.**

The LIC_CONFIG_SCRIPT runs automatically on the server where you ran the license installation tool. If you are installing both the license and product on this server and it is an independent server, your installation and license configuration are complete.

If you have a single license server and your product is installed on the same machine, your SunSoft products are now ready to use.
If you have multiple or redundant licenses or your products are installed on a different machine, please continue.

Note – Do not run the LIC_CONFIG_SCRIPT on this machine manually. It is done automatically.

---

14. **A message appears identifying the list of license servers where you need to run the** LIC_CONFIG_SCRIPT**. Be patient, this might take some time.**
Look for errors in modifying the licenses_combined file in /tmp/license_errors. You should look for errors (for example, encryption errors) in the /tmp/license_log file.

15. **Copy and run the** /etc/opt/licenses/LIC_CONFIG_SCRIPT **from the license server where** lit **was run to the remaining redundant license servers.**

    This will put a copy of the same license file on each of the redundant license servers in /etc/opt/licenses/licenses_combined. Running this script is done instead of running lit_tty on each redundant server.

16. **Copy and run the** /etc/opt/licenses/LIC_CONFIG_SCRIPT **from where** lit **was run onto all other product servers containing your SunSoft Developer product(s).**
If you run lit or lit_tty more than once, each of the newly created LIC_CONFIG_SCRIPT(s) must be run on each product server. Also, if you are setting up a new product server after running lit more than once on the license server, each version of the LIC_CONFIG_SCRIPT must be copied to and run on the new product server. The LIC_CONFIG_SCRIPT is saved on a per session basis. Up to 10 old LIC_CONFIG_SCRIPT(S) are saved in /etc/opt/licenses.

    If you do not have enough space on your system, an error message will appear after the /etc/opt/licenses/LIC_CONFIG_SCRIPT has run.

    Your installation and license configuration are complete, and your product is ready to use.

Note – If you have incorrectly entered any of the previous information, simply bring up `lit` again, enter the correct information using the previous steps, and your license should now be usable. For more information, see “Mistyped License Information” on page 87.

After You Install the License

Now that you completed the previous steps, `lit` or `lit_tty` has done two things:

1. `lit` or `lit_tty` has generated the following license files:

- The `licenses_combined` files— The `licenses_combined` file is on the license server in `/etc/opt/licenses/licenses_combined` and used by the license daemon.
- The elementary license files—The elementary license file is usually in `/opt/SUNWspro/license_dir` on the product server. (It will have a name like `sunpro.lic,` *1.*) Every product server has an elementary license file, regardless of whether the license server is a different machine. Elementary license files are copies of all or part of the `licenses_combined` file.

If you installed both the licensing and the product software on one machine, both the elementary and the `licenses_combined` files will be on the same machine.

2. `lit` or `lit_tty` has started or restarted the license daemons.

Note – If the server where your product software is located is different from the license server, you must run the `LIC_CONFIG_SCRIPT` on the product server in order for the elementary license file to be created.

For more information on these and other definitions, see Appendix B, “Glossary.”

Note – Do *not* change anything on the license file lines without speaking to your authorized SunSoft Developer service provider. See “Getting Help” on page 32, for more information.

2

Upgrading Your SunSoft Developer Product and Licensing Software

Caution – Never move or destroy the old license file.

If you have 3.0 licenses, your 3.0 licenses will work for the new 3.0.1 products, and you will not need to upgrade.

1. **Save the old license file (2.0.1), which is located:**
   For Solaris 1.x: `/usr/lang/SunTech_License/license.dat`
   For Solaris 2.x: `/opt/SUNWspro/SunTech_License/license.dat`

2. **Install your product.**
   You can install the 3.0.1 product in the same location as the 2.0.1 product. Be aware that the binaries will be linked to the new products. To avoid this, you can install the 3.0.1 product in a new location.

   To use the old products, you will need to specify the absolute path of the existing product. For example, to use the 2.0.1 C++ compiler, you would specify:

   For Solaris 1.x: `/usr/lang/SC2.0.1/CC`
   For Solaris 2.x: `/opt/SUNWspro/SC2.0.1/CC`
   Then, for the new product, follow the “Post Installation Instructions” on page 53.

3. **Install your license.**
   After you install your license, be sure to execute the `lic2.0_reconfig` script.

Note – Read in the 2.0.1 license first, then the 3.0.1, as the `FEATURE` lines must go before the `INCREMENT` lines.

The license daemon for SunSoft Developer 2.0 or 2.0.1 products will *not* support SunSoft Developer 3.0.1 products. The SunSoft Developer 3.0.1 licensing software supports both SunSoft Developer’s 2.0, 2.0.1 and 3.0.1 products.

a. Become `root`, and take down the existing license manager daemon.

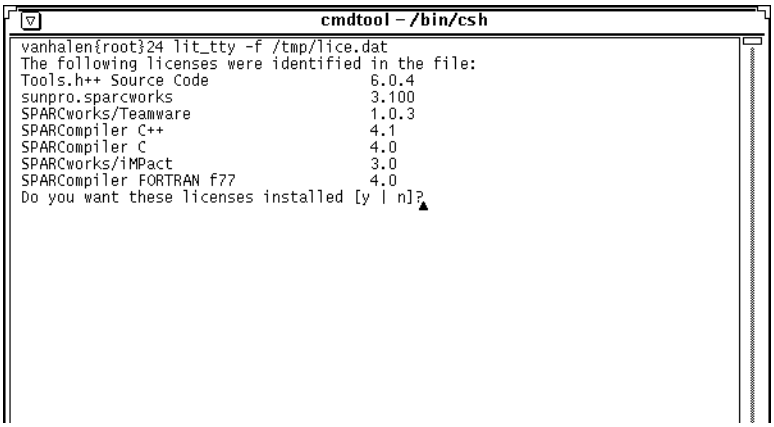
```
% su
# /opt/SUNWspro/bin/lmdown -c <absolute pathname>/license_file (For Solaris 2.x)
#/usr/lang/lmdown -c  /usr/lang/SunTech_License/license.dat (For Solaris 1.x)
```

For Solaris 2.x: Remove old `SPROlicsw` packages with pkgrm. Also, remove the old start-up scripts on all license servers.

b. Install the new licensing software package on a license server, and bring up `lit` on your screen.

c. Select License from File and type the path where the old license file exists.
This should be an absolute path with no meta characters.

d. The list of licenses appears on your screen.



e. Click Continue in the popup window.
Then click OK to add your newly selected license to the list of licenses to be installed.

f. Click Exit-Install Licenses on the License Installation Tool to install, quit and save your license.
If you have a single license server, and your product is installed on the same machine, your SunSoft products are now ready to use. If you have multiple or redundant licenses, or your products are installed on a different machine, please continue.

g. Copy and run the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from the license server where `lit` was run to the remaining redundant license servers.
This will put a copy of the same license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined`.
Run this script so you will not have to run `lit` on all of the other redundant servers.

h. Copy and run the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from where `lit` was run onto all other product servers containing your SunSoft Developer products.
If you run `lit` or `lit_tty` more than once, each of the newly created `LIC_CONFIG_SCRIPT`(s) must be run on each product server. Also, if you are setting up a new product server after running `lit` more than once on the license server, each version of the `LIC_CONFIG_SCRIPT` must be copied to and run on the new product server.

Look for errors (for example, encryption errors) in the start-up file `/tmp/license_log`.

The `LIC_CONFIG_SCRIPT` is saved on a per session basis. Up to 10 old `LIC_CONFIG_SCRIPT(S)` are saved in `/etc/opt/licenses`.

If you do *not* have enough space on your system, an error message will appear after the `/etc/opt/licenses/LIC_CONFIG_SCRIPT` has run.

Your installation and license configurations are complete and your product is ready to use.

There are possible inconsistencies to the license file after this procedure.

- **Daemon line inconsistencies**—The path to the `suntechd` daemon and the path to the daemon option files must be updated to match those in the new license file (`/etc/opt/licenses/licenses_combined`).
When the SunSoft Developer product's 2.x license file is read into the 3.0.1 license file, the `options.dat` file for the 2.x product is merged into the 3.0.1 `daemon_options` file (`/etc/opt/licenses/daemon_options`). Be aware that some of the daemon_options in the 2.x file may be overwritten by merging the new 3.0.1 `daemon_options` file.

Important Tips for Your SunSoft Developer License

This section is designed to offer you tips to further customize the SunSoft Developer license.

- **Take Down the License Daemon**

You may find it necessary to take down the license daemon. To do this, type the following:

```
% su
# /etc/opt/licenses/lmdown -c <absolute path to license file>
```

If you have redundant servers, this will take down all of the redundant servers.

- **Restart the License Daemon for Solaris 2.**x

The license software is set up so that during normal operations you will not have to restart the daemon. It will restart automatically whenever you install the new license software. It will also restart when the system reboots.

If the license daemon goes down, you need to restart the `lmgrd.ste`. If you have redundant servers, this needs to be done on all servers manually. Execute the following command on the license server. You can see the output of the restart by looking in the `/tmp/license_log` file.

```
% su
# /etc/rc2.d/S85lmgrd
```

- **Restart the License Daemon on Solaris 1.x**

Start the licensing software by typing the `lmgrd.ste` command on the license server.

The command line shown here redirects status and error messages into the file *license_log*.

• To start the license daemon, execute a command similar to the following: If you are running a C shell:

```
# /etc/opt/licenses/lmgrd.ste -c /etc/opt/licenses/licenses_combined >& log_location/license_log &
```

If you are running a Bourne shell:

```
$/etc/opt/licenses/lmgrd.ste -c /etc/opt/licenses/licenses_combined > log_location/license_log 2>&1 &
```

- **Automatic Start-up of Your License Daemon at Boot Time**

For Solaris 2.x

On Solaris 2.x, the license daemon automatically starts up at boot time.

For Solaris 1.x

Use the following example to set up the server so that the daemon starts when the server boots:

Type `/etc/rc.boot` or `/etc/rc.local` to start the daemon when the server boots. For example, add the following to `/etc/rc.boot` or `/etc/rc.local`.

```
/etc/opt/licenses/lmgrd.ste -c  /etc/opt/licenses/licenses_combined > /usr/tmp/unbundled/license_log 2>&1 &
```

(You must be `root` to edit those files.)

Your license server is now fully installed.

Using the `LM_LICENSE_FILE` *Environment Variable*

SunSoft Developer has designed its licensing packages so that under most circumstances, the product software can locate the installed license without user intervention. Therefore, you should not need to use this environment variable.

If, under extraordinary circumstances, (for example, you move the product software or the licenses from the location where they were originally installed and need to set the variable to where the licenses are located) you want to use a different license server other than the one specified in the elementary license file, you can use the `LM_LICENSE_FILE` environment variable and do one of two procedures:

- Set the `LM_LICENSE_FILE` environment variable to the path for the license file that you want to use. Execute a command similar to the following on the your workstation.

Note – The following shows an example for Solaris 2.x. If you are running Solaris 1.x `/opt/SUNWspro` will be replaced by `/usr/lang`.

C shell:

```
% setenv LM_LICENSE_FILE /opt/SUNWspro/license_dir/sunpro.lic,1:$LM_LICENSE_FILE
```

Bourne shell:

```
$ LM_LICENSE_FILE=/opt/SUNWspro/license_dir/sunpro.lic,1:$LM_LICENSE_FILE
$ export LM_LICENSE_FILE
```

or, alternately

- Set the `LM_LICENSE_FILE` environment variable to `port@hostname`. If you do not know the correct port number, look in `/etc/opt/licenses/licenses_combined` on <*your_license_server*>.

  This option would be useful if the license file is not accessible, for example, on a machine you cannot mount. For a C shell, type the following lines:

```
# setenv LM_LICENSE_FILE 7588@<hostname>
(hostname is the name of machine you are trying to switch the LM_LICENSE_FILE variable to)
```

Note – If you set the `LM_LICENSE_FILE` environment variable to more than one value, (for example, servers are separated by a colon in the `LM_LICENSE_FILE`) be sure that all license servers have been upgraded to support the newest version of the license daemon. If one of the servers listed in your `LM_LICENSE_FILE` is running an old license daemon, you are likely to get product errors that have the following message: `"invalid data returned from license server."` Do not change anything on the license file lines without speaking to your authorized SunSoft Developer service provider. See "Getting Help" on page 32 for more information.

The `daemon_options` *File*

A default `daemon_options` file is installed in `/etc/opt/licenses/daemon_options` as part of the licensing package. If you want to modify this file, you must change it manually in `/etc/opt/licenses/daemon_options` prior to invoking `lit` or `lit_tty`. Changing this file requires that you take the daemon down, make any changes, then restart the daemon. See "Take Down the License Daemon" on page 27, for more information.

For redundant servers, this file needs to be the same on each server. For independent servers, this file can be different.

The `daemon_options` file allows you to:

- Reserve licenses for specified users or groups
- Specify `LINGER` values[1]
- Specify who is allowed or not allowed access to your software
- Include or exclude users for all products
- Control logging of licensing information

1. The `LINGER` option does not apply to SPARCworks, SPARCworks / TeamWare, SPARCworks / Ada, or any iMPact tools.

Note – The license daemon must be shut down and restarted for the `daemon_options` changes to take effect.

Table 2-1 Daemon Options

Name	Description
`LINGER`	Allows you to keep a license for a set period of time after execution of a product has completed
`RESERVE`	Allows licenses to be reserved for one or more users
`INCLUDE`	Allows you to specify a list of users who are allowed access to your software
`EXCLUDE`	Allows you to specify a list of users who are disallowed access to your software
`INCLUDEALL`	Works like `INCLUDE` except that it applies to all features
`EXCLUDEALL`	Works like `EXCLUDE` except that it applies to all features
`GROUP`	Allows you to specify a group of users for use in other commands (You can only specify a user for this option.)
`NOLOG`	Causes license messages to be filtered out of the daemon's log output

A `daemon_options` file consists of lines in the following format (your file will look different than the example shown):

```
#Don't log IN, OUT, and QUEUED
NOLOG IN
NOLOG OUT
NOLOG QUEUED
LINGER sunpro.c 300
LINGER sunpro.cc 300
#RESERVE number feature {USER | DISPLAY | GROUP} name
#INCLUDE feature {USER | DISPLAY | GROUP} name
#EXCLUDE feature {USER | DISPLAY | GROUP} name
#GROUP name <list_of_users>
RESERVE 1 sunpro.c USER pat
RESERVE 3 sunpro.c USER lee
EXCLUDE sunpro.c USER joe
```

Lines beginning with the pound sign (#) are ignored and can be used as comments.

For example, the previous options file would reserve a copy of feature `sunpro.c` for user pat, three copies for user lee, and would cause IN, OUT and QUEUED messages to be omitted from the log file. User joe would not be allowed to use the `sunpro.c compile` feature. After you manually change the `daemon_options` file, you must take the license down with the `lmdown` command, and restart it again. `lit` will not automatically reread this options file. To do this, see "Take Down the License Daemon" on page 27, and "Restart the License Daemon for Solaris 2.x" on page 27.

Note – You can only have one user per line.

Getting Help

If you have problems installing or using SunSoft Developer Licensing or the license system, call your authorized service provider. Have this information ready:

- Model number of the machine
- Serial number of the machine
- SunOS release number (for example, SunOS 5.4)
- Release number of the software product (for example, SPARCWorks 3.1)
- Product serial number (on the license certificate)
- Hostname and hostid of the license server
- Copy of `licenses_combined` file
- Copy of the license that you received
- Copy of `/tmp/license_log` file

To display the SunOS release number, host information, and additional information you need when you get your license, type:

```
% showrev
```

Your screen will show information similar to the following:

```
Hostname: notalone
Hostid:   530110ab
Release:  5.4
Kernel architecture:  sun4c
Application architecture:  sparc
Hardware provider:  Sun_Microsystems
Domain:  XYZ.DIV.Company.COM
Kernel version:  SunOS 5.4 Generic. July 1993
```

Basic Software Installation 3

The instructions in this chapter describe how to use the GUI-based spro_install_tool and the command-line spro_install program to install SunSoft Developer products on Solaris. You can do a local or remote installation.

- **Local installation:** an installation in which software is installed on a system which has its own CD-ROM.
- **Remote installation:** an installation in which the remote machine mounts the CD-ROM disk and exports the mounted directory. The local machine then mounts the exported directory. All of the installation procedures are performed and displayed on the remote machine.

Note – Remember, if you are setting up this installation for a license server, you *must* install the new license software provided on this CD.

Select the installation program that meets your system requirements:

- Install the software on Solaris 2.x using the GUI-based `spro_install_tool`. See page 35.
- Install the SunSoft software on Solaris 1.x using the GUI-based `spro_install_tool`. See page 45.
- Install software on Solaris 2.x using `spro_install`, a command-line installation program. See page 41.
- Install software on Solaris 1.x using `spro_install`, a command-line installation program. See page 23.

3

Installation Road Map

The following list provides you with the basic road map that you can follow for your installation scenario.

Road map for GU- based installation

1. **Set up your OpenWindows environment.**
2. **Mount the CD-ROM (local or remote).**
3. **Bring up the installation tool.**
4. **Select products, AnswerBook, and licensing software.**
5. **Specify product, AnswerBook, and licensing directories.**
6. **Specify AnswerBook options, “heavy” or “nil.”**
7. **Perform installation.**
8. **Run** `spro_install_patch`**.**
9. **Install licenses.**
10. **Set path variables for each user.**

Road map for Command-line based installation)

1. **Mount the CD-ROM (local or remote).**
2. **Start the installation script**
3. **Select products.**
4. **Specify product directories.**
5. **Select AnswerBook(s).**
6. **Specify AnswerBook options, “heavy” or “nil.”**
7. **Specify AnswerBook directories.**
8. **Perform installation.**
9. **Run** `spro_install_patch`**.**
10. **Install licenses.**
11. **Set path variables.**

Installing SunSoft Developer Software on Solaris 2.x with `spro_install_tool`

Installation Notes

- The installation script for the `tools.h++` source code product requires a license. You *must* install the `tools.h++` license before you can install the product; if you don't, the installation will fail.
- If you are selecting the Performance Library, install the license before you install the product. If you should install the product before you get the license, install the Libsunperf license and then run the `install_libsunperf` script. The `install_libsunperf` script is in the `/opt/SUNWspro/SC4.0/bin` directory. (The path can vary depending to your installation directory.)
- Motif libraries are required to run some of the tools associated with Ada, iMPact, and Workshop products. The libraries are shipped on the top-level directory of the CD in the SUNWmfrun.24 and SUNWmfrun.25 packages. If you are installing iMPact, the Motif libraries are automatically installed in the `$BASEDIR/SUNWspro/Motif_Solaris24` directory (*not* in the motif default `/usr/dt` directory); if you are installing Ada and SPARCworks Visual or the Visual Workshop for C++, the libraries are installed in the `$BASEDIR/SUNWspro/Motif_Solaris25` directory.

Installing SunSoft Developer Software

The instructions that follow describe how to install SunSoft Developer software on Solaris 2.x using `spro_install_tool` for remote or local installations.

The instructions assume that you are logged in as the user, and have started OpenWindows on the machine with the CD-ROM drive and that you will run the installation tool as superuser (`root`).

The `spro_install_tool` will install your products in the default (`/opt`) directory, unless you specify otherwise.

1. **Type this command to allow access to OpenWindows:**

   ```
   % $OPENWINHOME/bin/xhost <name of machine on which software is to be installed>
   ```

2. **Become superuser and place the CD-ROM disk into the CD-ROM drive.**

3. **Type this command to determine if Volume Manager is running:**

```
% /usr/bin/ps -ef |/bin/grep/vold
```

4. **Look for a response similar to the following:**

```
% root 28158 16925 7 13:14:27 pts/1 ):06 /usr/snin/vold
```

5. **If Volume Manager is running, go to Step 7 to do a remote installation or Step 12 to do a local installation.**

6. **If Volume Manager is not running, type the following:**

```
# mkdir -p /cdrom/devpro_v4_n2
# mount -F hsfs -r /dev/dsk/c0t6d0s2 /cdrom/devpro_v4_n2
```

Now go to Step 7 if you are doing a remote installation or Step 12 if you are doing a local installation.

Remote Installation

This installation assumes that the remote machine is running Solaris 2.3 or higher. If you are running Solaris 1.x, go to page 45.

7. **While on the remote machine, type a line similar to the following into the file** `/etc/dfs/dfstab`:

```
share -F nfs -o ro /cdrom/devpro_v4_n2
```

8. **Check to see if** `nfsd` **is running by typing**

```
# /usr/bin/ps -ef | /bin/grep nfsd
```

If `nfsd` is *not* running, reboot the machine. If Volume Manager does not come up after reboot, go back to page 35 and execute steps 1 through 3, and then skip to step 6.

9. **Export the `/cdrom/devpro_v4_n2` directory.**

```
# shareall
```

10. Remote login to the local machine and type the following lines:

```
# rlogin <local_machine> -l root
Password: root-password
# mkdir -p /cdrom/devpro_v4_n2 (Do this if /cdrom/devpro_v4_n2 doesn't
                                already exist)
# setenv DISPLAY remote_machinename:0 (C shell)
          OR
# DISPLAY=remote_machinename:0;export DISPLAY (Bourne shell)
```

You can use any directory as the mount point. These instructions assume you use `/cdrom/devpro_v4_n2`.

11. Mount the CD-ROM directory from the remote machine as follows:

```
# mount -r remote_machinename:/cdrom/devpro_v4_n2/cdrom \
/cdrom/devpro_v4_n2f
```

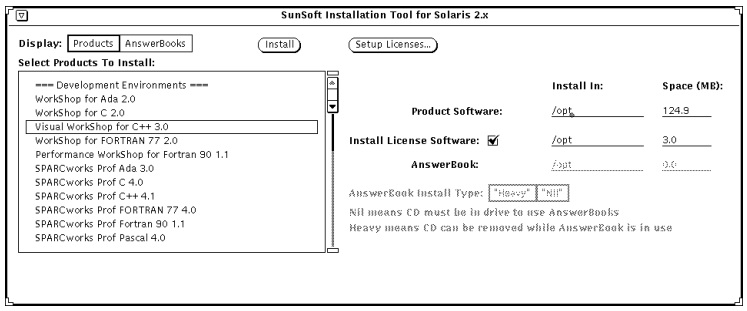
Continue to step 13.

Local Installation

12. Type the following lines.

```
# cd /cdrom/devpro_v4_n2/solaris_2.x
# ./spro_install_tool &
```

The main Installation Tool window appears.



13. Click on Display: Products, and select the products you want to install.
The `spro_install_tool` estimates the amount of disk space needed by the products and the AnswerBooks you select and displays the total in the Space (MB) column.

14. **Click on Display: AnswerBooks, and select the AnswerBooks you want to install.**

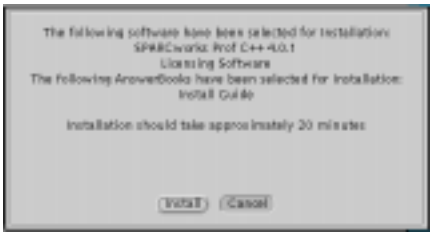
15. **Click on an AnswerBook Install Type: "Heavy" or "Nil."**
    Heavy Option: takes 15-30 minutes to install and files are copied to the hard disk. Nil option: takes 5 minutes to install and files are left on the CD-ROM. If you choose Nil, the CD must be available when you want to use the AnswerBook.

Caution – Your license installation will *fail* if you do not click the Install License Software check box as described in Step 16 below.

---

16. **Click the Install License Software check box.**
    A check will appear in the box.

17. **Click on Install.**
    A popup window will appear indicating the products and AnswerBooks you selected. Click Install to begin the installation of your products.



The message "Beginning product installation" will appear in the lower left corner of the main Installation Tool window.

18. **The Application Installation window is displayed.**
    If there are conflicting files, you will be asked questions to help the installation process.

After the installation of all the software, the following message appears in the Application Installation window:

```
Product Installation Completed. The log file for the installation
can be found in /tmp/spro_install_log.xxxx
Press return when you are done analyzing installation results.
```

After this message appears, press Return and a popup window appears with information that your installation was successful. It will also give you the location of the log file. The products that were successfully installed have an asterisk next to their name in the Installation Tool main window.

To start your newly installed AnswerBook, see “Starting the AnswerBook Software for Solaris 2.x” on page 66.

19. **Open a shelltool, become `root` and type `spro_install_patch` to install product or operating system patches.**
    Select the patch for the product(s) you installed. If there are no patches for your product, the script will attempt to install operating system patches, if they exist. See the explanation for the `spro_install_patch` in Appendix B, “Glossary."

Caution – If you are installing SPARCworks/Ada or SPARCompiler Ada, see Chapter 5, “Additional Installation Information for Users” for further instructions.

---

20. **Click the (`spro_install_tool`) “Setup Licenses” button to setup your license.**

21. **Go to “Post Installation Instructions” on page 53 for information on what each user will need to do to complete the installation.**

22. **If you have done a local installation, skip to Step 23. If you have done a remote installation, type these lines:**

```
# umount /cdrom/devpro_v4_n2
# logout
```

23. **Eject the CD-ROM.**
    Type the following:

```
# cd /
# eject cdrom
```

24. **Exit superuser and enable OpenWindows security by typing:**

```
# exit
% $OPENWINHOME/bin/xhost -
```

Installing SunSoft Developer Software on Solaris 2.x Using `spro_install`

Installation Notes

- The installation script for the `tools.h++` source code product is licensed. You must install the `tools.h++` license before you can install the product; if you don't, your installation will be incomplete.
- If you are selecting the Performance Library, install the license before you install the product. If you should install the product before you get the license, install the libsunperf license and then run the `install_libsunperf` script in the `/opt/SUNWspro/SC4./bin` directory. (This path may vary depending to your installation directory.)
- Motif libraries are required to run some of the tools associated with Ada, iMPact, and Workshop products. The libraries are shipped on the top-level directory of the CD in the SUNWmfrun.24 and SUNWmfrun.25 packages. If you are installing any iMPact product, the Motif libraries are automatically installed in the `$BASEDIR/SUNWspro/Motif_Solaris24` directory (*not* in the motif default `/usr/dt` directory); if you are installing Ada and SPARCworks Visual or the Visual Workshop for C++, the libraries are installed in the `$BASEDIR/SUNWspro/Motif_Solaris25` directory.

Installing SunSoft Developer Software

The following steps show you how to install SunSoft Developer software on Solaris 2.x using `spro_install` for a remote or local installation. `spro_install` installs your products in the default (`/opt`) directory.

The instructions that follow assume that you are a user on the machine with the CD-ROM drive.

1. **Become superuser and place the CD-ROM disk into the CD-ROM drive.**
   Solaris 2.3 or higher automatically mounts the CD-ROM to `/cdrom/devpro_v4_n2`. You may have to look for the actual mount point on your system; this is not an absolute pathname.

2. **Determine how Volume Manager is set up on your system**
   If Volume Manager is not running, type the following:

```
# mkdir -p /cdrom/devpro_v4_n2
# mount -F hsfs -r /dev/dsk/c0t6d0s2 /cdrom/devpro_v4_n2
```

Decide whether you are installing locally or a remotely. For local installation, skip to Step 8. For remote installation, follow Step 3 through Step 7.

Remote Installation

This installation assumes that the remote machine is running Solaris 2.3 or higher. If you are running Solaris 1.x, go to "Installing SunSoft Developer Software on Solaris 1.x Using spro_install_tool" on page 45.

3. While on the remote machine, type a line similar to the following into the file `/etc/dfs/dfstab`:

```
share -F nfs -o ro /cdrom/devpro_v4_n2
```

4. Check to see if `nfsd` **is running by typing**:

```
# /usr/bin/ps -ef | /bin/grep nfsd
```

If `nfsd` is not running, reboot the machine. If Volume Manager does not come up after reboot, execute Step 1 through Step 2 and skip to Step 6.

5. Export the `/cdrom/devpro_v4_n2` **directory.**

```
# shareall
```

6. Remote login to the local machine and type the following lines:

```
# rlogin <local_machinename> -l root
Password: root-password
# mkdir -p /cdrom/devpro_v4_n2 (Do this if devpro_v4_n2 doesn't
                                already exist)
```

You can use any directory as the mount point. These instructions assume you use `/cdrom/devpro_v4_n2`.

7. Mount the CD-ROM as follows:

```
# mount -r remote_machinename:/cdrom/devpro_v4_n2 /cdrom/devpro_v4_n2
```

Continue to Step 9.

Local Installation

8. Type the following lines.

```
# cd /cdrom/devpro_v4_n2/Solaris_2.x
# ./spro_install
```

The following example shows SPARCompiler Fortran. Your installation may vary:

Table 3-1 `spro_install` for Solaris 2.x

```
# ./spro_install
spro_install Version vol3num2 beta for Solaris 2.x 7/16/95
DATE = Friday June 15 11:51:49 PST 1995
SYSTEM= SunOS Allskate 2.4 Generic_101318-21 sun4c sparc
LOG  = /usr/tmp/unbundled/spro_install_log.5309

Specify 1 or more product components to install, followed by a
carriage return. Type <help> for a list of valid product
components:f90 ab license
The following components were selected for installation:
Product Software:
SPARCompiler: Fortran 90
Other Components:
SunTech License
SPARCompiler/SPARCworks AnswerBook
Is this correct? [y,n] y
Estimated size of Product software is 12.2 MB
Default location of installation for Product Software packages
will be /opt
Do you want to change the install location? [y,n] n
                <normal pkgadd takes place here>
Specify 1 or more AnswerBooks to install, followed by a carriage
return. Type <help> for a list of valid books: install
The following AnswerBooks were selected for installation:
Installation and Licensing
Is this correct? [y,n] y
AnswerBook installation options are as follows:
-----------------------------------------------
1. nil: less than 1.0 MB disk space [slowest performance].
2. heavy 1.0 MB disk space [best performance].
As each AnswerBook is installed, you will be prompted for information
on which installation option you will want to install your AnswerBook.
For a definition of "heavy" or "nil" see the Glossary.
Select an installation option for all AnswerBooks
installed in this session (1 or 2):2
 Default location of installation for the AnswerBook packages
will be /opt
Do you want to change the install location? [y,n] n
                <normal pkgadd takes place here>
```

To start your newly installed AnswerBook, see “Starting the AnswerBook Software for Solaris 2.x” on page 66.

After the installation of all the software, the following message appears in the Application Installation window:

```
Product Installation Completed. The log file for the installation
can be found in /usr/tmp/unbundled/spro_install_log.xxx. Press
return when you are done analyzing the installation results.
```

9. **Type** `spro_install_patch` **in any shelltool window where you are** `root` **to install any product specific or operating system patches.**
   Select the patch for the product(s) you installed. If there are no patches for your specific product, the script will attempt to install operating system patches, if they exist.

Caution – If you are installing SPARCworks/Ada, SPARCompiler Ada, or SPARCompiler Pascal, see Chapter 5, “Additional Installation Information for Users."

---

10. **Go to Chapter 2, “Installing Your License“ to learn how to get the proper license for your software.**

11. **Go to “Post Installation Instructions” on page 27 for information on what you need to do to complete your installation.**

12. **If you have done a local installation, skip to step 14. If you have done a remote installation type the following lines:**

```
# umount /cdrom/devpro_v4_n2
# logout
```

13. **Eject the CD-ROM.**
    Type the following:

```
# cd /
# eject cdrom
# exit
```

Installing SunSoft Developer Software on Solaris 1.x Using `spro_install_tool`

The following steps show you how to install SunSoft Developer software on Solaris 1.x using `spro_install_tool` for remote or local installations.

Installation Note: If you are selecting the Performance Library, install the license before you install the product. If you install the product before you get the license, install the Libsunperf license and then run the `install_libsunperf` script. The `install_Libsunperf` script is in the `/opt/SUNWspro/SC4./bin` directory. (The path can vary depending to your installation directory.)

The instructions that follow assume that you are logged in as the user and have started OpenWindows on the machine with the CD-ROM drive.

The `spro_install_tool` will install your products in the default (`/usr/lang`) directory.

1. **Disable OpenWindows security by typing:**

```
% $OPENWINHOME/bin/xhost +
```

2. **Become superuser and place the CD-ROM disk into the CD-ROM drive.**

3. **Mount the CD.**

```
# mkdir /cdrom
# mount -r /dev/sr0 /cdrom
```

Now decide whether you are installing locally or remotely to follow the next steps.

For local installation skip to Step 8. For remote installation, follow Step 4 through Step 8.

Remote Installation

This installation assumes that the remote machine is running Solaris 1.x. If you are installing on Solaris 2.3 or higher, see page 35**.**

4. **Create an `/etc/exports` file if one does not exist. Then, while on the remote machine, type a line similar to the following into the `/etc/exports` file:**

```
/cdrom -ro
```

5. Export the `/cdrom` directory. Choose one of the following ways to do this:

- If you are modifying `/etc/exports`, type the following:

```
# exportfs -a
```

- If you are creating `/etc/exports`, reboot the remote machine to export the `/cdrom` directory, and then go to page 45 and execute Step 1 through Step 3 and Step 5.

```
# sync
# sync
# reboot
```

6. Remote login to the local machine and type the following lines:

```
# rlogin <local_machinename> -l root
Password: root-password
# mkdir /cdrom                          (Do this if /cdrom doesn't
                                         already exist)
# setenv DISPLAY remote_machinename:0 (C shell)
        OR
# DISPLAY=remote_machinename:0;export DISPLAY (Bourne shell)
```

You can use any directory as the mount point. These instructions assume you use `/cdrom`.

7. Mount the CD-ROM directory from the remote machine as follows:

```
# mount -r remote_machinename:/cdrom /cdrom
```

Go to step 8.

Local Installation

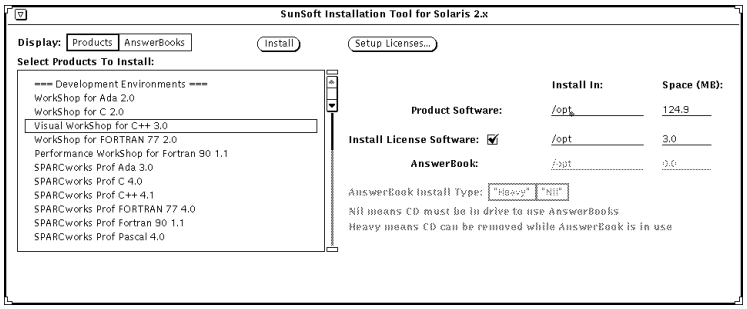
8. On the local machine, set the paths by typing the following lines:

```
local% su
Password: root-password
setenv OPENWINHOME <path to where OpenWindows is installed>
setenv PATH $OPENWINHOME/bin:$OPENWINHOME/bin/xview:$PATH
setenv LD_LIBRARY_PATH $OPENWINHOME/lib:/usr/lib
```

9. **Type the following lines.**

```
# cd /cdrom
# ./spro_install_tool &
```

The main Installation Tool window appears, and looks similar to the following.



10. **Click on Display: Products, and select the products you want to install.**
The `spro_install_tool` estimates the amount of disk space needed by the products and the AnswerBooks you select and displays the total in the Space (MB) column.

11. **Click on Display: AnswerBooks, and select the AnswerBooks you want to install.**
Currently, for Solaris 1.x, there is only one selection for AnswerBook. Also, if you choose "`CD-ROM Hard Disk`" or "`Hard Disk`" when installing the AnswerBook packages *and* you want to change the `$ABHOME` mount point, choose "`Customize Configuration`" at the Install/Customize Menu; otherwise, AnswerBook will be installed in the default location (`/usr/lang`).

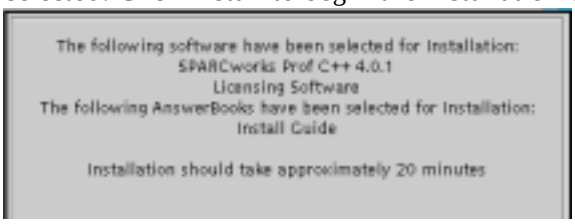
    For more information on installing Answerbook, see the *Software and AnswerBook Packages Administration Guide.*

Caution – Your license installation will *fail* if you do not click the Install License Software check box as described in Step 12 below.

---

12. **Click the Install License Software check box.**
A check will appear in the box.

13. **Click on Install.**
    A popup window will appear indicating the products and AnswerBooks you selected. Click Install to begin the installation of your products.



    The message “Beginning product installation” will appear in the lower left corner of the main Installation Tool window.

14. **The Application Installation window appears.**
    After the script begins copying the files from the disk, you are asked questions to help the `spro_install_tool` install the software.

After the installation of all the software, the following message appears in the Application Installation window:

```
Product Installation Completed. The log file for the installation
can be found in /usr/tmp/unbundled/spro_install_log.xxxx. Press
return when you are done analyzing the installation results.
```

15. **Type `spro_install_patch` in any shelltool window to install any product-specific or operating system patches.**
    Select the patch for the products you installed. If there are no patches for your specific product, the script will attempt to install operating system patches. `spro_install_patch` should be run on the local machine unless the shelltool window is being displayed on a remote monitor.

To start AnswerBook, see “Starting AnswerBook Software for Solaris 1.x” on page 69.

16. **Select Setup Licenses... to set up your license.**
    After you install your software, you must get a license to use your new software product.

17. **Go to Chapter 2, “Installing Your License," to learn how to get the proper license for your software.**

18. **Go to "Post Installation Instructions" on page 53 for information on what you need to do to complete your installation.**

19. **If you have done a local installation, skip to Step 20. If you have done a remote installation type the following lines:**

```
# umount /cdrom
# logout
```

20. **Eject the CD-ROM.**

```
# cd /
# umount /cdrom
# eject cdrom
```

21. **Exit superuser and enable OpenWindows security by typing:**

```
# exit
% $OPENWINHOME/bin/xhost -
```

Installing SunSoft Developer Software on Solaris 1.x Using `spro_install`

The following steps show you how to install SunSoft Developer software on Solaris 1.x using `spro_install` for remote or local installations. `spro_install` will install your products in the default (`/usr/lang`) directory.

Installation Note: If you are selecting the Performance Library, install the license before you install the product. If you install the product before you get the license, install the Libsunperf license and then run the `install_libsunperf` script. The `install_Libsunperf` script is in the `/opt/SUNWspro/SC4./bin` directory. (The path can vary depending on your installation directory.)

1. **Become superuser and place the CD-ROM disk into the CD-ROM drive.**

2. **Mount the CD.**

```
# mkdir /cdrom
# mount -r /dev/sr0 /cdrom
```

Now decide whether you are installing locally or remotely to follow the next steps. For local installation, skip to Step 7. For remote installation, follow Step 3 through Step 7.

Remote Installation

This installation assumes that the remote machine is running Solaris 1.x. If you are installing on Solaris 2.3 or higher, see page 35.

3. **Create an `/etc/exports` file if one does not exist. Then, while on the remote machine, type a line similar to the following into the `/etc/exports` file:**

```
/cdrom -ro
```

4. **Export the `/cdrom` directory. Choose one of the following ways to do this:**
   - If you are modifying `/etc/exports`, type the following:

```
# exportfs -a
```

   - If you are creating `/etc/exports`, reboot the remote machine to export the `/cdrom` directory, and then go to page 49 and execute Step 1, Step 2, and Step 4.

```
# sync
# sync
# reboot
```

You can use any directory as the mount point. These instructions assume you use `/cdrom`.

5. **Remote login to the local machine and type the following lines:**

```
# rlogin <local_machinename> -l root
Password: root-password
# mkdir /cdrom                          (Do this if /cdrom doesn't already exist)
```

6. **Mount the CD-ROM as follows:**

```
# mount -r remote_machinename:/cdrom /cdrom
```

Go to step 7.

Local Installation

7. **Type the following lines.**

```
# cd /cdrom
# ./spro_install
```

The following example shows SPARCompiler C. Your installation may vary:

Table 3-2 `spro_install` for Solaris 1.x

```
# ./spro_install
spro_install Version vol4num3 for Solaris 1.x 5/16/95
DATE = Thu June 16 11:51:49 PST 1995
SYSTEM= SunOS allskate 4.1.3 Generic_101318-21 sun4c sparc
LOG = /usr/tmp/unbundled/spro_install_log.390
Specify 1 or more product components to install, followed by a
carriage return. Type <help> for a list of valid product
components:cc license
The following components were selected for installation:
Product Software:
SPARCompiler C 4.0
Other Components:
SunTech License
Is this correct? [y,n] y
Estimated size of Product software is 12.2 MB
Default location of installation for Product Software packages
will be /usr/lang
Do you want to change the install location? [y,n] n
                    <normal pkgadd occurs here>
```

8. As each AnswerBook package is installed you will be prompted for information.

Currently, for Solaris 1.x, there is only one selection for AnswerBook. Also, if you choose "`CD-ROM Hard Disk`" or "`Hard Disk`" when installing the AnswerBook packages, *and* want to change the `$ABHOME` mount point, you must choose "`Customize Configuration`" at the Install/Customize Menu. If you do not make the choice there, AnswerBook will be installed in the default location (`/usr/lang`).

To start your newly installed AnswerBook, see "Starting AnswerBook Software for Solaris 1.x" on page 69.

For more information on installing Answerbook, see the *Software and AnswerBook Packages Administration Guide*.

After the installation of all the software, the following message appears in the Application Installation window:

```
Product Installation Completed. The log file for the installation
can be found in usr/tmp/unbundled/spro_install_log.xxxx. Press
return when you are done analyzing the installation results.
```

9. **Type** `spro_install_patch` **in any shelltool window where you are root to install any product specific or operating system patches.**
   Select the patch for the product(s) you installed. If there are no patches for your specific product, the script will attempt to install operating system patches.

10. **Follow the instructions in Chapter 2, "Installing Your License" to get the license for your software.**

11. **Go to "Post Installation Instructions" on page 53 for information on what you need to do to complete your installation.**

12. **If you have done a local installation, skip to step 13. If you have done a remote installation type the following lines:**

```
# umount /cdrom
# logout
```

13. **Eject the CD-ROM.**

```
# cd /
# umount /cdrom
# eject cdrom
```

Post Installation Instructions

Post-installation instructions allows you to custom your environment. We suggest that you make copies of this section and distribute a copy to each user.

Path Requirements After Installation

For Solaris 2.x

You can set these paths by using an editor to change your `$HOME/.profile` or `~/.cshrc` file, as follows:

- If you're using the Bourne shell, your `$HOME/.profile` file should have the following lines:

```
PATH=/opt/SUNWspro/bin:$PATH
MANPATH=/opt/SUNWspro/man:/usr/man:$MANPATH
LD_LIBRARY_PATH=/opt/SUNWspro/lib:$OPENWINHOME/lib:$LD_LIBRARY_PATH
export PATH MANPATH LD_LIBRARY_PATH
```

- If you're using the C shell, the `~/.cshrc` file should have the following lines:

```
set path = (/opt/SUNWspro/bin $path)
setenv MANPATH /opt/SUNWspro/man:/usr/man:$MANPATH
setenv LD_LIBRARY_PATH /opt/SUNWspro/lib:$OPENWINHOME/lib:$LD_LIBRARY_PATH
```

Save and source the `$HOME/.profile` or `~/.cshrc` file.

For Solaris 1.x

If you are using the Bourne shell, your $HOME/ .profile should look similar to the following:

```
PATH=/usr/lang/:$PATH
MANPATH=/usr/lang/man:/usr/man:$MANPATH
LD_LIBRARY_PATH=/usr/lang/lib:$OPENWINHOME/lib:$LD_LIBRARY_PATH
export PATH MANPATH LD_LIBRARY_PATH
```

If you are using the C shell, the `~/.cshrc` file should have lines that look something like the following:

```
set path = (/usr/lang/ $path)
setenv MANPATH /usr/lang/man:/usr/man:$MANPATH
setenv LD_LIBRARY_PATH /usr/lang/lib:$OPENWINHOME/lib:$LD_LIBRARY_PATH
```

Then save and source the `$HOME/.profile` or `~/.cshrc` file.

3

Commands to Invoke Your Product

Table 3-3 Commands to Invoke Your Product

Product	Command	Comment
SPARCompiler C	`cc` `acc`	for Solaris 2.x for Solaris 1.x
SPARCompiler C++	`CC`	
SPARCompiler Pascal	`pc`	
SPARCompiler Fortran	`f77`	
SPARCompiler Fortran 90	`f90`	
SPARCworks Tools	`sparcworks`	
SPARCworks/TeamWare	`sparcworks`	The SPARCworks manager is where you can launch all of the TeamWare tools
SPARCompiler Ada	`ada`	for Solaris 2.x
SPARCworks/Ada	`adavision`	for Solaris 2.x
SPARCworks iMPact	`tha, looptool, lock_lint`	for Solaris 2.x
SPARCworks/Visual	`visu`	

README *Files*

README files provide information on the software product, known bugs, and documentation errors. For Solaris 2.x and 1.x, all `README` files are located in *$BASEDIR*`/SUNWspro/READMEs`, where *$BASEDIR* is the directory where you installed your software. If you did not install your software in a default directory (`/opt` or `/usr/lang`), replace `/opt` or `/usr/lang` with the actual directory location.

3

Acquiring and Installing Domain-Based Passwords

4

This chapter provides instructions for acquiring and installing *domain-based* passwords. Domain-based passwords support products licensed through the GoldPass and ScholarPass sales programs and link software to network domains rather than specific license servers (machine as indicated by host ID).

Follow these steps for installation:

1. **Use either this document or the *Quick Installation Guide for SunSoft Workshop Product*s (P/N 802-3634-10) to install your software packages.**
2. **To acquire and install your domain-based password(s), follow the instructions that begin on page 58.**

More About Domain-Based Passwords

A standard password ties a product to a particular machine as defined by its host ID, but domain-based passwords tie licensed products to a *network* domain. To provide a simple method for controlling access to the software, individual passwords can be ordered for domains or subdomains.

Domain-based passwords function without using a centralized license manager and without enforcing hard limits on the number of users. However, your software license may limit the number of users; these limits are defined in the licensing agreement.

The licensed software operates as long as the requesting user of the licensed software is on a valid network domain, for example:

Examples of *Valid* User Requests

Domain Password Issued:	Requesting User's Domain:
my_org.org	my_org.org
my_org.org	eng.my_org.org
my_org.org	admin.my_org.org
eng.my_org.org	eng.my_org.org
eng.my_org.org	bld12.eng.my_org.org

Examples of *Invalid* User Requests

Domain Password Issued:	Requesting User's Domain:
my_org.org	a_different.org.org
eng.my_org.org	my_org.org
eng.my_org.org	admin.my_org.org
my_org.org	eng.sun.com

The license agreement signed by your organization includes information about the network domains where licensed software is installed. Passwords are issued only for the domains associated with your site as described in your agreement. Depending on how your network domains are set up, you can acquire a password for a single product (or product feature) that makes it available on all of the network domains at your site.

You also have the choice of receiving individual passwords for each domain and subdomain. This allows you reasonable control of user access to the software. For example, the license agreement may simply identify my_org.org as the domain on which licensed software may operate. However, you can acquire a password for a particular *subdomain* (for example, a subdomain of eng.my_org.org) and limit access to the subdomain as well as its subdomains.

Getting Domain-Based Passwords

Domain-based passwords are available one to two weeks after your GoldPass or ScholarPass license agreement has been signed and approved. Check the date of the agreement before requesting your password.

You can order your passwords from the License Distribution Center. You can contact the License Distribution Center by email, fax, or telephone. We recommend that you order by *email or fax*, rather than by telephone.

This is the information that the License Distribution Center will need from you:

- Site number

This number identifies your organization for all ScholarPass or GoldPass licensed software. Upon approval of your agreement, a site number is assigned to each site in your organization. If you don't have this number, ask for this number from the individual who signed the licensing agreement for your organization.

- Serial number from your Proof of License Certificate

  The serial number is printed on the label attached to the Proof of License Certificate. The Proof of License Certificate is part of your ScholarPass or GoldPass product package.

- General information, including:
  - Your name and title
  - Name and address of your organization—including zipcode
  - Your telephone and fax numbers
  - Your email address

- The network domain name(s) for the password(s)

  The domain names that you supply are verified against the information that was provided in the license agreement. A password will be issued only if your requested domain(s) is associated with your site number. We recommend that you use the widest network domains possible in your organization, taking into account that you do not violate the terms of your licensing agreement by providing access to ineligible users.

- The Licensing Distribution Center will also need the name and version number of the products that you are requesting passwords for.

Getting Passwords by Email

Email your request for domain-based passwords to this address:

All countries `license@sun.com`

Make sure that you include all of the information that is required to issue the passwords. The License Distribution Center will email your passwords within twenty-four hours after receiving your request.

Getting Licenses by Fax

Fill out the Domain-Based Password Request form (see the last page of this book) and fax it to:

U.S.A.	`1-317-364-7220`
All other countries	`[Intl access +1+] 317-364-7220`

Getting Licenses by Telephone

Complete the information requested on a the Fax Password License Request form. Then, call in the information to:

U.S.A.	`1-800-872-4SUN`
All other countries	`[Intl access +1+] 317-364-7216`

Installing Domain-Based Passwords

You will receive password licenses from the License Distribution Center. The current implementation of domain-based passwords does not use a separate license server, so it is not necessary to run a license server to operate these GoldPass and ScholarPass configured products. Installationshould take you 15 minutes.

1. **Check your directories to see if you have a directory named:**
   Solaris 2.x: `/opt/SUNWspro/license_dir`
   Solaris 1.x: `/usr/lang/SUNWspro/license_dir`

   If you have the appropriate directory, go to Step 3. If you do not, then continue with Step 2.

2. **Become `root`, then create this directory.**
   Solaris 2.x: `% mkdir /opt/SUNWspro/license_dir`
   Solaris 1.x: `% mkdir /usr/lang/SUNWspro/license_dir`

3. **Take the password information provided by the License Center and save it in a text file named as follows:**
   GoldPass license file name: `sunpro.lic,gold`
   ScholarPass license file name: `sunpro.lic,sp`

   Make sure your file name contains both a period (`.`) and a comma (`,`). You can append the contents of this new file to an existing domain-based password file or create additional files with an incremented name (for example, `sunpro.lic,sp1`, or `sunpro.lic,sp2`).

4. **Verify the contents and location of the file, then save the file.**

5. **The final check can be done by invoking the software with the `-xlicinfo` command-line option. Here is an example using SPARCompiler C:**

   ```
   % acc -xlicinfo
   ```

   This will print the current license status of the product including: product name and version, number of licenses in use, number of licenses available, and the path and name of the license file used.

Note – The number of licenses available is zero for a domain-based password.

Your licensed software is ready to use.

4

Determining the NIS/NIS+ Domain Name

The value of the NIS or NIS+ domain will be the output of the `domainname` command:

```
%domainname
superhero.com
```

Determining the DNS Domain Name

If the file `/etc/resolv.conf` is used to specify the domain for the current machine, that value should be used. For example, the domain name is *superhero.com* in this `/etc/resolve.conf` file:

```
———————/etc/resolv.conf———————
domain        superhero.com
nameserver    111.22.33.444
———end of /etc/resolv.conf———
```

If there is no domain name specified in `/etc/resolv.conf`, the `/usr/ucb/hostname` command can be used. If the `hostname` command returns a value which contains a period (.), the value returned will be used. For example, in this case the `domainname` is *superhero.com*:

```
%/usr/ucb/hostname
mighty_mouse.superhero.com
```

If the domain is both listed in `/etc/resolv.conf` and returned by `hostname`, the value in `/etc/resolv.conf` will take precedence and should be registered as your required domain.

Determining the Current Domain

NIS/NIS+ Domain Name for Current Machine

Use result of `getdomainname ()`.

DNS Domain Name for Current Machine

- If there is a domain specified in `/etc/resolv.conf`, it will be used. See `resolv.conf (5)`.
- If `hostname` is set to be a value which contains at least one period (.), the value to the right of the first period will be used as the domain value. See `hostname (1B)`.
- If both are available, the domain listed in `/etc/resolv.conf` has precedence over the `hostname` value.
- If both NIS and DNS results are nonnull, a case-insensitive comparison is performed with the domain listed on the license. If the domain value from the license is a subset of either the NIS or DNS values, the license will be granted.

Problems Getting Your Passwords

The most likely problems that occur are:

Problem	**Solution**
Unknown site number	Check the licensing agreement for the site number or contact the individual in your organization who signed the licensing agreement. If you still can't get the site number, contact your SunSoft vendor.
The network domain names are not associated with the site number	Confirm the site number. If it is correct, you may be requesting passwords for a domain not associated with your site as described in the license agreement. If you want to add or delete domain names, obtain a Site Identification form from your SunSoft vendor.

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Additional Installation Information for Users 5

This chapter covers additional installation procedures, product software configurations, and patches that you may need for the SunSoft Developer product that you installed for Solaris 2.x and Solaris 1.x.

For Solaris 2.x

Current Patch Information

Binaries for the Solaris 2.3 patches require approximately 20 Mbytes of root partition space. Please check the `README` file in the `Patches` directory on the CD to find out which patches you will need.

If you're running Solaris 2.3 with less than 20 MBytes of free space on your root partition, we recommend you do one of the following:

- Link the `/var` directory to another area on the disk with at least 20 MBytes of free disk space.

or

- Upgrade your system to Solaris 2.4 as a part of the installation of the SPARCompiler 4.0 FCS release. This will eliminate the need to install the Solaris 2.3 patches.

The current patch installation scheme does not allow for any patches to be installed on a Solaris 2.3 diskless client with a Solaris 2.4 server. Contact Sun Customer Support for the procedure to correctly install patches in this server/client configuration.

Removing Patches on Solaris 2.x

To remove patches, you must execute the `backoutpatch` script for each patch you want to remove. Use the following steps:

1. **Become superuser and change directory into the patch directory:**

```
% su
# cd /cdrom/unnamed_cdrom/Solaris_2.x/Patch/ <patch number you have installed>
```

2. **Type the `backoutpatch` command to run the script.**

```
# backoutpatch <patch number you want to remove>
```

Note – There is no `backout patch` script for patch `101242-10`. Please follow the instructions listed in the `README` section on the CD.

Starting the AnswerBook Software for Solaris 2.x

If you have not installed the AnswerBook software, see Chapter 3, “Basic Software Installation."

There are two ways to start AnswerBook for Solaris 2.x:

- Use the Workspace Menu on your machine in OpenWindows.
- Use a command line option.

Using the Workspace Menu

Open your AnswerBook on-line documentation from the Workspace pop-up menu on your machine.

Workspace ➤ Programs ➤ AnswerBook

A title screen appears. When the AnswerBook Navigator opens, it should display the installed AnswerBooks.

Using a command line option

You can also start AnswerBook from the command line by typing:
`/usr/openwin/bin/answerbook`
Make sure this is in your `$path` before any other one. The AnswerBook Navigator appears with the contents of your AnswerBook library.

Removing an AnswerBook Package for Solaris 2.x

You may decide to change the installation type for your AnswerBook package. For example, you may have chosen the “heavy” option, but now want to install the “nil” AnswerBook package.

For example, to remove the SPARCworks AnswerBook package, type the following:

```
% su
# pkgrm <packagename>
```

Caution – Only use `pkgrm` to remove AnswerBook packages or individual files. *Never* use the `rm` command to remove AnswerBook packages.

Removing Software Packages for Solaris 2.x

To remove a package, use `pkgrm`(1M).

1. **Become** `root`**.**
2. **Type** `pkgrm` **followed by the package name to remove the package.**

```
# pkgrm packagename
```

The program prints information about the package and asks if you want to remove it. If you answer **y**, the program removes the package, verifying the package dependencies.

See the `man` page `pkgrm`(1M) for more information.

Viewing Installed Packages on Solaris 2.x

You can see which software is installed by using the `pkginfo | grep spro` command. The `-l` option gives detailed information about packages.

Reinstalling a Package on Solaris 2.x

You must remove the first installed package before you can reinstall. If you do not remove it, `spro_install_tool` or `spro_install` installs the package into the same directory you initially installed the package. Use `pkgrm` to remove a package.

The SUNWlibC *Package on Solaris 2.x*

The SUNWlibC package should be installed on each server and each user's machine. The SUNWlibC package consists of the shared libraries libC.so.5 that are installed in /usr/lib. You must install this package to allow dynamic linking with libC. If this package is not installed, user applications will be statically linked with libC.

This package is not necessary if you are running Solaris 2.5 or higher.

For Solaris 1.x

Installing Patches with spro_install_patch

- Patch 100267-09 cannot be installed from the spro_install_patch script. To properly install this patch, refer to the README on the CD under <*directory where CD is installed*>/Solaris_1.x/Patch/100267-09.

Note – After you install this patch, be aware that the instruction in the README % cp -p -R 'arch'/* /usr *is wrong.*
The correct instruction is: % cp -p -R ./* /usr .
The 'arch' command was for both Sun 3 and Sun 4 versions. We are only shipping the Sun 4 version, rendering the 'arch' command useless.

- Patch 100376-04 cannot be installed using spro_install_patch. You must change directories to <*directory CD is installed*>/Solaris_1.x/Patch/100376-04/README for installation instructions on how to install this patch manually.

Removing Patches on Solaris 1.x

To remove patches, you must execute the deinstall_patch script for each patch you want to remove. Use the following steps:

1. Become superuser and change directory into the patch directory:

```
% su
# cd ../Solaris_1.x/Patch
```

2. Type the deinstall_patch **command to run the script.**

```
# deinstall_patch
```

Note – If you want to add patches on a Solaris 1.x heterogeneous system, refer to the `README` in each of the patch directories. The directory is located in `../Solaris_1.x/Patch`. If you have any problems, please contact customer support.

Starting AnswerBook Software for Solaris 1.x

To start AnswerBook, type the last message on the screen when you installed AnswerBook. It should look like this:

```
Now that you have installed the AnswerBook,
you can use the product by entering the command:

            /usr/lang/answerbook

Verifying environment ... finished
answerbook: starting the docviewer application ... please wait
```

This line will vary according to the installation directory where you installed AnswerBook.

For more information on installing Answerbook, see the *Software and AnswerBook Packages Administration Guide.*

Removing the AnswerBook Product on Solaris 1.x

To remove AnswerBook, type the following line at the prompt in the directory where you installed AnswerBook:

```
lakota{root}21: rm -r <directory_name>
```

Removing Software Packages for Solaris 1.x

Currently, no command can remove software on Solaris 1.x. The only way to do this, is to become `root`, change directories to the area in which the software was installed, and selectively remove the unwanted software. Check the directory locations on page 5, for precise locations of each directory.

Viewing Installed Packages on Solaris 1.x

Currently, you cannot generate a list of SunSoft Developer software installed on Solaris 1.x

Reinstalling a Package on Solaris 1.x

On Solaris 1.x, SunSoft Developer software can repeatedly be reinstalled to different directories without removing the previously installed software.

Tools.h++ Source Code Installation

The `Tools.h++ source code` package requires a license be installed before you install the product. The license daemon must be running and include a license for at least one user for `sunpro.tools_h.source`.

Note – If you try to install the `tools.h++` product first, `tools.h++` will not be able to find a license, and your installation will fail.

If you want to direct the installation to a specific license file on Solaris 1.x, set the `LM_LICENSE_FILE` environment variable prior to the installation as follows:

```
% setenv LM_LICENSE_FILE /usr/lang/license_dir/sunpro,lic.<1>
% spro_install toolh
```

On Solaris 2.x, the installation script will ask if you want to specify a license file location.

Ada Software Installation

The following steps are needed to complete the installation process for the SPARCompiler product.

`a.install` *Installation Script*

Before running `a.install`, make sure that you have added Ada licensing to your license server.

SPARCompiler Ada requires that you run `a.install` after loading the files from CD-ROM. Running the script includes the creation and/or editing of the required `/etc/VADS` file. Note that you must run `a.install` for each installation of SPARCompiler Ada, that is, for each physical copy of the software.

The `a.install` script does the following:

- Sets up the correct pathnames for the supplied SPARCompiler Ada libraries and other files
- Allows you to modify (edit) the file `/etc/VADS`, which tracks the various releases of SPARCompiler Ada (or Rational VADS®) that are available as targets on the machine on which you are installing SPARCompiler Ada.

To start `a.install`, do the following:

```
% su
# PATH=/usr/ucb:$PATH
# export PATH
# cd /opt/SUNWspro/Ada3.0/sup
# ./a.install
```

Using the Automounter

SPARCompiler Ada 3.0 can be used with the automounter. If you decide to use the automounter, be sure that *all* SPARCompiler Ada users for this installation use this feature. If you do *not* use the automounter when you install the software, no user can use it to access SPARCompiler Ada.

When you start running `a.install`, the script first prompts you:

```
                SPARCompiler Ada Installation

If you intend to use the automounter, please type in the full
automount pathname for ada_location, otherwise hit Return.

Installation point [/opt/SUNWspro/Ada3.0]?
```

The installation point shown (`/opt/SUNWspro/Ada3.0`) defaults to the non-automounted location. To use the automounter, type in the *full* automount pathname you wish to use. An example is:

```
/foo/bar/SUNWspro/Ada3.0
```

Note – Do *not* use the `/net/host/`... form of pathname, which is based on the special `-hosts` map and does *not* guarantee the same mount point under `/tmp_mnt` at all times. Use only fully specified direct maps or indirect maps that are always mounted to the same mount point.

Whether or not you use the automounter, the pathname you specify for the installation point is used to set up the ADAPATH entries in the Ada libraries of the release, such as `verdixlib`. Therefore, if the automounter is used, all SPARCompiler Ada users must run the automounter to properly resolve these ADAPATH entries.

After you type the pathname, press Return. The script confirms, for example:

```
Installation is in /foo/bar/SUNWspro/Ada3.0
```

`/etc/VADS` *File Editing*

After performing a few operations, the `a.install` script calls the `vi` editor to enable you to edit the `/etc/VADS` file. Editing `/etc/VADS` is optional.

Note – If you are not familiar with `vi`, type **`:q!`** to quit vi and allow the script to finish. After the script finishes, you can use another editor to edit the `/etc/VADS` file.

You are not required to edit the `/etc/VADS` file, but it is recommended, for the following reasons:

- The `a.install` script always inserts a new first line. SPARCompiler Ada does not require that the first line in the `/etc/VADS` file be the line corresponding to the latest version of SPARCompiler Ada. The order is not critical. However, we recommend that you follow this convention because some other facilities rely on the first line for their version.

  For example, AdaVision uses the first line as the default setting for the parent library of a new Ada Library in the New Library window. (This setting can be changed easily when creating a new library.)

  Also, if you want users to be able to debug C programs with the SPARCompiler Ada debugger, then the most recently installed, self-hosted version of SPARCompiler Ada must be displayed on the first line of the `/etc/VADS` file.
- You will have a duplicate line in the file if you install a new version of SPARCompiler Ada in the same location (directory) as an earlier installed version. Remove lines that duplicate the new first line or lines that correspond to versions that are no longer available to avoid clutter and confusion.

The program `a.install` then asks you the following:

```
a.report configuration file:
           sup/a.report.info

If a customer reports produced by a.report should begin
with a number other than zero, enter that number, otherwise
just press <RETURN>
```

If you used `a.report` before, look up the number of the last report you submitted, which is in the `sup/a.report.seq` file of the previous Ada release. Enter that number and press Return.

If you have never used `a.report`, press Return.

Compile test

The `a.install` script will finish by compiling, linking, and executing a small program to make sure the installation is correct.

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a.report *Utility*

SPARCompiler Ada customers who have contracted with Sun Customer Support for SPARCompiler Ada support should configure the problem reporting tool, a.report. SPARCompiler Ada support includes tracking reported problems. Customers can use the a.report tool to report problems.

To configure a.report:

1. **Become superuser and type the following command:**

   # **cd /opt/SUNWspro/Ada3.0/sup**

2. **Edit the** a.report.info **file in the** sup **directory.**

   Here is the a.report.info file *before* you edit it.

```
# writeseq is a file writeable by everyone
# (mode 666) to store the report sequence number.
# mailer is the system mail command and subject option.
# mailto specifies the people to whom the Deficiency
# Report is mailed (locally and at Sun if using
# electronic mail).
#
writeseq="/opt/SUNWspro/Ada3.0/sup/a.report.seq"
mailer="Mail -s"
mailto=""
```

   Here is how to edit the a.report info file:

   a. **The quotation marks after** mailto= **on the last line should enclose the** *login name* **of the person responsible for mailing deficiency reports to the Sun Answer Center.**

      This person is either your system administrator or some other person who is the point of contact with SunSoft.

   b. **The quotation marks after** writeseq= **normally enclose the filename** /opt/SUNWspro/Ada3.0/sup/a.report.seq**.**

      If for some reason the a.report.seq file in this location is not writable by everyone who needs to use it, you can move the a.report.seq file to another location and adjust this writeseq= line accordingly.

`install_gada` *Installation Script*

GXV-Ada requires that you run `install_gada` after extracting the files from CD-ROM.

The `install_gada` script does the following:

- Configures the Ada libraries shipped with GXV-Ada to work with your installation of SPARCompiler Ada
- Creates symbolic links in `/opt/SUNWspro/Ada3.0` for `libguidexv_iface`, `examples/gxv_ada_examples`, `bin/gxv_ada`, and `man/man1/gxv_ada.1`

♦ **To run `install_gada`, become superuser, and issue the following command sequence:**

```
% su
# ADAHOME=/opt/SUNWspro/Ada3.0
# export ADAHOME
# cd /opt/SUNWspro/GAda3.0
# ./install_gada
```

User Setup for Ada

You can run SPARCompiler Ada by itself, but SPARCworks/Ada requires SPARCompiler Ada. User and machine setup for SPARCompiler Ada and SPARCworks/Ada parallel one another. If you are going to run SPARCworks/Ada, it is convenient to set up both products at the same time by doing the following.

Note – If you are running only SPARCompiler Ada, ignore references to SPARCworks/Ada or GXV-Ada.

The First Steps

To set up a client machine to run a version of SPARCompiler Ada that is installed on a file server:

1. **Mount or automount the installed source directory. The default is `/opt/SUNWspro` on the client machine.**

   It is important that a client mount SPARCompiler Ada with the same path as exists on the server. If this cannot be done, you can create a symbolic link to the mount point.

Note – If you intend to use the automounter, refer to "Using the Automounter" on page 71.

2. **Edit the client machine** `/etc/VADS` **file if one exists (or, create one) to contain the appropriate lines from the server** `/etc/VADS` **file, including any lines that correspond to the latest version of SPARCompiler Ada.**

   Here is an example line: `/etc/VADS`:

```
SELF_TARGET:3.0:/opt/SUNWspro/Ada3.0/self
SELF_TARGET:3.0:/opt/SUNWspro/Ada3.0/self_thr
```

Path Variables for Ada Only on Solaris 2.x

There are some places where the Ada products depend on the environment variables `ADAHOME` and `SWADAHOME`. If you do not set these variables, these features may not work properly.

- If you are using the Bourne shell, your `$HOME/.profile` file should have the following lines:

```
ADAHOME=/opt/SUNWspro/Ada3.0
SWADAHOME=/opt/SUNWspro/SWAda3.0
export ADAHOME SWADAHOME
```

- If you are using the C shell, the `~/.cshrc` file should have the following lines:

```
setenv ADAHOME /opt/SUNWspro/Ada3.0
setenv SWADAHOME /opt/SUNWspro/SWAda3.0
```

If you use remote execution, which is implemented with the `on` command, you must set your environment variables on the *swada_host*—the machine that runs the SPARCworks/Ada tools. This way, when the variables are duplicated on the *ada_host* (the system licensed for SPARCompiler Ada), the SPARCompiler Ada tools will work properly.

Additional Information

SPARCompiler Ada now supports multithreading tasking with the addition of a second runtime supplied with the product. This capability is called SPARCworks/iMPact Ada, and allows Ada programs to make full use of Sun's multiprocessor architectures.

The following steps are needed to complete the installation process for the SPARCompiler Ada product.

Accommodating Your Upgrade

When a new version of SPARCompiler Ada is installed, it is important that system administrators notify users. Users must perform the following tasks to accommodate the upgrade.

- Each client's `/etc/VADS` file must be updated to include the new first line corresponding to the new version. Users of client machines should copy the appropriate line from the server `/etc/VADS` file to the client machine `/etc/VADS` file.
- Users must update their Ada libraries. Use the following steps to update the Ada libraries for use with a new version of SPARCompiler Ada:

1. **Execute `a.cleanlib` (or choose `Cleanlib` from the Edit menu from within AdaVision) in each SPARCompiler Ada library.**
2. **Use a script calling `a.path`, `sed`(1), or an editor to modify the library search list in each library `ada.lib` file to be the new locations of `standard`, `verdixlib`, and `publiclib`:**

```
# sed "s#old_ada_location#new_ada_location#g" ada.lib > ada.lib.tmp
# rm ada.lib
# mv ada.lib.tmp ada.lib
```

3. **Execute `a.make` with the `-f` option in each of the user libraries to remake the libraries with the new SPARCompiler Ada:**

```
# a.make -f *.a
```

SPARCompiler C 4.0

If a dataless or diskless client mounts from a server, each user must manually create the links to `/usr/ccs/bin`. The `/usr/ucb/cc` and `/usr/ucb/lint` scripts look for these links to detect if the compiler exists. To create the links, type the following lines in a command shell:

```
% su
# ln -s /opt/SUNWspro/SC4.0/bin/acc /usr/ccs/bin/ucbcc
# ln -s /opt/SUNWspro/SC4.0/bin/lint /usr/ccs/bin/ucblint
# ln -s /opt/SUNWspro/SC4.0/bin/whatdir /usr/ccs/bin/whatdir
```

5

Choosing a Nondefault Installation Directory using `spro_install_tool`

If the software you want to install will not fit into your default directory `/opt` or `/usr/lang`, or there is insufficient space on the system, you must change the location where you install the software. Be sure to pick a directory that is in a partition with enough available space.

You can change the default directory for any product by typing the new default directory in the “Install In” field on the Installation Tool main window.

If you install into a nondefault directory, you must set up your environment path variables correctly. See “Post Installation Instructions” on page 53 for the correct operating system path variables.

Choosing a Nondefault Installation Directory using `spro_install`

If you wantto specify a directory other than `/opt` or`/usr/lang` use the following instructions:

When you begin to install a product, the script will ask you which nondefault installation directory you want to install the product in:

```
Currently the destination directory is /usr/lang
Do you want to change the destination directory [y|n]? y
Here is a list of available partitions and free disk space:
/usr 179078
/tester
Enter “abort” to discontinue installation, or enter new partition:
/tester
Suggested nomenclature /usr/lang
```

If the nondefault directory is not there, the script will create it for you. If you install to a nondefault directory, you must set up your environment path variables correctly. See “Post Installation Instructions” on page 53 for the correct operating system path variables.

More Tips for Licensing A

This chapter offers important tips to help you set up your licensing product.

Overview of License Setup

This section contains an overview of tasks necessary to set up the licensing software. After completing these steps, you can customize your licensing product. See “Important Tips for Your SunSoft Developer License” on page 27 for more instructions.

Note – Products which require multiple license features must check out the features from the same license servers.

Independent License Servers

For each independent license server, you must do the following:

1. **Install the licensing software. (See Chapter 2, “Installing Your License.”)**
2. **Run** `lit`**.**
3. **Install a license password.**
4. **Copy and run** `/etc/opt/licenses/LIC_CONFIG_SCRIPT` **from each independent license server to all product servers containing your SunSoft Developer product.**

   If your product server is the same machine as your license server, you do not need to run the `LIC_CONFIG_SCRIPT`. The `lit` or `lit_tty` automatically runs it for you.

Redundant License Servers

For a set of redundant license servers you must do the following:

1. **Install `licensing software` on each redundant license server.**
2. **Run `lit` on the redundant license server where the `licensing software` was installed.**
3. **Copy `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from the license server where `lit` was run to the remaining redundant license servers.**
4. **Run `/etc/opt/licenses/LIC_CONFIG_SCRIPT` on each of the redundant license servers.**
   This will put a copy of the same license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined`.

Note – Do *not* use NFS to share `/etc/opt/license/licenses_combined` between redundant servers. This will introduce a single point of failure and will defeat the purpose of redundant servers.

---

5. **Copy and run `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from where `lit` was run onto all other product servers containing your SunSoft Developer products.**

Important Licensing Commands

Note – Soft links to all commands can be found in `/etc/opt/licenses` unless otherwise noted.

Table 5-1 Licensing Commands

Command	Function
`/etc/rc2.d/S85lmgrd`	Starts up the license daemon on Solaris 2.x machines
`lmgrd.ste -c /etc/opt/licenses/licenses_combined`	Starts up the license daemon on any machine.
`lmstat -a -c /etc/opt/licenses/licenses_combined`	This command provides the user with the information regarding the licenses supported by the daemon using this license file. The command should indicate the total licenses available for each feature, and identify who is using any of them.

Note – Soft links to all commands can be found in `/etc/opt/licenses` unless otherwise noted.

Table 5-1 Licensing Commands

Command	Function
`lmdown -c /etc/opt/licenses/licenses_combined`	This command takes down the license daemon. Remember, when this command is executed on one of the servers in a redundant server pool, `lmdown` takes down the license daemons on all redundant license servers in that pool.
`lmreread -c /etc/opt/licenses/licenses_combined`	This command causes the license daemon to reread the license file. It should be used whenever feature lines have been changed within the file. Note that changes to the daemon options file can be initiated only by taking the license daemon down and restarting it.
`lmver lmgrd.ste` file	This command is useful in identifying the `lmgrd` license library version used within a particular file. This command can be useful in determining whether a binary can use `FEATURE` or `INCREMENT` lines. Files that use the 2.26 library require `FEATURE` lines, while those that use 2.61 can use `INCREMENT` lines.

Location of Important Files

Table 5-2 File Locations

File	Location
License file (combined license file)	`/etc/opt/licenses/licenses_combined`
Elementary license file (elf)	`/$BASEDIR/SUNWspro/license_dir/sunpro.lic,n`
Location of elementary license files (elf)	`/etc/opt/licenses/sunpro.loc`
Create elf on product server	`/etc/opt/licenses/LIC_CONFIG_SCRIPT`
License manager daemon (soft link)	`/etc/opt/licenses/lmgrd.ste`
Vendor daemon (soft link)	`/etc/opt/licenses/suntechd`
Daemon options file	`/etc/opt/licenses/daemon_options`

Table 5-2 File Locations

File	Location
Daemon log file	`/tmp/license_log`
Log file from `LIC_CONFIG_SCRIPT`	`/tmp/license_errors`
Automatic license daemon start-up script	`/etc/rc2.d/S85lmgrd` *(For Solaris 2.x only)*
FLEXlm utilities, `lmdown`, `lmstat`, etc (soft links)	`/etc/opt/licenses`
Configuration file used by `lit` or `lit_tty`	`/etc/opt/licenses/LIC_CONFIG_FILE`
License Request Form (2.x)	`Basdin/SUNWste/license_tools/License_Request_Form`
License Request Form (1.x)	`Basdin/SUNWste` /SunTech_License/License_Request_Form

Manual Pages for the FLEXlm License System

This section contains the command names of the on-line manual (`man`) pages for the FLEXlm™ License System and their descriptions.

These license administration tools allow you to:

- Monitor licensing activities
- Shut down all licenses
- Remove a single user's license for a specified feature
- Cause the license daemon to reread the license file

Table 5-3 FLEXlm `man` Pages

`Man` **Page**	**Become** `root`	**Description**
`lmgrd.ste`	y	The main daemon program for the FLEXlm License System
`lmhostid`	n	Calls the FLEXlm version of `gethostid` and displays the results
`lmremove`	y	Removes specific licenses and returns them to the license pool
`lmreread`	y	Tells the license daemon to reread the license file
`lmver`	n	Reports the FLEXlm version of a library or binary file
`lmdown`	y	Allows graceful shutdown of the license daemon

Caution – It is recommended that the `lmdown` command be run without the `-q` (or quiet) option, forcing confirmation on the license server shutdown.

Man Page	Become root	Description
lmstat	n	Reports the status on license manager daemons and feature use

Note – If you are using the FLEXlm utility `lmstat` for a redundant server configuration, the utility will report double the number of RTUs (Right To Use) that are available and used.

The `man` page files reside in the */$BASEDIR*`/SUNWste/man` directory. You might want to add this directory to your `$MANPATH` variable in your `.login` or `.cshrc` file. To add the new directory to the end of an existing `$MANPATH` in C shell, use the following command:

```
% setenv MANPATH $MANPATH\:$BASEDIR/man
(where $BASEDIR is the directory where lit was installed... e.g. /opt or /usr/lang)
```

Problems Encountered During Execution of License Installation Tool

This section explains how to diagnose and solve common problems when you are executing `lit` or `lit_tty`

Table 5-4 Troubleshooting License Installation

Error Message	Solution
`XView error: Cannot open connection to window server: :0 (Server package)`	If this error message appears when trying to start `lit`, make sure that the user is running OpenWindows on the machine where the `lit` is to be displayed. The user must also set the `DISPLAY` environment variable correctly. If the user is not running OpenWindows, the user should use `lit_tty` instead of `lit` to install the license.

Table 5-4 Troubleshooting License Installation

Error Message	Solution

`Xlib: connection to <`*machine_name*`>:0.0 refused by server`
or:
`Xlib: Client is not authorized to connect to server`
or:
`XView error: Cannot open connection to window server: machine_name:0 (Server package)`
	If one of these error messages appears when attempting to start `lit`, the user is probably attempting to display the `lit` from a remote machine. Execute the `xhost +remote_machine` command on the local machine before attempting to run `lit`.

Errors Executing the License Configuration Script

Error Message	Solution
`**Some duplicate licenses were detected during installation**`	This message is displayed after executing the `LIC_CONFIG_SCRIPT`. This may be due to an attempt to install the same license more than once. No action is required.
`Cannot build elementary license file for feature_name`	If this message is displayed after executing the `LIC_CONFIG_SCRIPT`, your license probably was not installed correctly.
`Cannot access location to store product licenses <`*location_name*`> - Exiting`	If this message is displayed after executing the `LIC_CONFIG_SCRIPT`, create the directory specified in the error message, and execute the `LIC_CONFIG_SCRIPT` again.
`You must be root to execute this script`	If this message is displayed after executing the `LIC_CONFIG_SCRIPT`, become superuser and execute the `LIC_CONFIG_SCRIPT` again.
`LIC_CONFIG_SCRIPT: Cannot execute`	This message is displayed after executing the `LIC_CONFIG_SCRIPT`. The script must have execute permission. Enter the following command (as superuser) to change to the appropriate permission: # **`chmod 700 LIC_CONFIG_SCRIPT`**

License Errors Encountered During Use of Your Product

This section has useful information for people who use licensed software, rather than for people who install the licensing system. You may want to copy this section and distribute it to users of licensed software.

Error Message	Solution
<*feature*>: cannot find license file (No such file or directory)	When the product Right To Use license is installed on the license server using the `lit` or `lit_tty`, a utility is automatically created for installing that same Right To Use license onto any product servers that will be using that license and license server. The `/etc/opt/licenses/LIC_CONFIG_SCRIPT` must first be copied and then executed on each product server. The command can be copied using any standard method that would normally be used for file copy, for example `rcp`(1) or `ftp`(1). If you have moved the product directory to some place other than where it was originally installed, you may have this problem. The easiest way to correct the situation, in this case, is to remove the product package and reinstall the product. The license system should not be affected.
Can't get server: cannot find license file (No such file or directory)	When this message appears during execution of a FLEXlm utility, it is easily corrected by specifying a `-c` when you start any utility or `lmgrd.ste`.This must be run on the license server.
Feature has expired:	This message indicates the license you are using for your product has expired. This includes demo licenses. You must obtain a new license to use the product.
<*feature*>: encryption code in license file is inconsistent	This error message indicates that there is an error in the product license file. Any typographical error or absence of required data within the license file will result in this error. This problem is typically caused by an error in the license password entered into the `lit` or `lit_tty`. If this is the problem, the `lit` or `lit_tty` must be re-executed with the correct data entered, then the newly created `LIC_CONFIG_SCRIPT` must be copied and re-executed on each product server and redundant license server.

Error Message	Solution

`<feature>: cannot connect to license server (Connection refused)`	This message appears when attempting to run your product. In this case, it is probable that the license daemon is not running on the license server. Log into the license server and execute the following command:
	For Solaris 2.x
	`# ps -ef | grep suntechd | grep -v grep`
	For Solaris 1.x
	`# lmcheck`
	If output appears, then the daemon is running. If no output appears, then the license daemon is not running and must be started. Execute the following command:
	`# /etc/rc2.d/S85lmgrd`

`<feature>: cannot read data from lic server`	This error message indicates that there is no quorum of license servers. When utilizing a redundant license server configuration, if the majority of the license servers are not up and running, you will not be able to obtain a Right To Use license. Once the majority of the license servers are up and running, Right To Use licenses will again be available.

If You Upgrade Your Operating System

If you upgrade your operating system, you must save everything in `/etc/opt/licenses` and `/etc/rc2.d/S85lmgrd` and restore these directories when you are done with the system upgrade. This will save all your license files so that when you restart your compiler, all information will not be lost.

Multiple Elementary License Files

A product server may be served by one or more independent license servers. The product server will have one elementary license file (elf) corresponding to each license server. Each elementary license file contains the license server information and the product licenses.

You must have one elementary license file per license server set, where a license server set is either, 1 OR 3 servers.

Remember that if you need to manually modify a license file (elementary or licenses_combined) you must change the licenses in both license files. Every line in an elementary license file must appear in the licenses_combined file on the license server.

Recovering a Lost License

If a license is reported in use when it is not being used, or, if a licensed product is in use at the time of a system crash, the license server may not know that the Right To Use (RTU) license is no longer in use. At the license server, the `lmstat`(1) command can be used to get the status of the active license(s). If the license is incorrectly reported in use, the `lmremove`(1) command can be used to recover the RTU license.

Use the `lmstat`(1) command to obtain the arguments to the `lmremove`(1) command.

```
 # /etc/opt/licenses/lmstat -a -c /etc/opt/licenses/licenses_combined

lmstat - Copyright (C) 1989, 1990, 1991, Globetrotter Software, Inc.
Flexible License Manager status on Fri 2/12/93 11:42
License server status:
 host1: license server UP (MASTER)
 host2: license server UP
 host3: license server UP
Vendor daemon status (on host1):
   lic.SUNW: UP
Feature usage info:
 Users of SUNW<feature>:  (Total of 4 licenses available)
 root at host1 on host1.host1 (v8.010), started Fri 1/22/93 at 17:26
```

From the lower section of the output supplied by `lmstat`(1), the feature, user, host, and display arguments can be obtained. After the `lmremove`(1) command has been issued, the `lmstat`(1) command can be used again to verify the status of the operation.

Mistyped License Information

If you find you mistyped the license information prior to selecting the `Done With License` or `Quit/Save` options of the installation tool, you can easily correct your mistakes, or quit without saving the tool, restart the tool and enter the correct information.

If you have noticed that you have mistyped the license information after completely installing the license, you should be able enter the license again using the `lit` or `lit_tty` with the correct information.

When the License Server Goes Down

If the license server goes down or is not accessible over the network and you don't have redundant servers, you won't be able to start any new licensed software or execute any critical functions on licensed programs that are already running. When the license server becomes available, execution of running programs will resume as usual.

If you have redundant servers, a majority of them must be available. If you have three servers, two must be available; if you have five servers, three must be available. If the license server referenced in the elementary license file is down, you can set the `LM_LICENSE_FILE` environment to the path for a different license server that you want to use. See "Using the LM_LICENSE_FILE Environment Variable" on page 28 for more information.

Changing the Hostname

If you want to change the hostname on your machine, you must modify the `licenses_combined` file and the elementary license file that mentions that hostname that has changed.

Note – You can change the *hostname*; however, changing the *hostid* will invalidate the license.

Finding Out License Status

For SPARCompilers

The `-xlicinfo` option can be used only at this time with the C, C++, Pascal and Fortran compilers.

You can find out information on the status of your license by using the `-xlicinfo` option. When you do that, no compilation is done and no license is checked out. The compiler returns information on the status of the licensing system, including a list of licensed users.

SPARCompiler products are licensed to allow users to run on one or more hosts. The status of this shows up as *user*`@anyhost` when you run the `-xlicinfo option`. *user*`@anyhost` is implemented so that `dmake` will work with your compilers, and users will only need one license.

For SPARCworks

With SPARCworks tools, when you try to run a tool and cannot get a license, a popup window shows license status information, including a list of the licensed users.

user@display

The SPARCworks products, ProWorks/TeamWare, and iMPact will be licensed for that display only.

If a Machine Crashes

If you checked out a license and your machine crashes, the license will be tied up until the next refresh time (usually a few minutes), then the license will be freed. The license system administrator can also use the license tool `lmremove` to free the license once the linger period has expired.

Additionally, if you are experiencing problems with a license server installed on a Solaris 1.x machine, you may need to increase the number of file descriptors available. The default is set to 64. To set this to the maximum of 256, use the `unlimit descriptors` command, and restart the license server.

A

Glossary B

This chapter defines frequently used terms that are mentioned in this book.

Client (dataless)

Machine on a network that has its own disk and individual root and swap partition, but relies on a server for a home directory and for other services.

Client (diskless)

Machine on a network that does not have a disk and relies on a server for file storage and other basic services.

Daemon Options File

A file that is stored on your license server that allows the user to control access to your SunSoft Developer products.

Data Checksum

This number is for the user and the License Distribution Center to verify that the information that you gave the License Distribution Center matches what they have. The hostid, server name, product, company name, and company address all contribute to the generation of this number.

Device name

Name referring to a device such as a CD-ROM drive. The device name for CD-ROM is usually `/dev/dsk/c0t6d0s2` for Solaris 2.x and `/dev/sr0` for Solaris 1.x. It may be different, depending on your machine or how you configure it.

B

Demonstration License

Demo licenses, also called “Try and Buy” lets you evaluate any SunSoft Developer product for a specified period of time, free of charge. A Demo license does not need a license daemon to run, and allows an unlimited number of concurrent licenses.

Elementary License Files

See definition for License File on page 92.

Heavy installation

A term used for AnswerBook installation. This stores all AnswerBook files on hard disk. This option can require under 1 MByte, or up to 40 MBytes, depending on the package being installed, and can take approximately 15-30 minutes to install.

Independent License Servers

You can have as many independent servers as you have machines in your network. You install the licensing software package on each machine and install a unique license password on each machine.
If you are using multiple independent license servers, you must acquire a separate license password per product for each server. Each license password corresponds to a subset of the total Rights To Use (RTUs) purchased for the product. For example, if you have two independent servers and 50 total RTUs, one independent server can have a license password for 30 RTUs and the second independent server can have a license password for 20 RTUs.

`licenses_combined` ***file***

See definition for License File on page 92.

License File

The license daemon and the product software access *license files*.
There are two types of license files generated by `lit` or `lit_tty`:

a. licenses_combined files— The licenses_combined file is located on the license server in `/etc/opt/licenses/licenses_combined` and used by the license daemon. The `licenses_combined` file will automatically be created on the license server when you use `lit` to install a license for one or more products.

b. elementary license files(elf)—The elementary license file is usually located in the <*install_directory*>`/license_dir` on the product server. `lit` will automatically create an elementary license file used by the product software. Every product server will have an elementary license file, regardless of whether or not the license server is a different machine. Elementary license files are copies of all or parts of the `licenses_combined` file.

License Manager Daemon

This daemon monitors requests for access to your SunSoft Developer software. The daemon also handles communication between the software application you are requesting to use, and the vendor daemon. See Vendor Daemon on page 96 for more information on that term.

License Server

The workstation or server running the license daemon is called the *license server*. The licensing software package contained on the CD-ROM with the product software package(s), must be installed on a machine to configure it as a license server. You use `lit` to install licenses on the license server.

`LIC_CONFIG_SCRIPT`

Script created by `lit` and `lit_tty` to be run on license and product servers. The `LIC_CONFIG_SCRIPT` should not be run on the machine where `lit` is run. This script is located in `/etc/opt/licenses`. It is copied by the user to any other machine which will be a product server, or to any other machines in a redundant server set, and executed to set up that machine.

`LIC_CONFIG_FILE`

This file is provided as part of the SunSoft Developer licensing package. It contains configuration information for all products on the CD.

`LIC_CONFIG_FILE.combined`

This file contains configuration information for all Sun FLEXlm licensed products previously installed on the system.

Nil installation

A term used for AnswerBook installation. This leaves almost all files on CD-ROM. This option generally requires less than 1 MByte of disk space, and takes approximately 5 minutes to install.

Package Dependencies

Software is installed in the form of *packages*. When you install a package, you often must install other packages on which the first package depends. For example, when you install a compiler you must also install dependent packages that contain backend components, header files, and front-end components. If you have installed a SunSoft Developer software product and its dependent packages have not been installed, a warning message will be displayed. This message will warn the user that the package being installed is dependent on another package that needs to be installed later.

B

Password Checksum

This number is for the user and the License Distribution Center to verify that the information that the License Distribution Center is giving you matches with what you have given to them. The hostid, server name, product, company name, and company address all contribute to the generation of this number. This information also generates the Data Checksum. See Data Checksum for more information.

Product Server

A product server is a machine on which the product software is installed. It can be the same machine as the license server or a different machine.

Redundant License Servers

A set of redundant servers acts as a single logical license server. You can configure three redundant servers. For example, if you have a set of three redundant license servers and a total of 50 RTUs for a product, you can acquire a single license password for all 50 RTUs.

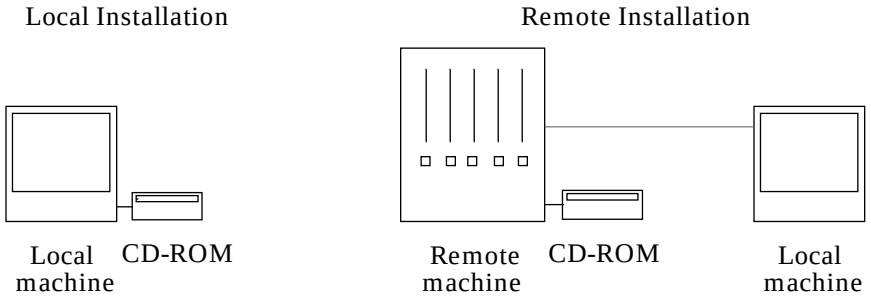
If you have redundant servers, a majority of them must be available for you to acquire a license. If you have three servers, two must be available..

Redundant servers increase the likelihood of access to licensed products and ensure that licensed products already running will not shut down as long as a majority of your license servers are still running.

After you have chosen a set of redundant license servers, they must remain as a set. If you add a license password to any one of the set, you must add it to all. The license installation tool does not allow license servers to be changed once they have been set.

Remote versus Local Installation

If the machine onto which you are installing has its own CD-ROM, that is *local installation*. If the machine does not have such a drive, then you must use the drive on another, *remote*, machine.



Server

Machine that provides a network service such as disk storage and file transfer.

Server Pool

Combining two or more independent license servers so that users can obtain a license token from any one of the servers.

`spro_install`

The tty interface tool that installs packages. `spro_install` provides the same functionality as `pkgadd`(1M). When you start `spro_install`, it will automatically know which operating system you are on. You can use the `-s` option to override this capacity.

`spro_install_patch`

These are the operating system and product specific patches that are provided on the CD. You may not need all patches in this package for your specific product. Check in your product `README` to find out which patches are needed for your product.

The following are several options to go with `spro_install_patch`:

`-s`: Overrides the default operating system installation choice.

`-o`: Only installs the operating system patches provided on the CD.

`-p`: Only installs the product patches provided on the CD.

`-d`: Do not save backup copies of the files which are going to be overwritten in the in installation of the patch.

B

`spro_install_patch`

- c: Prompt for confirmation prior to the installation of each patch.
- l <patch_directory>: Install the patches from the patch_directory instead of the default directory.

`spro_install_tool`

The GUI installation tool that installs packages. `spro_install_tool` provides the same functionality as `pkgadd`(1M). This application was designed to simplify the installation process. When you start `spro_install_tool`, it will automatically know which operating system you are on. You can use the `-s` option to override this capacity.

Stand-alone

Workstation with its own disk and drives that does not rely on a server in order to boot.

`sunpro.loc file`

Used during license installation, this file identifies where the elementary license files are to be placed on a machine. It is found in `/etc/opt/licenses/sunpro.loc`. This file enables the order independence of license and product installation (license installation before or after product installation).

Target Directory

This is the directory where you want to install your SunSoft Developer software. This can also be called the default directory.

Vendor Daemon

The daemon which runs on the license server, and tracks which users have licenses for any given product, if they are checked out, and how many licenses are available.

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License Password Request Form

To obtain a password, complete all sections and fax this form to one of the numbers provided below. Please type or print clearly. Use a separate form for each license server you will be using. Your password will be returned to you.

contact name	
company name	
job title	
mailing address	
city	**state**
country	**postal code**
telephone	
fax	
email	

FAX this form to:

In the U.S. and Canada:
1-317 364-7220

In Japan:
(+03) 3263-3844

In Europe and all other countries:
+44 1937 541194

Return password via:

- ❑ Email
- ❑ Fax

License Server (Fill out for 1, 3, or 5 servers)
(3 or 5 = Redundant Server Set Only)

Server host name	Server hostid

Product Information (Complete an additional form for more products)

Product name & version	Proof of License Certificate	RTUs to Use (Default is All)

NOTE: You do not have to use all RTUs from a certificate. The unused portions can be redeemed at a later time.

FOR OFFICE USE ONLY	date/time request received	date/time password sent

Domain-Based Password Request Form

Complete one for each product and/or Site and Fax this form to: [Intl access code +] 1-317-364-7220

Contact name and title:	
Company name:	
Mailing address:	
City:	
Country and postal code:	**Email address:**
Telephone:	**Fax number:**
Serial number:	**Product name and version:**
Site number:	
Domain name(s) for above site number. Password(s) will be issued for eligible domains listed here:	

Return password by:

- ❑ Email
- ❑ Fax