Solaris 8 Advanced Installation Guide

Sun Microsystems, Inc.
901 San Antonio Road
Palo Alto, CA 94303-4900
U.S.A.

Part Number 806–0957–10
February 2000

Contents

Tables

Figures

Preface

The *Solaris 8 Advanced Installation Guide* describes how to install the Solaris™ 8 operating environment on both networked and non-networked SPARC™ and IA (Intel Architecture) based systems.

Note - In this document, the term “IA” refers to the Intel 32-bit processor architecture, which includes the Pentium, Pentium Pro, Pentium II, Pentium II Xeon, Celeron, Pentium III, and Pentium III Xeon processors and compatible microprocessor chips made by AMD and Cyrix.

This book describes how to use the Solaris 8 Interactive Installation Program, Solaris JumpStart™, and Solaris custom JumpStart to set up, automate, customize, and perform the installation of Solaris on any number of systems in a large enterprise network environment.

It does not cover how to use Solaris Web Start to install Solaris 8 on a single system from a local CD-ROM drive. This type of installation is covered in the *Solaris 8 Start Here* booklet and the *Solaris 8 (SPARC Platform Edition) Installation Guide* or *Solaris 8 (Intel Platform Edition) Installation Guide*.

This book does not include instructions about how to set up system hardware or other peripherals.

Note - The Solaris operating environment runs on two types of hardware, or platforms—SPARC and IA. The information in this document pertains to both platforms unless called out in a special chapter, section, note, bullet, figure, table, example, or code example.

Who Should Use This Book

This book is intended for system administrators responsible for installing the Solaris operating environment. To understand the concepts and procedures presented in this manual, you need from one to two years of experience in UNIX® system administration and preferably a degree in computer science or equivalent knowledge.

How This Book Is Organized

This section describes the chapters in this book.

Chapter 1 provides an overview of the different ways to install Solaris 8.

Chapter 2 describes how to plan disk space.

Chapter 3 illustrates how the Solaris 8 CDs are organized.

Chapter 4 describes how to set up preconfiguration installation information.

Chapter 5 describes how to use the Solaris 8 Interactive Installation Program to install and upgrade Solaris on a SPARC and an IA based system.

Chapter 6 discusses how to set up and prepare a custom JumpStart installation.

Chapter 7 describes how to create begin and finish scripts and how to take advantage of other optional custom JumpStart features.

Chapter 8 provides information and procedures for creating your own custom rule and probe keywords.

Chapter 9 discusses how to prepare to install Solaris software over a network.

Chapter 10 describes how to perform a custom JumpStart installation.

Chapter 11 shows, by example, how to set up and use Custom JumpStart to install Solaris software on a SPARC and an IA based system.

Chapter 12 offers suggestions about how to troubleshoot and resolve problems you might encounter during installation.

Appendix A lists the platform names and groups of various hardware platforms, which you might need when preparing a system on which to install Solaris software.

Appendix B lists the values that are required to set the `locale` keyword in a profile, which defines how Solaris is to be installed on a system.

Glossary defines selected terms and phrases used in this book.

Related Books

Table P–1 lists related information that you need when installing the Solaris software.

TABLE P–1 Related Information

Platform	Information	Description
	System Administration Guide, Volume I	Describes how to back up system files.
SPARC	*Solaris 8 (SPARC Platform Edition) Installation Guide*	Contains Solaris installation instructions for desktop systems.
	Solaris 8 (SPARC Platform Edition) Release Notes	Describes any bugs, known problems, software being discontinued, and patches related to the Solaris release.
	Solaris 8 Sun Hardware Platform Guide	Contains supported hardware information.
	Solaris Transition Guide	Describes transition issues including backing up Solaris 1.x (SunOS 4.x) files before installing Solaris software, and restoring files after Solaris software is installed.
IA	*Solaris 8 (Intel Platform Edition) Device Configuration Guide*	Contains device configuration information.
	Solaris 8 (Intel Platform Edition) Hardware Compatibility List	Contains supported hardware information.
	Solaris 8 (Intel Platform Edition) Installation Guide	Contains Solaris installation instructions for desktop systems.
	Solaris 8 (Intel Platform Edition) Release Notes	Describes any bugs, known problems, software being discontinued, and patches related to the Solaris release.

Ordering Sun Documents

Fatbrain.com, an Internet professional bookstore, stocks select product documentation from Sun Microsystems, Inc.

For a list of documents and how to order them, visit the Sun Documentation Center on Fatbrain.com at `http://www1.fatbrain.com/documentation/sun`.

Accessing Sun Documentation Online

The docs.sun.com[SM] Web site enables you to access Sun technical documentation online. You can browse the docs.sun.com archive or search for a specific book title or subject. The URL is `http://docs.sun.com`.

What Typographic Conventions Mean

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

TABLE P–2 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.*

TABLE P–2 Typographic Conventions *(continued)*

Typeface or Symbol	Meaning	Example
AaBbCc123	Book titles, new words or terms, or words to be emphasized.	Read Chapter 6 in the *User's Guide.* These are called *class* options. Do *not* save changes yet.
Ellipses (...)	One or more additional, optional items or arguments; usually the same as the item or argument that precedes the ellipses.	`client_arch` *karch_value* `...`
Square brackets ([ ])	Optional item, argument, expression, or field.	`[!]`*rule_keyword rule_value*

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–3 Shell Prompts

Shell	Prompt
C shell prompt	`machine_name%`
C shell superuser prompt	`machine_name#`
Bourne shell and Korn shell prompt	`$`
Bourne shell and Korn shell superuser prompt	#

CHAPTER 1

Overview of Solaris 8 Installation

This chapter provides information you need to determine the best way to install the Solaris 8 software, including installing systems over a network and automating the installation process. It also describes the ways to install Solaris software.

Note - The *Solaris 8 Start Here* booklet and the *Solaris 8 (SPARC Platform Edition) Installation Guide* or *Solaris 8 (Intel Platform Edition) Installation Guide* describe how to install Solaris on a single system from a local CD-ROM.

System Types: Server and Standalone

There are two types of systems on which you can install the Solaris operating environment: *server* and *standalone.*

TABLE 1–1 Types of Systems on Which to Install Solaris Software

Type of System	Description
Server	A system that provides services and / or file systems, such as home directories or mail files, for other systems on the network. An *OS server* is a server that provides the Solaris software for other systems on the network.
Standalone	A system that stores the Solaris software on its local disk and does not require services from an OS server. Both networked and non-networked systems can be set up as standalone systems in the Solaris operating environment.

Ways to Install Solaris Software

These are the methods of installing Solaris software.

TABLE 1–2 Ways to Install Solaris Software

Method	Description
Solaris 8 Interactive Installation Program	Guides you step-by-step through installing the Solaris 8 software. The Solaris 8 Interactive Installation Program does not enable you to install all the software (Solaris and additional software) in the product box at once; it only installs the Solaris software. After you install the Solaris software, you need to use other installation programs to install additional software.
JumpStart	Enables you to install the Solaris software on a new system automatically by inserting the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition into the CD–ROM drive and turning on the system. The software components installed are specified by a default profile that is selected based on the model and disk size of the system; you don't have a choice of which software gets installed. A JumpStart boot image, which is required to use this installation method, is preinstalled on all new SPARC based systems. You can install JumpStart on IA or older SPARC based systems with the `re-preinstall`(1M) command.

TABLE 1–2 Ways to Install Solaris Software *(continued)*

Method	Description
Custom JumpStart	Enables you to automatically and identically install Solaris on systems. It requires preliminary work before you can install Solaris on the systems, but it's the most cost-effective way to install Solaris software automatically in a large enterprise. Chapter 6 contains information about custom JumpStart. **Note -** When using custom JumpStart to install Solaris, you do not need to use the `boot` command. The JumpStart boot image that is preinstalled on all new systems automatically boots the system when you turn it on.
Over a Network	Because the Solaris software is distributed on CDs, a system needs access to a CD-ROM drive. However, if you have a large number of systems that don't have a local CD-ROM drive, or if you don't want to insert the Solaris 8 Software CDs (the Solaris 8 Software 1 of 2 Intel Platform Edition and Solaris 8 Software 2 of 2 Intel Platform Edition CDs, for example) into every system's CD-ROM drive to install Solaris, you can set up the systems to install from remote Solaris 8 Software CD images. The remote Solaris 8 Software CD images must be available on an install server that has the Solaris 8 Software CD images copied to its hard disk. You can use all of the installation methods when installing a system over the network. However, installing systems over the network with the custom JumpStart method is a good way to centralize and automate the installation process in a large enterprise. To set up your site to install Solaris 8 software on systems over the network with no user intervention, you must: ■ Preconfigure network information for the systems, such as the date, time, geographic region, site subnet mask, and language. Preconfiguring network information eliminates prompts that are otherwise shown during installation. Preconfiguring network information is described in Chapter 4. ■ Set up the custom JumpStart files for the systems, as described in Chapter 6. ■ Set up the systems on which you intend to install Solaris 8 over a network, as described in Chapter 9.
Solaris Web Start	Provides a graphically based user interface that enables you to install all the software (Solaris and additional software) in the product box at once. You can install all the software with a default option, or you can use a customize option to install only the software you want.

CHAPTER 2

Disk Space Planning

Before installing the Solaris 8 software, you can determine if your system has enough disk space by doing some high-level planning. If you take time to plan, you'll be able to add more disks to your system, if you need them, before you start to install Solaris 8 software.

Guidelines

Planning disk space is different for everyone; however, here are some general points to consider:

- Allocate additional disk space for each language selected (for example, Chinese, Japanese, Korean).
- Allocate additional disk space in the `/var` file system if you intend to support printing or mail.
- Allocate additional disk space in the `/var` file system if you intend to use the crash dump feature (`savecore`(1M)).
- Allocate additional disk space on a server if it's going to provide home directory file systems for users on other systems (by default, home directories are usually located in the `/export` file system).
- Allocate enough swap space. Table 6–5 contains additional information about how much swap space you need to allocate on a system.
- Allocate space for the Solaris software group you want to install. "Disk Space Recommendations for Software Groups" on page 26 contains the recommended disk space for the software groups. When planning disk space, remember that the Solaris 8 Interactive Installation Program enables you to add or remove individual software packages from the software group that you select.

- Create a minimum number of file systems. By default, the Solaris 8 Interactive Installation Program creates only root (/), /usr, and /swap (/export is also created when space is allocated for OS services). Creating a minimum number of file systems helps with future upgrades and file system expansion because separate file systems are limited by their slice boundaries.
- Allocate additional disk space for additional or third-party software.

Disk Space Recommendations for Software Groups

The following table lists the Solaris *software groups* and the recommended amount of disk space for each group.

TABLE 2–1 Disk Space Recommendations

Software Group	Recommended Disk Space
Entire Distribution Plus OEM Support	2.4 Gbytes
Entire Distribution	2.3 Gbytes
Developer System Support	1.9 Gbytes
End User System Support	1.6 Gbytes

Note - Swap space is included in the disk space recommendations.

CHAPTER 3

Organization of Solaris 8 CDs

This chapter describes the primary CDs that are included in the media kits for Solaris 8.

Note - This book uses the term slice, but some Solaris documentation and programs might refer to a slice as a partition. To avoid confusion, this book distinguishes between `fdisk` partitions (which are supported only in Solaris *Intel Platform Edition*) and the divisions within the Solaris `fdisk` partition, which might be called slices or partitions.

CDs for Solaris 8

The following figure shows the primary CDs for Solaris 8 *SPARC Platform Edition*.

An equivalent set is included with Solaris 8 *Intel Platform Edition*. Solaris 8 *Intel Platform Edition* also includes a diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition (shown last in Figure 3–1).

Note - *International* versions of Solaris 8 contain a CD labeled Solaris 8 Installation Multilingual SPARC Platform Edition or Solaris 8 Installation Multilingual Intel Platform Edition, instead of the English version of the SPARC or IA installation CD. International versions also include two CDs labeled:

- Solaris 8 Documentation European SPARC / Intel Platform Edition, which contains English, French, German, Italian, Spanish, and Swedish documentation
- Solaris 8 Documentation Asian SPARC / Intel Platform Edition, which contains Simplified and Traditional Chinese, Japanese, and Korean documentation

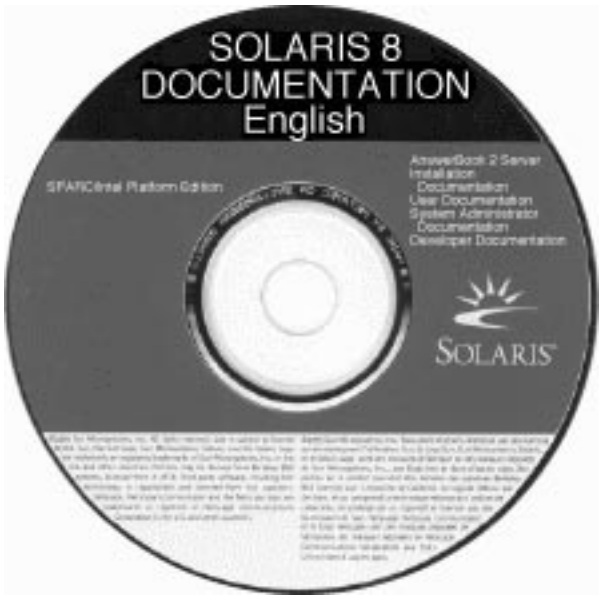
instead of the CD labeled Solaris 8 Documentation English SPARC / Intel Platform Edition.

Only international versions of Solaris 8 contain the CD labeled Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition.


SOLARIS 8
SOFTWARE
1 of 2
SPARC Platform Edition
SOLARIS


SOLARIS 8
SOFTWARE
2 of 2
SPARC Platform Edition
SOLARIS


SOLARIS 8
LANGUAGES
SPARC Platform Edition
SOLARIS


SOLARIS 8
DOCUMENTATION
English
SPARCintel Platform Edition
AnswerBook 2 Server
Installation
Documentation
User Documentation
System Administrator
Documentation
Developer Documentation
SOLARIS

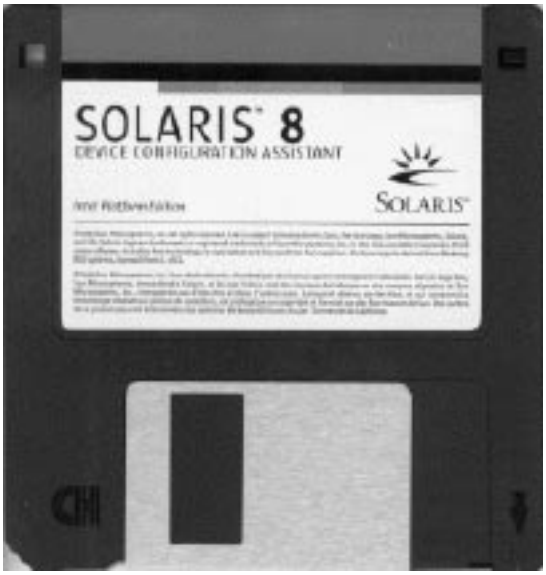


Figure 3–1 Primary CDs for Solaris 8

Organization of the Solaris 8 Installation English CD

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

SPARC: Solaris 8 Installation English SPARC Platform Edition CD

The following figure shows the organization of the CD labeled Solaris 8 Installation English SPARC Platform Edition.

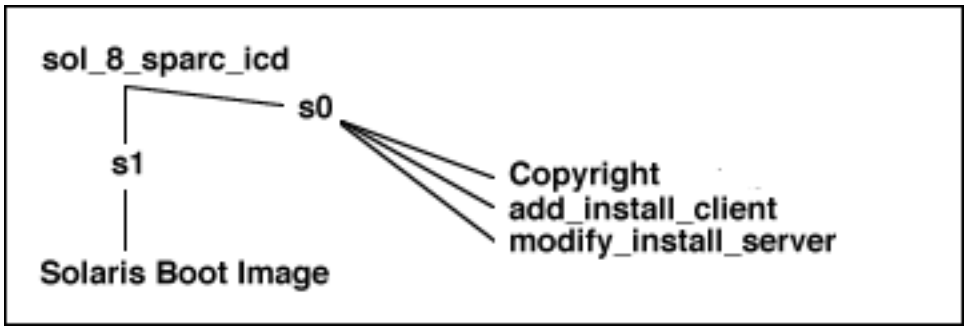


Figure 3–2 SPARC: Solaris 8 Installation English SPARC Platform Edition CD

The files on slice 0 (s0) on the CD labeled Solaris 8 Installation English SPARC Platform Edition are scripts that install the Solaris software. These scripts include `add_install_client` and `modify_install_server`. Slice 1 (s1) contains the Solaris 8 miniroot for the SPARC platform.

IA: Solaris 8 Installation English Intel Platform Edition CD

The following figure shows the organization of the CD labeled Solaris 8 Installation English Intel Platform Edition.

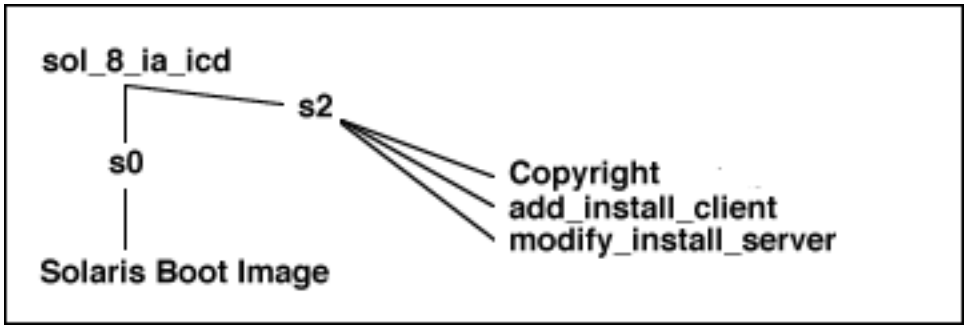


Figure 3–3 IA: Solaris 8 Installation English Intel Platform Edition CD

Slice 0 (s0) contains the Solaris 8 miniroot for the IA platform. The files on slice 2 (s2) on the CD labeled Solaris 8 Installation English Intel Platform Edition are scripts that install the Solaris software. These scripts include `add_install_client` and `modify_install_server`.

Organization of the Solaris 8 Software CDs

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

SPARC: Solaris 8 Software SPARC Platform Edition CDs

The following figures show the organization of the Solaris 8 Software SPARC Platform Edition CDs.

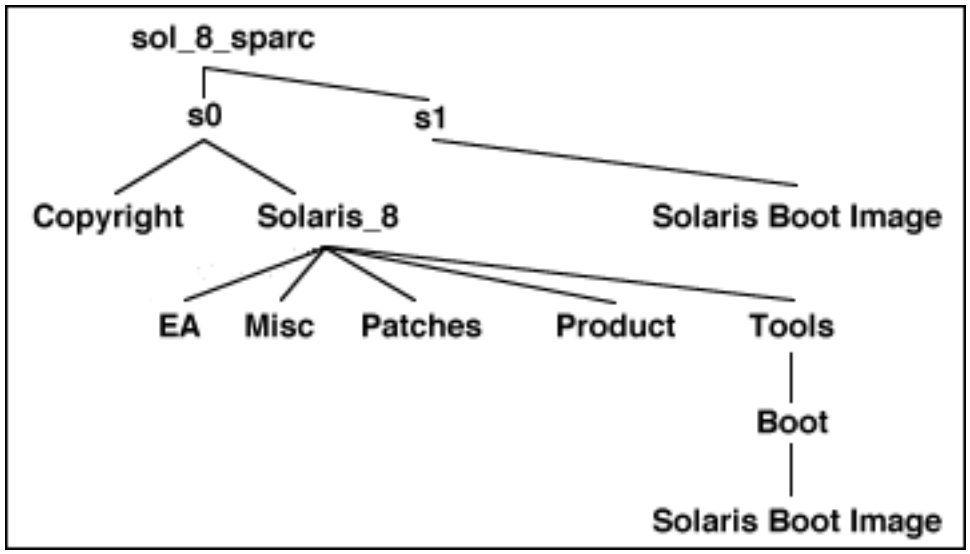


Figure 3–4 SPARC: Solaris 8 Software 1 of 2 SPARC Platform Edition CD

The `Solaris_8` directory on slice 0 (s0) on the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition contains all the tools, software, and configuration information necessary to install, at a minimum, the Solaris 8 software product, including the Solaris Core and End User System Support software groups. It contains the following directories:

- EA – Contains a text file that directs you to the CD labeled Solaris 8 Software 2 of 2 SPARC Platform Edition.

- `Misc` – Contains the `jumpstart_sample` directory, which includes a `rules` file, a `check` script, profiles, begin scripts, finish scripts, and other JumpStart software and files.
- `Patches` – Contains all the Solaris 8 patches available at the time the Solaris 8 Software 1 of 2 SPARC Platform Edition CD was created.
- `Product` – Contains the Solaris 8 packages and control files. The format of this directory is exactly the same as the product directory (for example, `Solaris_2.7`) on previous Solaris CDs.
- `Tools` – Contains the Solaris 8 installation tools, which include `add_install_client`, `dial`, `rm_install_client`, and `setup_install_server`. The `Tools` directory also contains the `Boot` subdirectory, which contains the Solaris 8 miniroot for the SPARC platform.

Slice 1 (s1) contains the Solaris 8 miniroot for the SPARC platform.

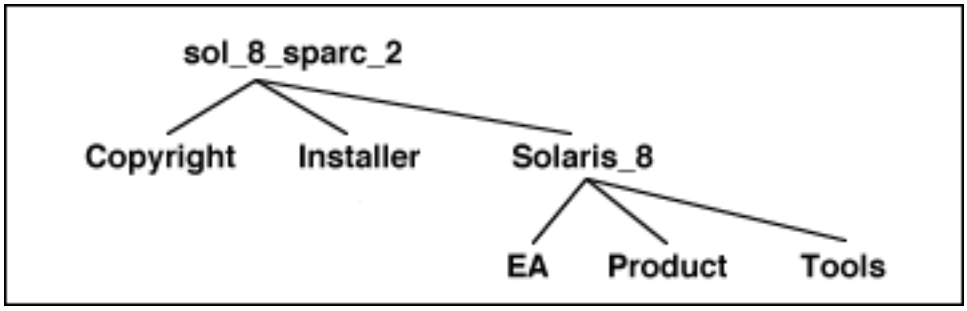


Figure 3–5 SPARC: Solaris 8 Software 2 of 2 SPARC Platform Edition CD

The CD labeled Solaris 8 Software 2 of 2 SPARC Platform Edition contains essentially the same subdirectories as Solaris 8 Software 1 of 2 SPARC Platform Edition, except that it does not include the `Misc` and `Patches` subdirectories, nor the `Boot` subdirectory (and hence, boot software) under `Tools`. The `EA` subdirectory contains unbundled and preliminary evaluation software. The CD labeled Solaris 8 Software 2 of 2 SPARC Platform Edition contains essentially the Developer System Support, Entire Distribution, and Entire Distribution Plus OEM Support software groups.

IA: Solaris 8 Software Intel Platform Edition CDs

The following figures show the organization of the Solaris 8 Software Intel Platform Edition CDs.

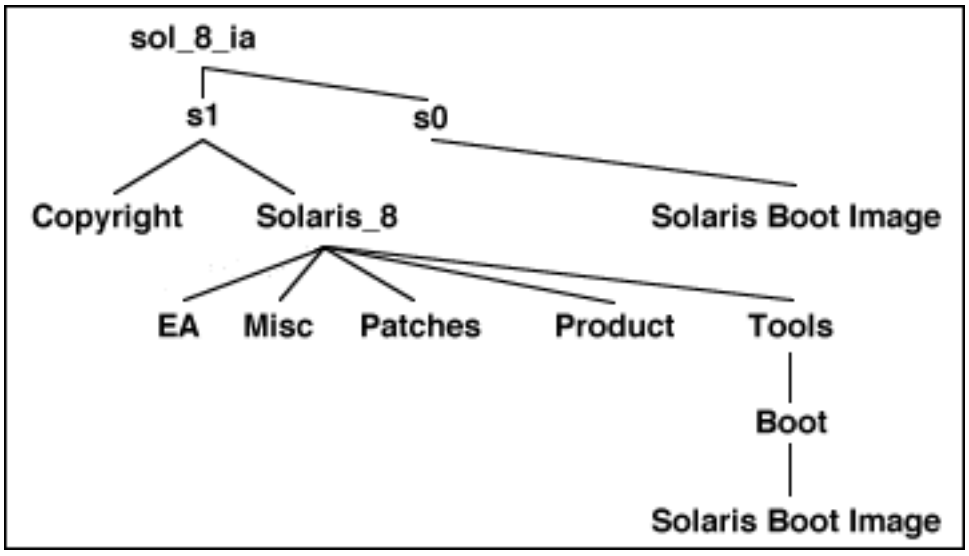


Figure 3–6 IA: Solaris 8 Software 1 of 2 Intel Platform Edition CD

Slice 0 (s0) on the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition contains the Solaris 8 miniroot for the IA platform.

The `Solaris_8` directory on slice 1 (s1) on the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition contains all the tools, software, and configuration necessary to install, at a minimum, the Solaris 8 software product, including the Solaris Core and End User System Support software groups. It contains the following directories:

- `EA` – Contains a text file that directs you to the CD labeled Solaris 8 Software 2 of 2 Intel Platform Edition.
- `Misc` – Contains the `jumpstart_sample` directory, which includes a `rules` file, a `check` script, profiles, begin scripts, finish scripts, and other JumpStart software and files.
- `Patches` – Contains all the Solaris 8 patches available at the time the Solaris 8 Software 1 of 2 Intel Platform Edition CD was created.
- `Product` – Contains the Solaris 8 packages and control files. The format of this directory is exactly the same as the product directory (for example, `Solaris_2.7`) on previous Solaris CDs.
- `Tools` – Contains the Solaris 8 installation tools, which include `add_install_client`, `dial`, `rm_install_client`, and `setup_install_server`. The `Tools` directory also contains the `Boot` subdirectory, which also contains the Solaris 8 miniroot for the IA platform.

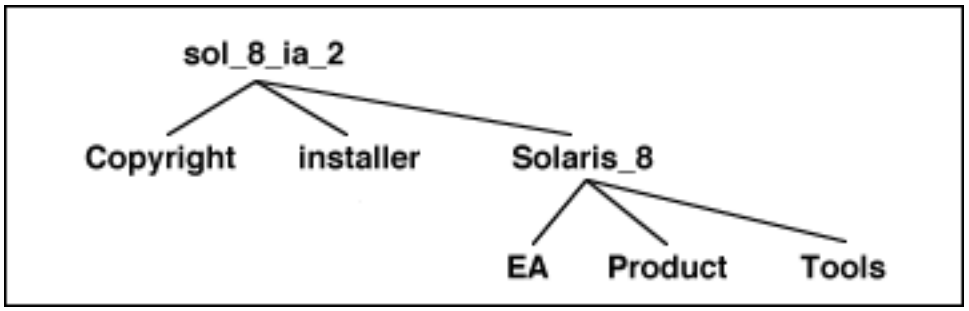


Figure 3–7 IA: Solaris 8 Software 2 of 2 Intel Platform Edition CD

The CD labeled Solaris 8 Software 2 of 2 Intel Platform Edition contains essentially the same subdirectories as Solaris 8 Software 1 of 2 Intel Platform Edition, except that it does not include the `Misc` and `Patches` subdirectories, nor the `Boot` subdirectory (and hence, boot software) under `Tools`. The `EA` subdirectory contains unbundled and preliminary evaluation software. The CD labeled Solaris 8 Software 2 of 2 Intel Platform Edition contains essentially the Developer System Support, Entire Distribution, and Entire Distribution Plus OEM Support software groups.

Organization of the Solaris 8 Languages CD

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

The following figure shows the organization of the Solaris 8 Languages SPARC Platform Edition and Solaris 8 Languages Intel Platform Edition CDs.

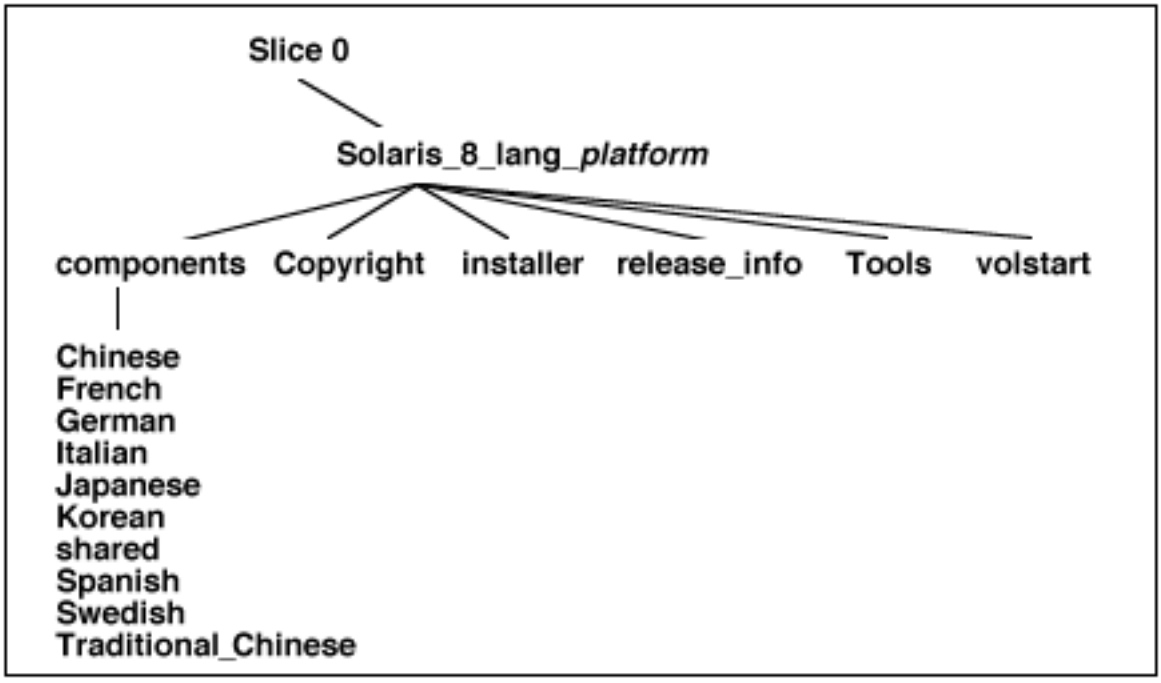


Figure 3–8 Solaris 8 Languages CD

The files on the CD labeled Solaris 8 Languages SPARC Platform Edition and Solaris 8 Languages Intel Platform Edition are scripts that install the Solaris language and locale software, including the Chinese, French, German, Italian, Japanese, Korean, Spanish, Swedish, and Traditional Chinese locale packages located in the `components` directory. The `components` directory also contains packages shared by all locales.

Organization of the Solaris 8 Documentation English SPARC/Intel Platform Edition CD

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

The following figure shows the organization of the Solaris 8 Documentation English SPARC/Intel Platform Edition CD.

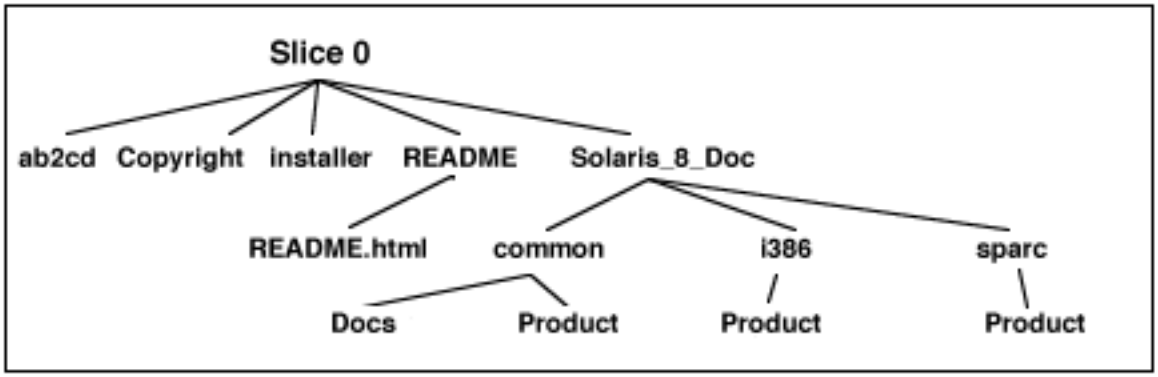


Figure 3–9 Solaris 8 Documentation English SPARC/Intel Platform Edition CD

The CD labeled Solaris 8 Documentation English SPARC/Intel Platform Edition contains:

- `ab2cd` – Enables you to run the AnswerBook2™ server and access the document collections directly from the CD.
- `installer` – A point-and-click installation utility you can use to install the AnswerBook2 server software and document collections.
- `README` – Contains `README.html`, which presents an overview and description of the contents of the Solaris 8 Documentation English SPARC/Intel Platform Edition CD and describes how to access and install its contents.
- `Solaris_8_Doc` – Contains the subdirectories `sparc` and `i386`, which contain, respectively, the AnswerBook2 server software for installation on a SPARC and an IA based system. The subdirectory `common` contains online documentation in AnswerBook2, PDF, and HTML format.

CHAPTER 4

Preconfiguring System Configuration Information

This chapter describes how to preconfigure the information in a `sysidcfg` file and name service databases so you can avoid being prompted for this information every time you install Solaris. It also describes how to preconfigure Power Management™ information.

Both the Solaris 8 Interactive Installation Program and custom JumpStart need configuration information about a system (such as the system's peripheral devices, host name, Internet Protocol (IP) address, and name service) before either installation tool can install the Solaris 8 software. Before prompting you for configuration information, both installation tools look for the information in the `sysidcfg` file or the name service databases (in that order).

For example, if you have a large number of systems and you don't want to be prompted for the time zone every time you install Solaris 8 on one of the systems, you can specify the time zone in the `sysidcfg` file or the name service databases. When you subsequently install Solaris 8, the time zone prompt is not displayed.

Ways to Preconfigure System Configuration Information

There are two ways to preconfigure system configuration information. You can add the information to:

- A `sysidcfg` file (on a remote system or diskette)
- The *name service* available at your site

Use Table 4–1 to determine which method to use to preconfigure system configuration information for your system.

TABLE 4–1 Methods to Preconfigure System Configuration Information

If you want to preconfigure	And your platform is	Can you preconfigure with the `sysidcfg` file?	Can you preconfigure with the name service?
Name service	All	Yes	Yes
Domain name	All	Yes	No
Name server	All	Yes	No
Network interface	All	Yes	No
Host name	All	Yes[1]	Yes
Internet Protocol (IP) address	All	Yes[1]	Yes
Netmask	All	Yes	No
DHCP	All	Yes	No
IPv6	All	No	No
Root password	All	Yes	No
Security policy	All	Yes	No
Language (locale) in which to display the install program and desktop	All	Yes	Yes
Terminal type	All	Yes	No

TABLE 4–1 Methods to Preconfigure System Configuration Information *(continued)*

If you want to preconfigure	And your platform is	Can you preconfigure with the `sysidcfg` file?	Can you preconfigure with the name service?
Time zone	All	Yes	Yes
Date and time	All	Yes	Yes
Monitor type	IA	Yes	No
Keyboard language, keyboard layout	IA	Yes	No
Graphics card, color depth, display resolution, screen size	IA	Yes	No
Pointing device, number of buttons, IRQ level	IA	Yes	No
Power Management (autoshutdown)[2]	SPARC	No	No

1. Because this information is system specific, edit the name service rather than creating a different `sysidcfg` file for each system.
2. This system configuration information cannot be preconfigured through the `sysidcfg` file or the name service. "SPARC: Preconfiguring Power Management Information" on page 52 contains details.

Guidelines for Preconfiguring With the `sysidcfg` File

You specify a set of keywords in the `sysidcfg` file to preconfigure a system. These keywords are described in Table 4–2.

You must create a unique `sysidcfg` file for every system that requires different configuration information. You can use the same `sysidcfg` file to preconfigure the time zone on a set of systems provided you want all the systems assigned the same time zone. However, if you want to preconfigure a different root (superuser) password for each of those systems, you need to create a unique `sysidcfg` file for each system.

You can place the `sysidcfg` file in a shared NFS™ network directory or in the root (`/`) directory on:

- A UFS diskette
- A PCFS diskette

in the system's diskette drive.

- If you put the `sysidcfg` file in a shared NFS network directory, you must use the –p option of the `add_install_client`(1M) command (when you set up the system to install over the network) to specify where the system can find the `sysidcfg` file when you install Solaris.
- SPARC: If you put the `sysidcfg` file on a profile diskette, ensure that the diskette is inserted in the system's diskette drive when the system boots.
- IA: Put the `sysidcfg` file on the diskette that contains the Solaris 8 Device Configuration Assistant.

Note - You can place only one `sysidcfg` file in a directory or on a diskette. If you are creating more than one `sysidcfg` file, you must place each file in a different directory or on a different diskette.

Types of Keywords: Dependent and Independent

There are two types of keywords you use in the `sysidcfg` file: independent and dependent. Dependent keywords are guaranteed to be unique only within independent keywords. That is, a dependent keyword exists only when it is identified with its associated independent keyword.

In this example, `name_service` is the independent keyword, while `domain_name` and `name_server` are the dependent keywords:

```
name_service=NIS {domain_name=marquee.central.sun.com
name_server=connor(129.152.112.3)}
```

Syntax Rules of the `sysidcfg` File

Syntax Rule	Example
Keywords can be listed in any order.	`pointer=MS-S` `display=ati {size=15-inch}`
Keywords are not case sensitive.	`TIMEZONE=US/Central` `terminal=PC Console`

Syntax Rule	Example

Enclose all dependent keywords in curly braces ({}) to tie them to their associated independent keyword.	`name_service=NIS`
	`{domain_name=marquee.central.sun.com`
	`name_server=connor(129.152.112.3)}`

Values can optionally be enclosed in single (‘) or double quotes (“).	`network_interface='none'`
Only one instance of a keyword is valid; however, if you specify the keyword more than once, only the first instance of the keyword is used.	`network_interface=none` `network_interface=le0`

Table 4–2 describes the keywords you can use in the `sysidcfg` file.

TABLE 4–2 Keywords You Can Use in `sysidcfg`

Configuration Information	Platform	Keywords	Where to Find Values/Example
Name service, domain name, name server	All	`name_service=NIS, NIS+, DNS, NONE`	

		Options for NIS and NIS+: `{domain_name=`*domain_name* `name_server=`*hostname*(*ip_address*)}	`name_service=NIS`
			`{domain_name=west.arp.com`
			`name_server=timber(129.221.2.1)}`
			
			`name_service=NIS+`
			`{domain_name=west.arp.com.`
			`name_server=timber(129.221.2.1)}`

		Options for DNS: `{domain_name=`*domain_name* `name_server=`*ip_address*,*ip_address*, *ip_address* (three maximum) `search=`*domain_name*, *domain_name*,*domain_name*, *domain_name*,*domain_name*, *domain_name* (six maximum, total length less than or equal to 250 characters)}	`name_service=DNS`
			`{domain_name=west.arp.com`
			`name_server=10.0.1.10,10.0.1.20`
			`search=arp.com,east.arp.com}`
			
			Note - Choose only one value for `name_service`. Include either, both, or neither of the `domain_name` and `name_server` keywords, as needed. If neither keyword is used, omit the curly braces {}.

TABLE 4–2 Keywords You Can Use in `sysidcfg` *(continued)*

Configuration Information	Platform	Keywords	Where to Find Values/Example
Network interface, host name, Internet Protocol (IP) address, netmask, DHCP, IPv6	All	`network_interface=NONE, PRIMARY, or` *value*	
		If DHCP *is* to be used, specify: `{dhcp protocol_ipv6=`*yes_or_no*`}`	`network_interface=primary {dhcp protocol_ipv6=yes}`
		If DHCP is *not* to be used, specify: `{hostname=`*host_name* `ip_address=`*ip_address* `netmask=`*netmask* `protocol_ipv6=`*yes_or_no*`}`	`network_interface=le0 {hostname=feron ip_address=129.222.2.1 netmask=255.255.0.0 protocol_ipv6=no}`
			Note - Choose only one value for `network_interface`. Include any combination or none of the `hostname`, `ip_address`, and `netmask` keywords, as needed. If you do not use any of these keywords, omit the curly braces ({}).
			Note - If DHCP is *not* to be used, `protocol_ipv6` is optional; you do not need to specify it.
Root password	All	`root_password=`*root_password*	Encrypted from `/etc/shadow`.

TABLE 4–2 Keywords You Can Use in `sysidcfg` *(continued)*

Configuration Information	Platform	Keywords	Where to Find Values/Example

Security policy	All	`security_policy=kerberos, NONE`
		
		Options for kerberos:
		`{default_realm=FQDN admin_server=FQDN kdc=FQDN1, FQDN2, FQDN3}`
		
		where `FQDN` is a fully qualified domain name.
		
		Note - You can list a maximum of three key distribution centers (KDCs), but at least one is required.
			`security_policy=kerberos {default_realm=Yoursite.COM admin_server=krbadmin.Yoursite.COM kdc=kdc1.Yoursite.COM, kdc2.Yoursite.COM}`

Language in which to display the install program and desktop	All	`system_locale=`*locale*	The `/usr/lib/locale` directory or Appendix B provides the valid locale values.
Terminal type	All	`terminal=`*terminal_type*	The subdirectories in the `/usr/share/lib/terminfo` directory provide the valid terminal values.
Time zone	All	`timezone=`*timezone*	The directories and files in the `/usr/share/lib/zoneinfo` directory provide the valid time zone values. The time zone value is the name of the path relative to the `/usr/share/lib/zoneinfo` directory. For example, the time zone value for Mountain Standard Time in the United States is `US/Mountain`; the time zone value for Japan is `Japan`.
Date and time	All	`timeserver=localhost,` *hostname*, *ip_addr*	If you specify `localhost` as the time server, the system's time is assumed to be correct. If you specify the *hostname* or *ip_addr* (if you are not running a name service) of a system, that system's time is used to set the time.
Monitor type	IA	`monitor=`*monitor_type*	Run `kdmconfig -d` *filename*; append output to `sysidcfg` file.

TABLE 4–2 Keywords You Can Use in `sysidcfg` *(continued)*

Configuration Information	Platform	Keywords	Where to Find Values/Example
Keyboard language, keyboard layout	IA	`keyboard=`*keyboard_language* `{layout=`*value*`}`	Run `kdmconfig -d` *filename*; append output to `sysidcfg` file.
Graphics card, screen size, color depth, display resolution	IA	`display=`*graphics_card* `{size=`*screen_size* `depth=`*color_depth* `resolution=`*screen_resolution*`}`	Run `kdmconfig -d` *filename*; append output to `sysidcfg` file.
Pointing device, number of buttons, IRQ level	IA	`pointer=`*pointing_device* `{nbuttons=`*number_buttons* `irq=`*value*`}`	Run `kdmconfig -d` *filename*; append output to `sysidcfg` file.

SPARC: Example `sysidcfg` File

The following example illustrates what a `sysidcfg` file looks like for a group of SPARC based systems. (The host names, IP addresses, and netmask of these systems have been preconfigured by editing the name service.) Because all the system configuration information is preconfigured in this file, you could use a custom JumpStart profile to perform a custom JumpStart installation.

```
system_locale=en_US
timezone=US/Central
terminal=sun-cmd
timeserver=localhost
name_service=NIS {domain_name=marquee.central.sun.com
                  name_server=connor(129.152.112.3)}
root_password=m4QPOWNY
```

IA: Example `sysidcfg` File

The following example illustrates what a `sysidcfg` file looks like for a group of IA based systems that all use the same type of keyboard, graphics cards, and pointing

devices. The device information (`keyboard`, `display`, and `pointer`) was obtained by running the `kdmconfig`(1M) command with the `–d` option. If the following example `sysidcfg` file is used, a prompt that asks you to select a language (`system_locale`) is displayed before installation can proceed.

```
keyboard=ATKBD {layout=US-English}
display=ati {size=15-inch}
pointer=MS-S
timezone=US/Central
timeserver=connor
terminal=ibm-pc
name_service=NIS {domain_name=marquee.central.sun.com
                  name_server=connor(129.152.112.3)}
root_password=URFUni9
```

▼ To Create a `sysidcfg` Configuration File

1. **Using a text editor of your choice, open a new text file and name it** `sysidcfg`**.**

   Note - If you create more than one `sysidcfg` file, you must save each one in a separate directory or on a separate diskette.

2. **Enter the** `sysidcfg` **keywords you want.**

3. **Save the** `sysidcfg` **file.**

4. **Make the** `sysidcfg` **file available to clients through**:
   - A shared NFS network directory (use `add_install_client`(1M) with the `–p` option)
   - The root (`/`) directory on a:
     - UFS diskette

- PCFS diskette

Preconfiguring With the Name Service

SPARC platform only - For SPARC based systems, preconfigure system configuration information by editing the name service (NIS or NIS+).

The following table provides a high-level overview of what you need to do.

To preconfigure	You must edit and populate these name service databases
Host name and Internet Protocol (IP) address	`hosts`
Date and time	`hosts` (specify the `timehost` alias next to the host name of the system that will provide the date and time for the systems being installed)
Time zone	`timezone`
Netmask	`netmasks`

The procedure to preconfigure the locale for a system is different for each name service, as described in “To Preconfigure the Locale Using NIS” on page 48.

▼ To Preconfigure the Locale Using NIS

1. **As superuser on the name server, open `/var/yp/Makefile` with a text editor of your choice.**

2. **Insert this shell procedure after the last *variable*`.time` shell procedure:**

```
locale.time:  $(DIR)/locale
        -@if [ -f $(DIR)/locale ]; then \
               sed -e "/^#/d" -e s/#.*$$// $(DIR)/locale \
               | awk '{for (i = 2; i<=NF; i++) print $$i, $$0}' \
               | $(MAKEDBM) - $(YPDBDIR)/$(DOM)/locale.byname; \
               touch locale.time; \
```

(continued)

(Continuation)

```
                echo "updated locale"; \
                if [ ! $(NOPUSH) ]; then \
                        $(YPPUSH) locale.byname; \
                        echo "pushed locale"; \
                else \
                : ; \
                fi \
        else \
                echo "couldn't find $(DIR)/locale"; \
        fi
```

3. **Find the string** `all:` **and, at the end of the list of variables, insert the word** `locale`**:**

```
all: passwd group hosts ethers networks rpc services protocols \
 netgroup bootparams aliases publickey netid netmasks c2secure \
 timezone auto.master auto.home locale
```

4. **Toward the end of the file, after the last entry of its type, insert the string** `locale: locale.time` **on a new line:**

```
passwd: passwd.time
group: group.time
hosts: hosts.time
ethers: ethers.time
networks: networks.time
rpc: rpc.time
services: services.time
protocols: protocols.time
netgroup: netgroup.time
bootparams: bootparams.time
aliases: aliases.time
publickey: publickey.time
netid: netid.time
passwd.adjunct: passwd.adjunct.time
group.adjunct: group.adjunct.time
netmasks: netmasks.time
timezone: timezone.time
auto.master: auto.master.time
auto.home: auto.home.time
```

(continued)

(Continuation)

```
locale: locale.time
```

5. **Create the file** `/etc/locale` **and make one entry for each domain or specific system:**

```
locale  domain_name
```

or

```
locale  system_name
```

Note - Appendix B contains a list of valid locales.

For example, the following entry specifies that French is the default language used in the `worknet.com` domain:

```
fr worknet.com
```

And the following entry specifies that Belgian French is the default locale used by a system named `sherlock`:

```
fr_BE sherlock
```

Note - Locales are available on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD.

---

6. **Make the maps:**

```
# cd /var/yp; make
```

Systems specified by domain or individually in the `locale` map are now set up to use the default locale. The default locale you've specified is used during installation and by the desktop after the system is rebooted.

▼ To Preconfigure the Locale Using NIS+

This procedure assumes the NIS+ domain is set up. Setting up the NIS+ domain is documented in the *Solaris Naming Administration Guide.*

1. **Log in to a name server as superuser or as a user in the NIS+ administration group.**

2. **Type this `nistbladm` command:**

```
# nistbladm -D access=og=rmcd,nw=r -c locale_tbl name=SI,nogw=
locale=,nogw= comment=,nogw= locale.org_dir.'nisdefaults -d'
```

A `locale` table is created.

3. **Add an entry to the `locale` table by typing this `nistbladm` command:**

```
# nistbladm -a name=domain_name locale=locale comment=comment
locale.org_dir.'nisdefaults -d'
```

domain_name	Is either the domain name or a specific system name for which you want to preconfigure a default locale.
locale	Is the locale you want installed on the system and used on the desktop after the system is rebooted. Appendix B contains a list of valid locales.
comment	Is the comment field. Use double quotation marks to begin and end comments that are longer than one word.

Note - Locales are available on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD.

Systems specified by domain or individually in the `locale` table are now set up to use the default locale. The default locale you specified is used during installation and by the desktop after the system is rebooted.

SPARC: Preconfiguring Power Management Information

You can use the *Power Management* software provided in the Solaris environment to automatically save the state of a system and turn it off after it is idle for 30 minutes. When you install the Solaris 8 software on a system that complies with Version 2 of the EPA's Energy Star guidelines—a sun4u SPARC system, for example—the Power Management software is installed by default, and you are prompted after subsequently rebooting to enable or disable the Power Management software.

If you are performing interactive installations, there is no way to preconfigure the Power Management information and avoid the prompt. However, using custom JumpStart, you can preconfigure the Power Management information by using a finish script to create an `/autoshutdown` or `/noautoshutdown` file on the system. When the system reboots, the `/autoshutdown` file enables Power Management and the `/noautoshutdown` file disables Power Management.

For example, the following line in a finish script enables the Power Management software and prevents the display of the prompt after the system reboots.

```
touch /a/autoshutdown
```

Finish scripts are described in "Creating Finish Scripts" on page 185.

CHAPTER 5

Using the Solaris 8 Interactive Installation Program

This chapter explains how to use the *Solaris 8 Interactive Installation Program*, which you run on the system on which you want to install or upgrade the Solaris software.

Note - The *Solaris 8 Start Here* booklet and the *Solaris 8 (SPARC Platform Edition) Installation Guide* or *Solaris 8 (Intel Platform Edition) Installation Guide* describe how to install Solaris on a single system from a local CD-ROM.

Ways to Upgrade a System

When you install a new version of Solaris software on an existing Solaris system, you can choose one of the following ways to upgrade the Solaris environment:

- *Upgrade* – This option merges the new version of the Solaris operating environment with the existing files on the system's disks. It saves as many

modifications as possible that you have made to the previous version of the Solaris operating environment.

- *Initial* – This option overwrites the system's disk with the new version of the Solaris operating environment. You must back up any local modifications that you have made to the previous version of the Solaris operating environment before you begin the installation and restore the local modifications after the installation is finished.

Upgrade With Disk Space Reallocation

The upgrade option in the Solaris 8 Interactive Installation Program provides the ability to reallocate disk space if the current file systems don't have enough space for the upgrade. By default, an auto-layout feature attempts to determine how to reallocate the disk space so an upgrade can succeed. If auto-layout can't determine how to reallocate disk space, you must specify the file systems that can be moved or changed and run auto-layout again.

If you're creating an upgrade profile and the current file systems don't contain enough space for the upgrade, you can use the `backup_media` and `layout_constraint` keywords to reallocate disk space. "Reallocating Disk Space for an Upgrade" on page 173 contains an example that shows how to use the `backup_media` and `layout_constraint` keywords in a profile.

Frequently Asked Questions About Upgrading

- Will I be able to use the upgrade option on my system?

  The upgrade option is supported on any system with Solaris 2.5.1, Solaris 2.6, or Solaris 7 software installed. Type the following command to see the version of Solaris software running on your system:

```
$ uname -a
```

- Do I have to back out patches before I use the upgrade option?

  No.

- How do I upgrade using custom JumpStart?

  You specify `install_type upgrade` in your profile.

- What if the Solaris 8 Interactive Installation Program doesn't provide the upgrade option, but the system can be upgraded?

  Chapter 12 addresses this question.

- How can I test my profiles that use the upgrade option?

  You can use the `pfinstall -D` command to test a profile before you use it to upgrade a system. This command is especially useful with the "upgrade with disk space reallocation" feature.

  To test an upgrade profile, you must run the `pfinstall -D` command on the system you're going to upgrade because you need to test the profile against the system's disk configuration and its currently installed software. You cannot test an upgrade profile using a disk configuration file. "Testing a Profile" on page 174 contains more information about testing the upgrade option.

- Can I automatically upgrade to another software group?

  No. For example, if you previously installed the end user software group on your system, you cannot use the upgrade option to upgrade to the developer software group. However, during the upgrade you can always add software to the system that is not part of the currently installed software group.

- Where does the Solaris 8 Interactive Installation Program log local modifications that are not preserved during an upgrade?

  - Before the system reboots: `/a/var/sadm/system/data/upgrade_cleanup`
  - After the system reboots: `/var/sadm/system/data/upgrade_cleanup`

- Where does the Solaris 8 Interactive Installation Program log what happens during the upgrade?

  - Before the system reboots: `/a/var/sadm/system/logs/upgrade_log`
  - After the system reboots: `/var/sadm/system/logs/upgrade_log`

Upgrading From Solaris 8 or a Solaris 8 Update: the Patch Analyzer

If you are running the Solaris 8 operating environment or any Solaris 8 Update to which you have applied individual patches, upgrading to a Solaris 8 Update or a newer Solaris 8 Update will cause:

- Any patches supplied as part of the newer Solaris 8 Update to be reapplied to your system; you will not be able to back out these patches

- Any patches previously installed on your system that are not included in the newer Solaris 8 Update to be removed

To see a list of patches that will be removed, downgraded, accumulated, or obsoleted, use the Patch Analyzer as described in the following section.

Analyzing the Patches

The *Patch Analyzer* performs an analysis on your system to determine which (if any) patches will be removed by upgrading to a Solaris 8 Update. The Patch Analyzer is available as a script to run manually or as part of the Solaris 8 Interactive Installation Program.

- If you are using the Solaris 8 Interactive Installation Program to upgrade, select `Analyze` on the Patch Analysis dialog box to perform the analysis. This procedure is described in "SPARC: Using the Solaris 8 Interactive Installation Program" on page 63 and "IA: Using the Solaris 8 Interactive Installation Program" on page 92.
- If you are not using the Solaris 8 Interactive Installation Program to upgrade, use the steps below to perform the analysis using the `analyze_patches` script.

To Run the `analyze_patches` Script

Note - To run the `analyze_patches` script, the installed system and the Solaris 8 Software Update CD (or net image) must be accessible by the script either through NFS or locally mounted media.

---

1. **Change to the `Misc` directory:**
   - SPARC: If the image is located on locally mounted media, type:

     ```
     # cd /cdrom/sol_8_Update_sparc/Solaris_8/Misc
     ```

     where *Update* is the actual Update identifier (399, 599, or maintenance_update_4, for example).
   - IA: If the image is located on locally mounted media, type:

     ```
     # cd /cdrom/sol_8_Update_ia/s2/Solaris_8/Misc
     ```

     where *Update* is the actual Update identifier (399, 599, or maintenance_update_4, for example).
   - If the image is available through NFS, type:

```
# cd /NFS_mount_directory/Solaris_8/Misc
```

2. **Run the** `analyze_patches` **script:**

```
# ./analyze_patches
```

You can use the options listed in Table 5–1 on the command line.

TABLE 5–1 Command-Line Options for `analyze_patches`

Option	Description
–R *rootdir*	*rootdir* is the root of the installed system. It defaults to /.
–N *netdir*	*netdir* is the path to the root of the OS image to be installed. It defaults to /cdrom/cdrom0. It should point to the directory containing the Solaris_8 directory. You must use this option if running the patch_analyzer from an NFS mount point.
–D *databasedir*	If the script is invoked from a directory other than the /Misc directory in the OS image, the program will not find the database it uses for patch analysis. Use the –D option to supply the path to the database. Without this database, which is located in /Solaris_8/Misc/database on the OS image, the script does not work properly.

To Review the Patch Analyzer Output

After performing the analysis, use these steps to review the output.

1. **Review the output of the** `analyze_patches` **script.**
   - The Patch Analyzer provides a list of patches that will be removed, downgraded, accumulated, or obsoleted by other patches. Patch accumulations are similar to patch upgrades. The accumulated patch is removed and its fixes are delivered by a new patch. Messages such as the following are shown:

```
Patch 105644-03 will be removed.
Patch 105925 will be downgraded from -02 to -01.
```

(continued)

(Continuation)

```
Patch 105776-01 will be accumulated/obsoleted by patch 105181-05.
```

- If the Patch Analyzer program does not provide a list, no action is taken against any patches previously installed on your system.

2. **Are the patch replacements and deletions acceptable?**
   - If yes, upgrade the system.

     Upgrading a system is described in detail in "SPARC: Upgrading a System" on page 58 and "IA: Upgrading a System" on page 89.
   - If no, do not upgrade the system.

     Instead of upgrading, you can use the Solaris 8 Maintenance Update to apply only patches to your system.

Note - The Solaris 8 Maintenance Update is located on the Solaris 8 Maintenance Update CD, which is included with the Solaris 8 Update release. Instructions for applying patches are provided in the Maintenance Update Release Notes.

SPARC: Upgrading a System

If you intend to use the Solaris 8 Interactive Installation Program to upgrade Solaris software on a SPARC based system, follow the directions in this section. If you intend to install Solaris software only, go to "SPARC: Using the Solaris 8 Interactive Installation Program" on page 63.

▼ SPARC: To Get Started

1. **Check the documentation:**
   - Check the *Solaris 8 (SPARC Platform Edition) Release Notes* and vendor release notes to ensure that the software you use is still supported in the new release.
   - Check the *Solaris 8 Sun Hardware Platform Guide* to make sure your hardware is still supported.

- See the documentation that came with your system to make sure your system and devices are still supported by the new release.
- Check for all the available patches you might need. The most recent patch list is provided at `http://sunsolve.sun.com`.
- Check Table 5–2 for known problems. This list is not complete. Always check vendor and third-party software documentation for additional upgrade instructions.

TABLE 5–2 SPARC: Software That Requires Changes Before Upgrading

Software	Problem Summary
Prestoserve	If you start the upgrade process by shutting down the system using `init 0`, you can lose data. See the Prestoserve documentation for shutdown instructions.

2. Determine the language you want to use to upgrade Solaris. You can select:

- English
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Swedish
- Simplified Chinese
- Traditional Chinese

3. Make sure you have *at least* the following CDs:

- Solaris 8 Software 1 of 2 SPARC Platform Edition *and* Solaris 8 Software 2 of 2 SPARC Platform Edition

- Solaris 8 Languages SPARC Platform Edition

▼ SPARC: To Back Up the System

Note - Back up existing file systems before upgrading the Solaris operating environment. Copying them to removable media (such as tape) safeguards against data loss, damage, or corruption.

If you do not have a backup procedure in place, follow these directions to perform a full backup of file systems. Backing up a system and setting up scheduled backups are described in more detail in *System Administration Guide, Volume I.*

1. **Become superuser.**

2. **Shut down the system:**

```
# init 0
```

3. **Boot the system in single-user mode:**

```
ok boot -s
```

4. **Do you want to check the file systems for consistency?**

Note - Checking the file systems for consistency ensures you back up uncorrupted data. A power failure, for example, can leave files in an inconsistent state.

- If no, go to the next step.
- If yes, use the `fsck` command with the `–m` option:

```
# fsck -m /dev/rdsk/device-name
```

5. **Do you intend to back up the file systems onto a remote tape drive?**
   - If no, go to the next step.
   - If yes:

   a. **Add the following entry to the `./rhosts` file of the system that is initiating the backup:**

```
host root
```

b. Where *host* is the name of the host you want to back up. Verify that the host name added to the `/.rhosts` file above is accessible via the local `/etc/inet/hosts` file or available through an NIS or NIS+ name server.

6. Identify the device name of the tape drive.

The default tape drive is `/dev/rmt/0`.

7. Insert a tape that is not write-protected into the tape drive.

8. Back up file systems using one of the `ufsdump` commands listed in Table 5–3.

TABLE 5–3 SPARC: Full Backup Commands

To make a full backup on a	Use this command
Local cartridge tape drive	`ufsdump9ucf /dev/rmt` *files_to_backup*
Remote cartridge tape drive	`ufsdump0ucf` *remote_host:/ files_to_backup*

9. When prompted, remove the media and replace it with the next volume.

10. Label the media with the volume number, level, date, system name, and file system.

11. Press Control-D.

The system is returned to run level 3.

12. Verify that you successfully backed up the system:

```
# ufsrestore -t
```

▼ SPARC: To Plan for Upgrading

1. If you intend to upgrade through the network and you have not preconfigured your system configuration information, gather the following information about the system on which you intend to upgrade the Solaris operating environment.

Information	Example	To find the information (with Solaris installed), use
Host name	`crater`	**`uname -n`**
Host IP address	`129.221.2.1`	**`ypmatch`** *system_name* **`hosts`** or **`nismatch`** *system_name* **`hosts.org_dir`**
Subnet mask	`255.255.255.0`	**`more /etc/netmasks`**

Type of name service (DNS, NIS, or NIS+)	`passwd: files nis`
	`group: files nis`
	
	`hosts: xfn nis [NOTFOUND=return] files`
	`networks: nis [NOTFOUND=return] files`
	`protocols: nis [NOTFOUND=return] files`
	`rpc: nis [NOTFOUND=return] files`
	`ethers: nis [NOTFOUND=return] files`
	`netmasks: nis [NOTFOUND=return] files`
	`bootparams: nis [NOTFOUND=return] files`
	`publickey: nis [NOTFOUND=return] files`
	
	`netgroup: nis`
	
	`automount: files nis`
	`aliases: files nis`
	
	`services: files nis`
	`sendmailvars: files`
		`cat /etc/nsswitch.conf`

Domain name	`lbloom.West.Arp.COM`	**`domainname`**
Host name of name server	`thor75`	**`ypwhich`**
Host IP address of name server	`129.153.75.20`	**`ypmatch`** *nameserver_name* **`hosts`** or **`nismatch`** *nameserver_name* **`hosts.org_dir`**

SPARC: Using the Solaris 8 Interactive Installation Program

▼ SPARC: To Get Started

1. **Check Table 5–4 to make sure the system on which you intend to install Solaris 8 is prepared for an interactive installation.**

TABLE 5–4 SPARC: Task Map: Setting Up a System for an Interactive Installation

Task	Description	For instructions, go to
Back up existing Solaris 1.*x* (SunOS 4.*x*) files	If a previous Solaris 1.*x* release (SunOS 4.x) is installed on the system, you can convert or merge some Solaris 1.x files into Solaris 8 files. You can use begin and finish scripts to convert or merge the files.	*Solaris Transition Guide*
Check if the system is supported	Check the hardware documentation to see if the system is supported in Solaris 8.	*Solaris 8 Sun Hardware Platform Guide*
Decide how to upgrade the system if a previous version of Solaris is installed on it	If the system has a previous release of Solaris installed, you need to determine how to upgrade the system. Make sure you know what to do before and after you upgrade a system.	"SPARC: Upgrading a System" on page 58 in this chapter
Check if the system has enough disk space for the Solaris 8 software	*Optional.* There are many considerations when planning disk space, such as deciding which software group you want to install.	Chapter 2

TABLE 5–4 SPARC: Task Map: Setting Up a System for an Interactive Installation *(continued)*

Task	Description	For instructions, go to
Preconfigure system configuration information	*Optional.* You can use the `sysidcfg` file or the name service to preconfigure installation information (for example, `locale`) for a system so you won't be prompted to supply the information during the installation.	Chapter 4
Set up the system to install over the network	**For network installations only** To install a system from a remote Solaris 8 Software SPARC Platform Edition CD image, you need to set up the system to boot and install from an install or boot server.	Chapter 9

2. **If the system is part of a network, make sure an Ethernet connector or similar network adapter is plugged into your system.**

3. **Do you intend to install the Solaris software on a system through a `tip`(1) line?**
   - If no, go to the next step.
   - If yes, make sure your window display is at least 80 columns wide and 24 rows long.

   Note - To determine the current dimensions of your `tip` window, use the `stty`(1) command.

4. **Do you intend to use the system's CD-ROM drive to install the Solaris 8 software on the system?**
   - If no, go to the next step.
   - If yes, insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition into that system's CD-ROM drive.

5. **Boot the system:**

If your system is	Then
New, out-of-the-box	Turn on the system.
Existing	Display the `ok` prompt (by typing `halt` as superuser or by pressing both the Stop and A keys at the same time), and type: `ok` **`boot cdrom`** to boot from the local CD, or type: `ok` **`boot net`** to boot from an install server on a network.

Information similar to this is displayed:

```
Boot device: /sbus/espdma@e,8400000/esp@e,8800000/sd@6,0:f  File and args:
SunOS Release 5.8 Version Generic 32-bit
Copyright 1983-2000 Sun Microsystems, Inc.  All rights reserved.
Configuring /dev and /devices
Using RPC Bootparams for network configuration information.
le0: No carrier - cable disconnected or hub link test disabled?
```

After a few seconds, a menu of languages is displayed.

6. **Type the number that corresponds to the language in which to display prompts, messages, and other installation information.**

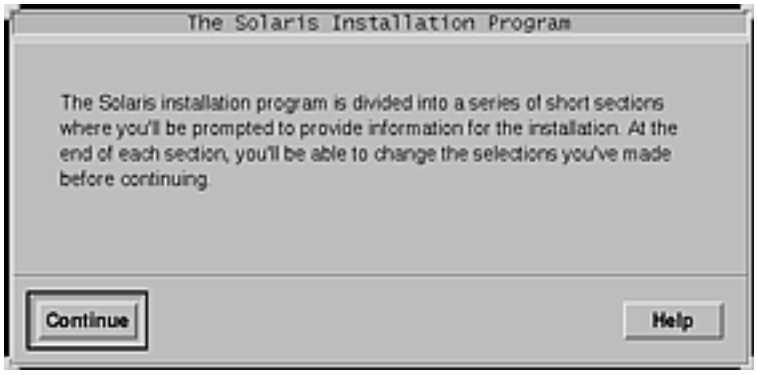
   A menu of locales is displayed.

7. **Type the number that corresponds to the locale you want to use for the installation.**

   The OpenWindows™ desktop starts. An empty desktop and the Solaris Install Console window are displayed with the message:

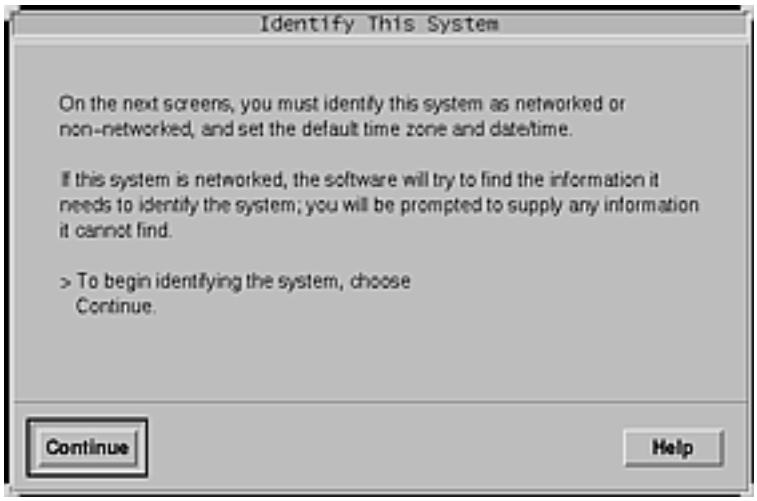
```
The system is coming up.  Please wait.
```

The Solaris Installation Program dialog box is displayed:



8. Click Continue.

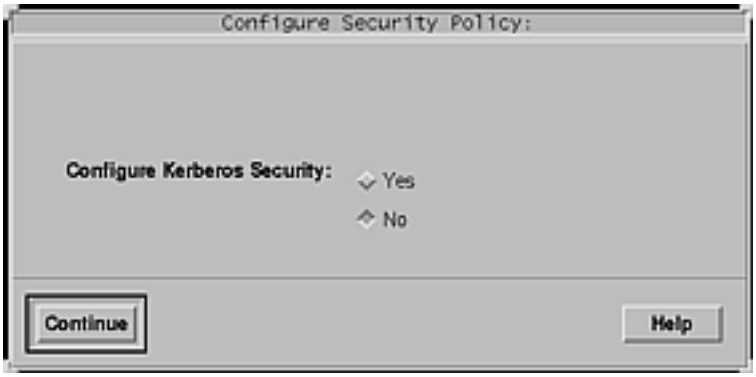
The Identify This System dialog box is displayed:



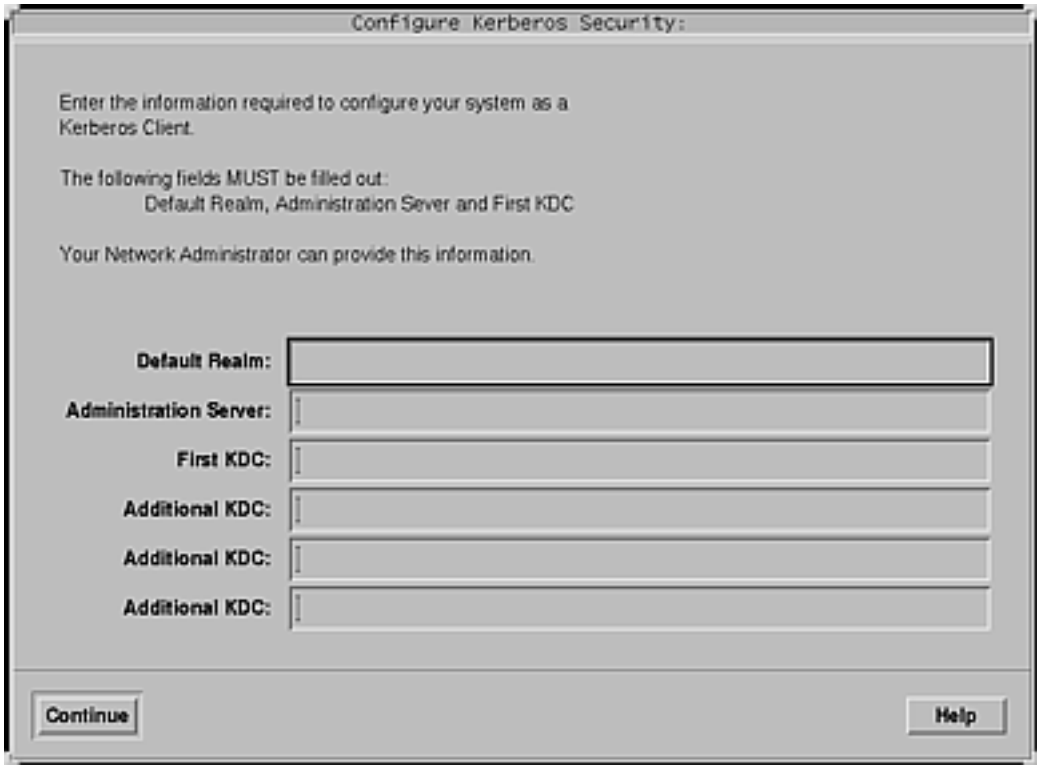
▼ SPARC: To Identify the System

1. On the Identify This System dialog box, click Continue.

The Configure Security Policy dialog box is displayed:



2. **Do you want to configure Kerberos security for the system?**
   - If yes, select Yes and click Continue.
     The Configure Kerberos Security dialog box is displayed:



   - If no, select No and click Continue.

The Confirm Information dialog box is displayed.

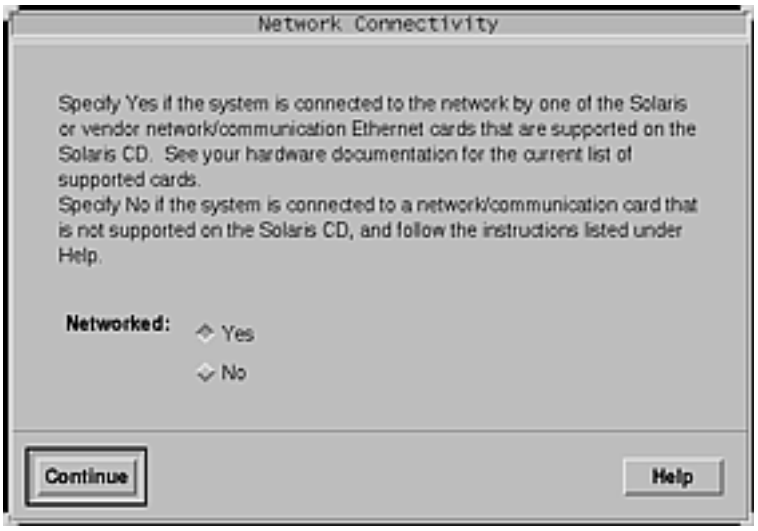
3. **Did you choose to configure Kerberos security in the preceding step?**

   - If no, go to the next step.
   - If yes, fill in the Configure Kerberos Security dialog box and click Continue.

     The Confirm Information dialog box is displayed.

4. **On the Confirm Information dialog box, click Continue.**

   - If your system is already networked or you have preconfigured the system configuration (as described in Chapter 4) and the Solaris 8 Interactive Installation Program is able to identify your system completely, the Solaris Interactive Installation dialog box is displayed.
   - If your system is not currently networked or it cannot identify your system completely, the Solaris 8 Interactive Installation Program displays the dialog boxes that enable you to provide the information, starting with the Network Connectivity dialog box:



5. **Was the Solaris 8 Interactive Installation Program able to identify your system completely?**

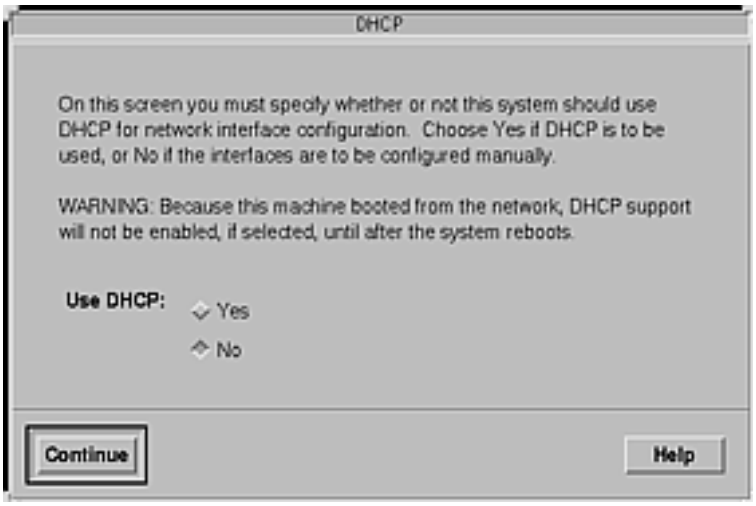
   - If yes, go to Step 1 on page 77.
   - If no, go to the next step.

6. **Is the system networked?**

   - If no, on the Network Connectivity dialog box, select No, click Continue, and go to Step 9 on page 70.

- If yes, select Yes and click Continue.

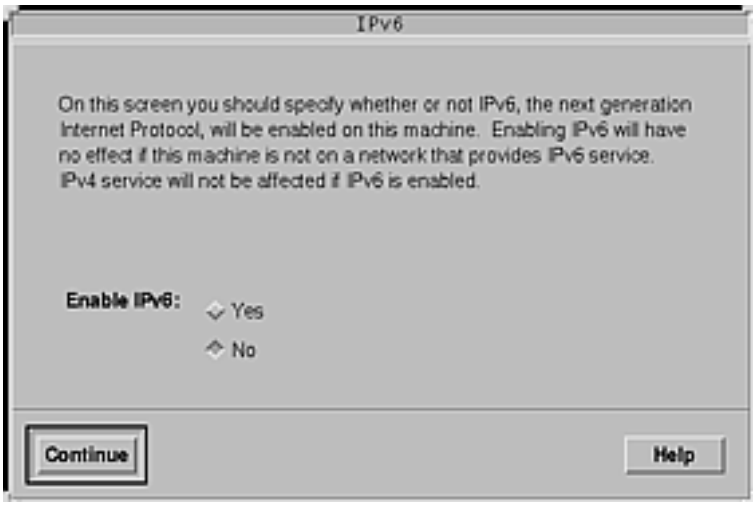
The DHCP dialog box is displayed:



7. Do you want to use DHCP for the network interface configuration?

- If no, select No, click Continue, and go to Step 9 on page 70.
- If yes, select Yes and click Continue.

The IPv6 dialog box is displayed:



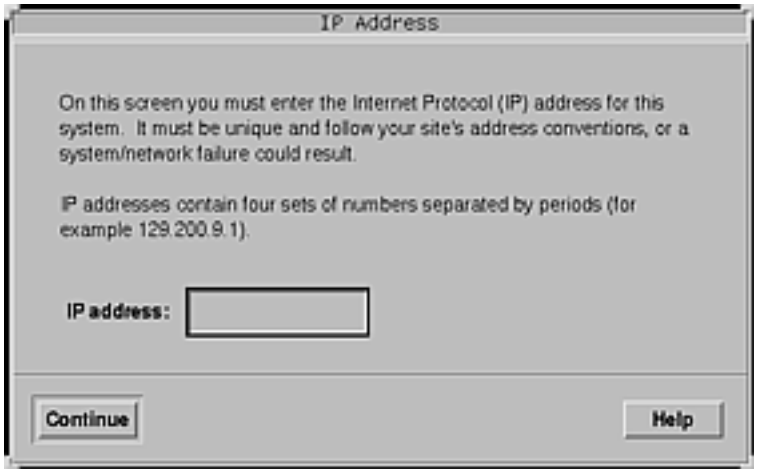
8. Do you want to enable IPv6?

- If no, select No, click Continue, and go to Step 12 on page 70.

- If yes, select Yes, click Continue, and go to Step 12 on page 70.

9. On the Host Name dialog box, type the host name you want and click Continue.

If your system is networked (that is, you selected Yes on the Network Connectivity dialog box in Step 6 on page 68), the IP Address dialog box is displayed:



If your system is not networked, the Confirm Information dialog box is displayed.

10. Is your system networked?

- If no, go to Step 19 on page 74.
- If yes, did you specify that you want DHCP used for the network interface configuration (that is, did you select Yes on the DHCP dialog box in Step 7 on page 69)?

  - If yes, go to Step 12 on page 70.
  - If no, on the IP Address dialog box, type the IP address of your networked system and click Continue.

The IPv6 dialog box is displayed.

11. Do you want to enable IPv6?

- If yes, select Yes and click Continue.
- If no, select No and click Continue.

The Confirm Information dialog box is displayed.

12. Is the information shown on the Confirm Information dialog box correct?

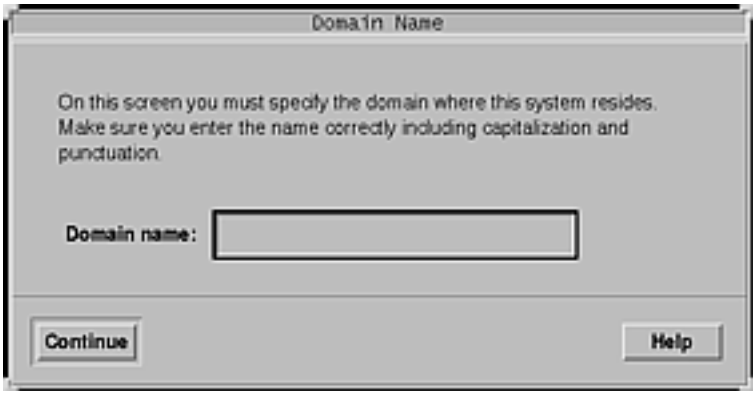
- If no, click Change and repeat the preceding steps starting from Step 6 on page 68 until the information is correct.

- If yes, click Continue.

The Name Service dialog box is displayed:

13. On the Name Service dialog box, select the name service the system will use or None, and click Continue.

If you selected NIS, NIS+, or DNS, the Domain Name dialog box is displayed:

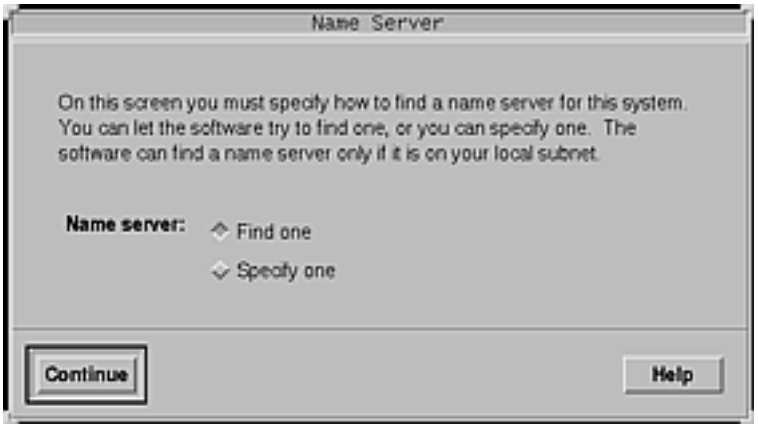


If you selected None, the Confirm Information dialog box is displayed.

14. Did you select None in Step 13 on page 71?

- If yes, go to Step 19 on page 74.
- If no, on the Domain Name dialog box, type the name of the domain in which the system is located and click Continue.

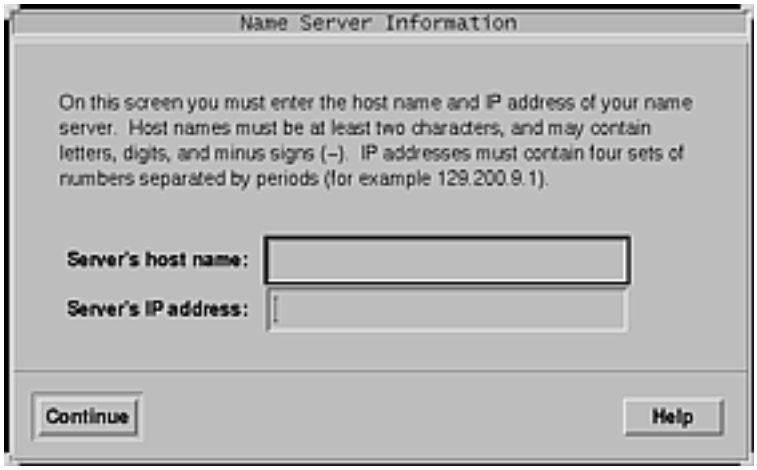
If you selected NIS+ or NIS, the Name Server dialog box is displayed:



If you selected DNS, the DNS Server Addresses dialog box is displayed:

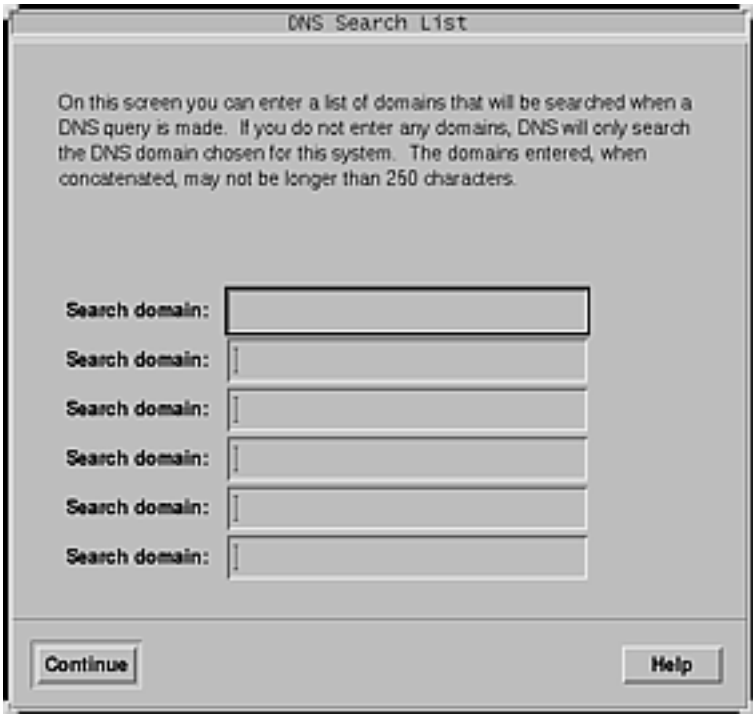
15. Are you using NIS+/NIS or DNS?

- If NIS+ or NIS, select “Find one” or “Specify one” and click Continue.
  - If you selected “Find one,” the Confirm Information dialog box is displayed.
  - If you selected “Specify one,” the Name Server Information dialog box is displayed:



- If DNS, type the IP address of the DNS server or servers you want and click Continue.

  The DNS Search List dialog box is displayed:

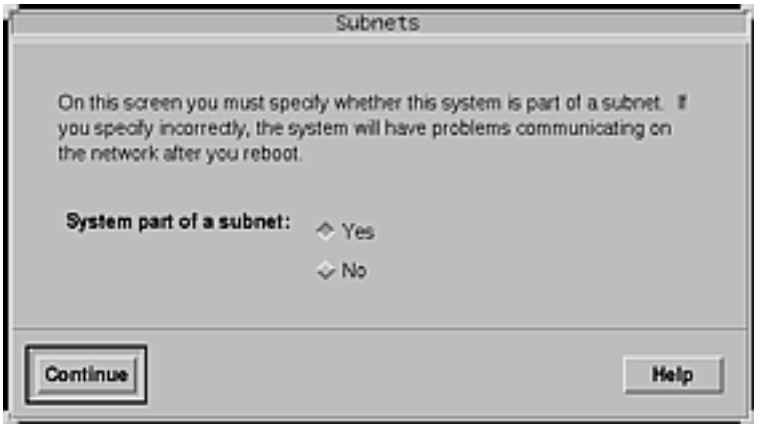


16. Are you using NIS+/NIS or DNS?

- If NIS+ or NIS, did you select “Specify one” or “Find one” in the previous step?

- If “Find one,” go to Step 19 on page 74.
- If “Specify one,” type the server’s host name and IP address, and click Continue.

The Subnets dialog box is displayed:

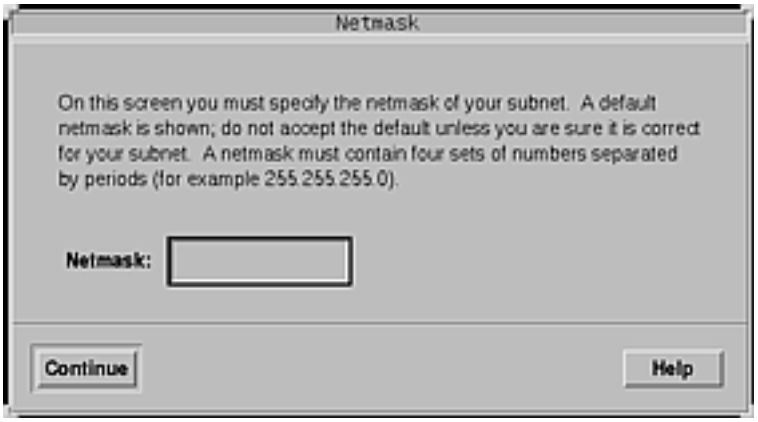


- If DNS, type the name of the domain or domains you want searched when a DNS query is made, if any, click Continue, and go to Step 19 on page 74.

17. Is the name server you specified part of a subnet?

- If yes, select Yes and click Continue.

  The Netmask dialog box is displayed:



- If no, click Continue and go to Step 19 on page 74.

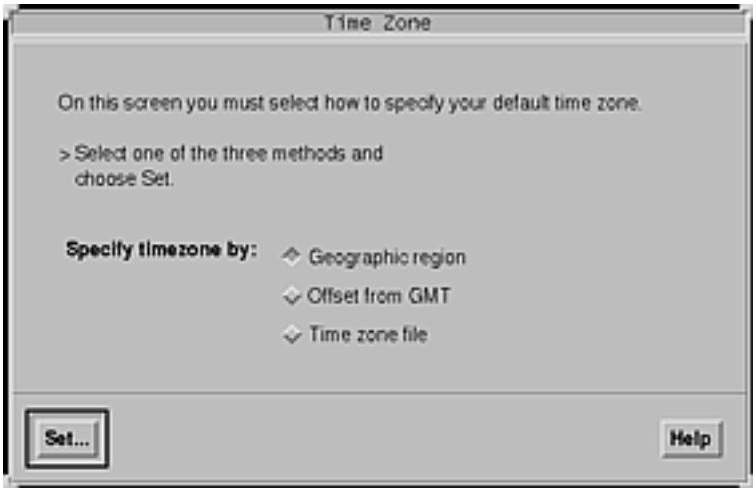
18. Type the netmask you want and click Continue.

The Confirm Information dialog box is displayed.

19. Is the information shown on the Confirm Information dialog box correct?

- If no, is the system networked?
  - If no, click Change and repeat the preceding steps starting from Step 6 on page 68 until the information is correct.
  - If yes, click Change and repeat the preceding steps starting from Step 13 on page 71 until the information is correct.
- If yes, click Continue.

The Time Zone dialog box is displayed:



20. On the Time Zone dialog box, select how you want to set your default time zone and click Set.

The Geographic Region, Offset From GMT, or Time Zone File dialog box is displayed, depending on the method you chose.

21. Use this decision table to determine what to do next:

If you chose	Then
Geographic Region	Select the region you want in the left window and the time zone in the right, and click Continue.
Offset From GMT	Drag the slider toward the left (for west of Greenwich, England) or right (for east of Greenwich, England), and click Continue.
Time Zone File	Specify the name of a file in `/usr/share/lib/zoneinfo`, or click Select to choose a file in this directory, and click Continue.

The Date and Time dialog box is displayed.

22. If necessary, correct the date and time and click Continue.

The Confirm Information dialog box is displayed.

23. Is the information shown on the Confirm Information dialog box correct?

- If no, click Change and repeat the steps starting from Step 20 on page 75 until the information is correct.
- If yes, click Continue.

If the Solaris operating environment is *not* installed on the system, this version of the Solaris Interactive Installation dialog box is displayed:

If the Solaris operating environment is already installed on the system, this version of the Solaris Interactive Installation dialog box is displayed (if not, see Chapter 12):

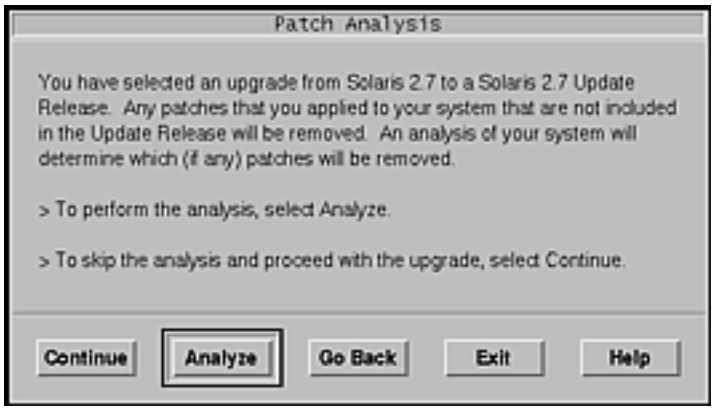
▼ SPARC: To Install the Solaris 8 Software

1. **On the Solaris Interactive Installation dialog box, click Initial, Continue, or Upgrade.**

   If you selected Initial, additional information is displayed on the Solaris Interactive Installation dialog box:

If you selected Continue or you selected Upgrade and you are *not* installing a Solaris 8 Update, the Select Geographic Regions dialog box is displayed:

If you selected Upgrade and you *are* installing a Solaris 8 Update, the Patch Analysis dialog box is displayed:



2. In the previous step, did you select Initial, Continue, or Upgrade?

- If Initial, click Continue and go to Step 9 on page 81.
- If Continue, go to Step 9 on page 81.

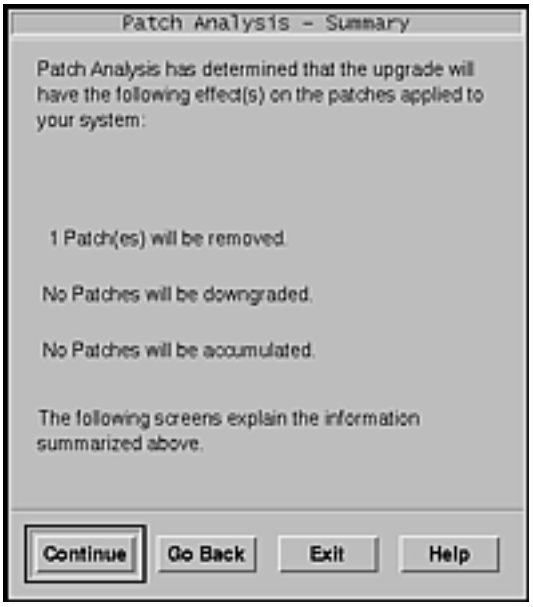
- If Upgrade, go to the next step.

3. Are you installing a Solaris 8 Update?

- If no, go to Step 9 on page 81.
- If yes, do you want to perform a patch analysis?

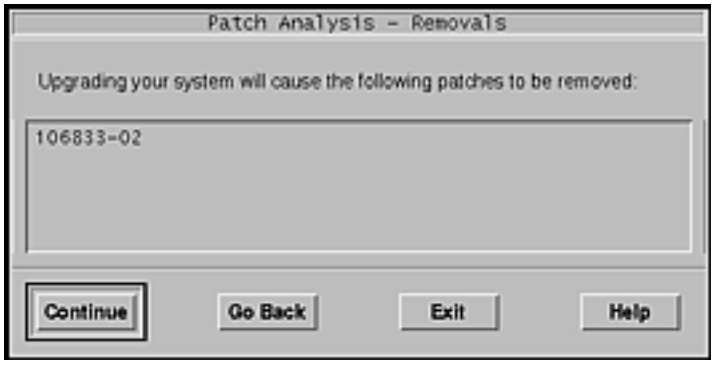
  - If no, click Continue and go to Step 9 on page 81.
  - If yes, click Analyze.

    The Solaris 8 Interactive Installation Program analyzes your system to determine which patches (if any) will be removed. When it is finished, the Patch Analysis – Summary dialog box is displayed:



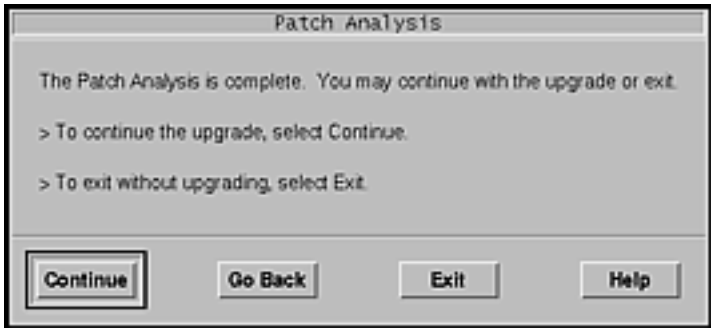
4. Click Continue.

The Patch Analysis – Removals dialog box is displayed:



5. **Click Continue until you're finished listing all the patches that will be downgraded, accumulated, or obsoleted.**

   When you're finished, the Patch Analysis dialog box is displayed with new information:



6. **Do you want to continue the upgrade or exit either to manage the patches currently on your system or to apply patches *only* (and consequently stop the upgrade)?**

   - If continue, click Continue and go to Step 9 on page 81.
   - If exit, click Exit.

     A warning dialog box that states you can restart the Solaris 8 Interactive Installation Program from the console window is displayed.

7. **On the Warning dialog box, click Exit.**

8. **Do you want to manage the patches currently on your system or apply updated patches *only* (and consequently stop the upgrade)?**

   - If manage patches currently on your system, do what you need to do with the patches, and when you're finished, select Restart Install on the Install Workspace menu and resume or restart the installation.

- If apply updated patches *only*, use the Solaris 8 Maintenance Update to apply the Maintenance Update patches to your system.

Note - The Solaris 8 Maintenance Update is located on the Solaris 8 Maintenance Update CD, which is included with the Solaris 8 Update release. Instructions for applying patches are provided in the Maintenance Update Release Notes.

---

9. On the Select Geographic Region dialog box, select the geographic region or regions you want to use in the Solaris 8 user interface and click Continue.

Note - English (United States, en_US) is installed by default.

The Select Software dialog box is displayed:

10. Select the software group you want to install.

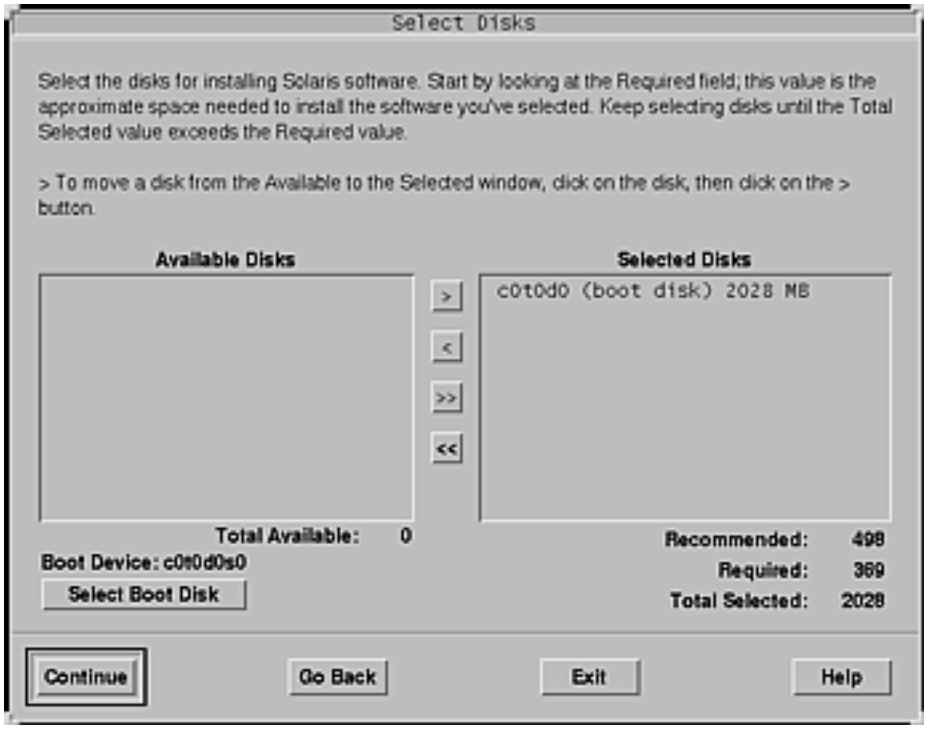
11. Do you want to modify the composition of the software group you selected in the previous step by adding or removing software clusters or packages?

- If no, go to the next step.

- If yes, click Customize and use the Customize Software dialog box to add or remove the software clusters or packages you want.

12. Click Continue.

The Select Disks dialog box is displayed:

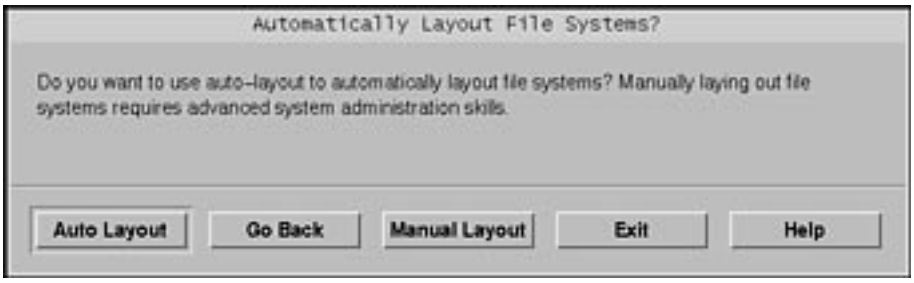


13. If the disk you want isn't already shown in the Selected Disks window, highlight the disk you want in the Available Disks window and click the > button.

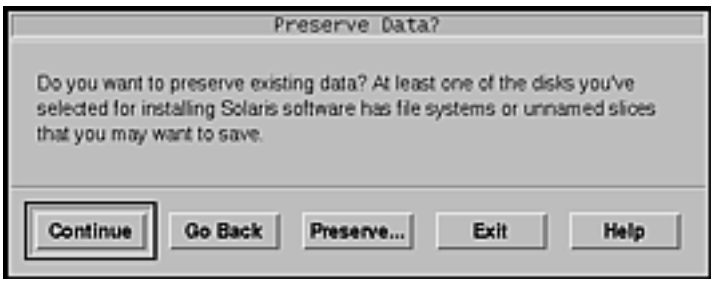
The disk you highlighted is moved to the Selected Disks window.

14. Click Continue.

If the disk does not contain data, the Automatically Layout File Systems? dialog box is displayed:



If the disk you selected already contains data, the Preserve Data? dialog box is displayed:



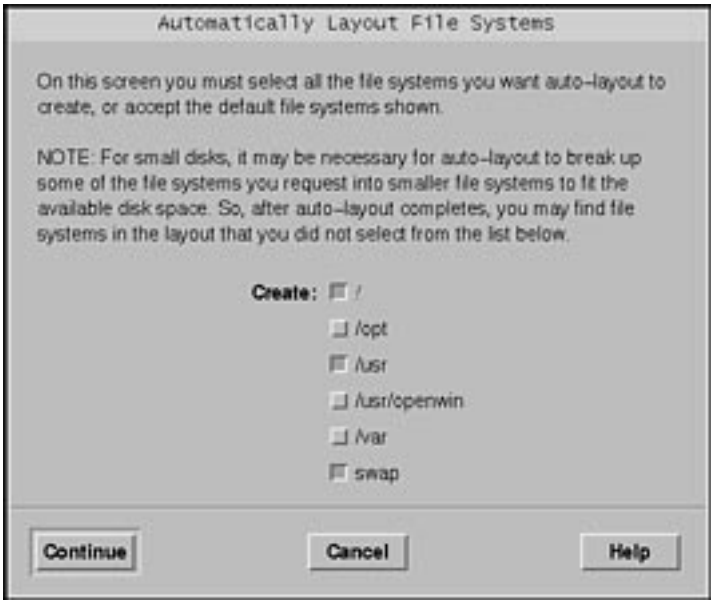
15. Is the Preserve Data? dialog box displayed?

- If no, go to the next step.
- If yes, do you want to preserve the data in the disk?
  - If no, go to the next step.
  - If yes, click Preserve and follow the directions on the dialog boxes that follow.

16. Do you want the Solaris 8 Interactive Installation Program to lay out file systems for you automatically?

- If yes, click Auto Layout.

  The Automatically Layout File Systems dialog box is displayed:



- If no, click Manual Layout.

  The File System and Disk Layout dialog box is displayed:

17. Did you select Auto Layout or Manual Layout?

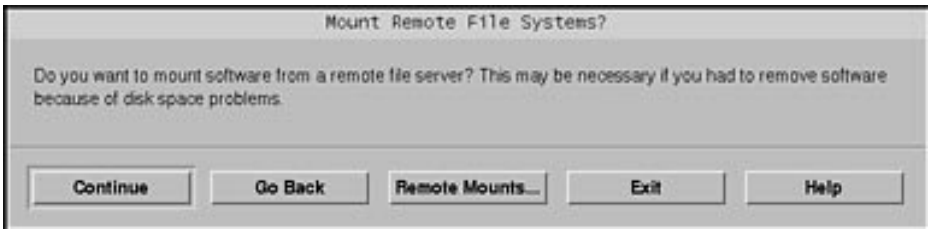
- If Manual Layout, go to the next step.
- If Auto Layout, select the file systems you want to create, if any, and click Continue.

The File System and Disk Layout dialog box is displayed.

18. Do you want to customize the file system and disk layout?

- If yes, click Customize and follow the directions on the dialog boxes that follow.
- If no, click Continue.

The Mount Remote File System dialog box is displayed:



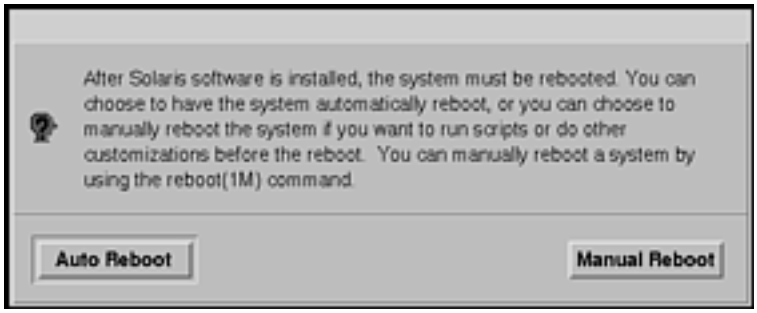
19. Do you want to mount software from a remote file server?

- If yes, click Remote Mounts and follow the directions on the dialog boxes that follow.
- If no, click Continue.

The Profile dialog box is displayed:

20. Click Begin Installation.

A dialog box with two buttons on it is displayed: Auto Reboot and Manual Reboot:



21. Click Auto Reboot or Manual Reboot.

The Installing Solaris Software – Progress dialog box is displayed:

When the Solaris 8 Interactive Installation Program is finished installing the Solaris software, the system reboots automatically or prompts you to reboot manually.

After installation is finished, a log of how the Solaris 8 software was installed on the system is saved in a file.

TABLE 5–5 SPARC: Installation Log Locations

If the system was installed using the	The location of the log file is
Initial installation option	■ Before the system reboots: `/a/var/sadm/system/logs/install_log` ■ After the system reboots: `/var/sadm/system/logs/install_log`
Upgrade option	■ Before the system reboots: `/a/var/sadm/system/logs/upgrade_log` ■ After the system reboots: `/var/sadm/system/logs/upgrade_log`

▼ SPARC: To Add a Software Package With pkgadd

1. **Do you want to add individual software packages to the Solaris 8 software you already installed?**
   - If no, stop, you're done.
   - If yes, go to the next step.
2. **Log in to the system on which you installed the Solaris software and become superuser.**
3. **Insert the CD that contains the packages you want to add into the system's CD-ROM drive.**
   Solaris Volume Manager automatically mounts the CD.
4. **Use the** pkgadd **(1M) command to add the package or packages you want:**

```
# /usr/sbin/pkgadd -d device_name pkgid
```

where *device_name* is the path to the CD that contains the software you want to add to the installed system and *pkgid* is the name of the software package you want to add to the installed system (SUNWaudio, for example).

5. **Verify that the package was installed correctly:**

```
# /usr/sbin/pkgchk -v pkgid
```

If the package was installed correctly, a list of installed files is displayed. If not, an error message is displayed.

SPARC: Example

This example shows how to add and check the installation of the SUNWaudio package:

```
# /usr/sbin/pkgadd -d /cdrom/sol_8_sparc/Solaris_8/Product SUNWaudio.
.
.
Installation of <SUNWaudio> was successful.
# pkgchk -v SUNWaudio
/usr
/usr/bin
/usr/bin/audioconvert
/usr/bin/audioplay
/usr/bin/audiorecord
#
```

▼ SPARC: To Clean Up After Upgrading

After you finish upgrading a system, you might need to clean it up. When you upgrade, the Solaris 8 Interactive Installation Program merges local software modifications of the existing system with the new Solaris software; however, in some cases, merging is not possible.

1. **See the contents of the following file to determine whether you need to fix local modifications that the Solaris 8 Interactive Installation Program could not preserve:**

   /a/var/sadm/system/data/upgrade_cleanup

Caution - Check all the contents of `upgrade_cleanup` carefully. Your system might not boot if you don't fix the unpreserved local modifications.

2. **If necessary, fix any unpreserved local modifications.**

3. **Reboot the system**:

```
# reboot
```

Note - If you've upgraded a heterogeneous operating system server, clients of that server are automatically upgraded only if their platform (SPARC or IA) and platform group (for example, sun4m or i86pc) are supported by the Solaris 8 Software 1 of 2 and Solaris 8 Software 2 of 2 CDs.

For example, if you upgrade a SPARC platform server using the CDs labeled Solaris 8 Software 1 of 2 SPARC Platform Edition and Solaris 8 Software 2 of 2 SPARC Platform Edition, only SPARC clients that share the platform group on the CDs are upgraded as well.

To upgrade clients of different platforms and platform groups, you must use the `server_upgrade`(1M) command.

IA: Upgrading a System

If you intend to use the Solaris 8 Interactive Installation Program to upgrade Solaris software on an Intel 32–bit processor architecture (IA) based system, follow the directions in this section. If you intend to install Solaris software only, go to "IA: Using the Solaris 8 Interactive Installation Program" on page 92.

▼ IA: To Get Started

1. **Check the documentation**:
   - Check the *Solaris 8 (Intel Platform Edition) Release Notes* and vendor release notes to ensure that the software you use is still supported in the new release.
   - Check the *Solaris 8 (Intel Platform Edition) Hardware Compatibility List* to make sure your hardware is still supported.

- See the documentation that came with your system to make sure your system and devices are still supported by the new release.
- Check for all the available patches you might need. The most recent patch list is provided at `http://sunsolve.sun.com`.
- Check Table 5–6 for known problems. This list is not complete. Always check vendor and third-party software documentation for additional upgrade instructions.

TABLE 5–6 IA: Software That Requires Changes Before Upgrading

Software	Problem Summary
Prestoserve	If you start the upgrade process by shutting down the system using `init 0`, you can lose data. See the Prestoserve documentation for shutdown instructions.

2. Determine the language you want to use to upgrade Solaris. You can select:

- English
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Swedish
- Simplified Chinese
- Traditional Chinese

3. Make sure you have *at least* the following CDs:

- Solaris 8 Software 1 of 2 Intel Platform Edition *and* Solaris 8 Software 2 of 2 Intel Platform Edition

- Solaris 8 Languages Intel Platform Edition

▼ IA: To Plan for Upgrading

1. **If you intend to upgrade through the network and you have not preconfigured your system configuration information, gather the following information about the system on which you intend to upgrade the Solaris operating environment.**

Information	Example	To find the information (with Solaris installed), use
Host name	`crater`	**`uname -n`**
Host IP address	`129.221.2.1`	**`ypmatch`** *system_name* **`hosts`** or **`nismatch`** *system_name* **`hosts.org_dir`**
Subnet mask	`255.255.255.0`	**`more /etc/netmasks`**

Type of name service (DNS, NIS, or NIS+)	`passwd: files nis`
	`group: files nis`
	
	`hosts: xfn nis [NOTFOUND=return] files`
	`networks: nis [NOTFOUND=return] files`
	`protocols: nis [NOTFOUND=return] files`
	`rpc: nis [NOTFOUND=return] files`
	`ethers: nis [NOTFOUND=return] files`
	`netmasks: nis [NOTFOUND=return] files`
	`bootparams: nis [NOTFOUND=return] files`
	`publickey: nis [NOTFOUND=return] files`
	
	`netgroup: nis`
	
	`automount: files nis`
	`aliases: files nis`
	
	`services: files nis`
	`sendmailvars: files`
		`cat /etc/nsswitch.conf`

Domain name	`lbloom.West.Arp.COM`	**`domainname`**

Information	Example	To find the information (with Solaris installed), use
Host name of name server	`thor75`	**`ypwhich`**
Host IP address of name server	`129.153.75.20`	**`ypmatch`** *nameserver_name* **`hosts`** or **`nismatch`** *nameserver_name* **`hosts.org_dir`**

IA: Using the Solaris 8 Interactive Installation Program

▼ IA: To Get Started

1. **Check Table 5–7 to make sure the system on which you intend to install Solaris 8 is prepared for an interactive installation.**

TABLE 5–7 IA: Task Map: Setting Up a System for an Interactive Installation

Task	Description	For instructions, go to
Determine if you need to preserve an existing operating system and user data	If the system has an existing operating system that uses the entire disk, you must preserve the existing operating system so it can coexist with the Solaris 8 software.	"Preserving Existing Operating Systems and User Data" in *Solaris 8 (Intel Platform Edition) Installation Guide*
Check if the system is supported	Check the hardware documentation to see if the system is supported in Solaris 8.	*Solaris 8 (Intel Platform Edition) Hardware Compatibility List*

TABLE 5–7 IA: Task Map: Setting Up a System for an Interactive Installation *(continued)*

Task	Description	For instructions, go to
Decide how to upgrade the system if a previous version of Solaris is installed on it	If the system has a previous release of Solaris installed, you need to determine how to upgrade the system. Make sure you know what to do before and after you upgrade a system.	"IA: Upgrading a System" on page 89 in this chapter
Check if the system has enough disk space for the Solaris 8 software	*Optional.* There are many considerations when planning disk space, such as deciding which software group you want to install.	Chapter 2
Preconfigure system configuration information	*Optional.* You can use the `sysidcfg` file or the name service to preconfigure installation information (for example, `locale`) for a system so you won't be prompted to supply the information during the installation.	Chapter 4
Set up the system to install over the network	**For network installations only** To install a system from a remote Solaris 8 Software Intel Platform Edition CD image, you need to set up the system to boot and install from an install or boot server.	Chapter 9

2. **If the system is part of a network, make sure an Ethernet connector or similar network adapter is plugged into your system.**

3. **Are you using the Linux operating system?**
   - If no, go to the next step.
   - If yes, the Solaris `fdisk` partition and the Linux `swap` partition use the same identifier (0x83); to resolve this problem, you can:

- Choose not to use a swap partition at all (provided you have enough memory)
- Put the Linux `swap` partition on another drive
- Back up the Linux data you want to keep onto storage media, install the Solaris operating environment, and *then* re-install Linux

Caution - If you decide to install Linux after the Solaris operating environment, when the Linux installation program asks if you want to format the Linux `swap` partition (actually the Solaris `fdisk` partition) as a `swap` file, reply no.

4. Do you intend to install the Solaris software on the system through a `tip`(1) line?

- If no, go to the next step.
- If yes, make sure your window display is at least 80 columns wide and 24 rows long.

Note - To determine the current dimensions of your `tip` window, use the `stty`(1) command.

5. Do you intend to use the system's CD-ROM drive to install the Solaris 8 software on the system?

- If no, go to Step 8 on page 95.
- If yes, go to the next step.

6. Is your system capable of booting from a CD?

- If yes, ensure that the capability is turned on by using your system's BIOS setup tool.
- If no, insert the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition into the system's diskette drive.

IA platform only - You can download the Solaris 8 Device Configuration Assistant from the Solaris Driver Connection at `http://soldc.sun.com/support/drivers`.

IA platform only - The BIOS on most IA motherboards manufactured since late 1997 supports the “El Torito” standard and thus recognizes CD-ROM drives as boot devices.

7. **Insert the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition into the system’s CD-ROM drive.**

8. **Boot the system by shutting it down and then turning it off and on.**

   A memory test and hardware detection are executed. The screen refreshes.

   - If you’re using the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition, the message:

     ```
     Solaris Boot Sector                              Version 1
     ```

     is displayed at the top of your screen. Then, information similar to this is displayed:

     ```
     Solaris for x86 - FCS DCB                     Version 1.242




                           loading /solaris/boot.bin
     ```

     The screen refreshes and information similar to this is displayed:

     ```
     SunOS Secondary Boot version 3.00

                 Solaris Intel Platform Edition Booting System

     Running Configuration Assistant...
     ```

   - If you’re using only the CDs labeled Solaris 8 Software 1 of 2 Intel Platform Edition and Solaris 8 Software 2 of 2 Intel Platform Edition, the message:

     ```
     SunOS - Intel Platform Edition   Primary Boot Subsystem, vsn 2.0
     ```

     is displayed at the top of the screen. Then, information similar to this is displayed:

```
SunOS Secondary Boot version 3.00

            Solaris Intel Platform Edition Booting System

Running Configuration Assistant...
```

9. When the Solaris Device Configuration Assistant screen is displayed, press F2_Continue.

The Bus Enumeration screen is displayed with the message:

```
Determining bus types and gathering hardware configuration data ...
```

The Scanning Devices screen is displayed. System devices are scanned. When scanning is complete, the Identified Devices screen is displayed.

10. Press F2_Continue.

The Loading screen is displayed with messages about drivers that are loaded to boot your system. After a few seconds, the Boot Solaris screen is displayed.

11. On the Boot Solaris screen, select CD and press F2_Continue.

The Running Driver screen is displayed briefly, followed by information similar to this:

```
                        <<< Current Boot Parameters >>>
Boot path: /pci@0,0/pci-ide@7,1/ata@1/sd@0,0:a
Boot args: kernel/unix



Select the type of installation you want to perform:

        1 Solaris Interactive
        2 Custom JumpStart

Enter the number of your choice followed by the <ENTER> key.

If you enter anything else, or if you wait for 30 seconds,
an interactive installation will be started.

Select type of installation:
```

12. Type 1 and press Enter, or wait 30 seconds.

Information similar to this is displayed:

```
<<< starting interactive installation >>>

Booting kernel/unix...
SunOS Release 5.8 Version Generic 32-bit
Copyright 1983-2000 Sun Microsystems, Inc.  All rights reserved.
Configuring /dev and /devices
Using RPC Bootparams for network configuration information.
Stand by...
```

After a few seconds, a menu of languages is displayed.

13. Type the number that corresponds to the language in which to display prompts, messages, and other installation information.

A menu of locales is displayed.

14. Type the number that corresponds to the locale you want to use for the installation.

After a few seconds, the Solaris Installation Program screen is displayed.

15. Press F2_Continue.

The kdmconfig – Introduction screen is displayed.

16. Press F2_Continue.

The kdmconfig - View and Edit Window System Configuration screen is displayed.

17. Examine the configuration information on the kdmconfig - View and Edit Window System Configuration screen and make any changes you need.

18. When you're done, select No changes needed - Test/Save and Exit, and press F2_Continue.

The kdmconfig Window System Configuration Test screen is displayed.

19. Press F2_Continue.

The screen refreshes and the kdmconfig Window System Configuration Test palette and pattern screen is displayed.

20. Try to move the pointer and examine the colors shown on the palette to ensure that they're displayed accurately.

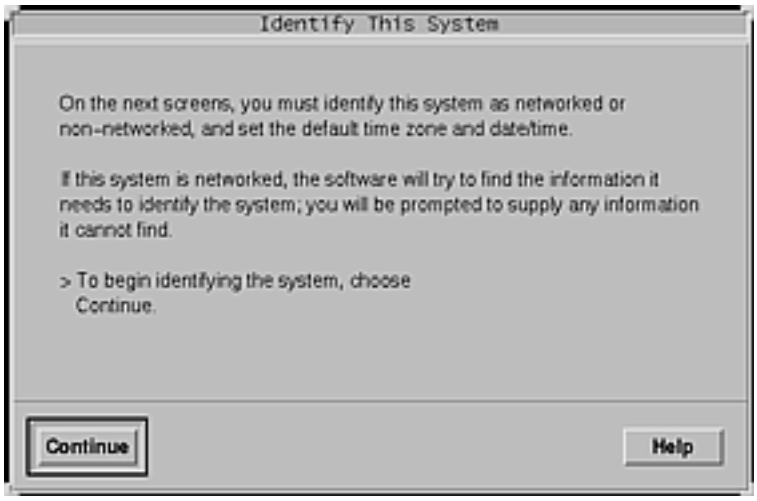
21. Can you move the pointer and are the colors displayed accurately?

- If no, either click No (if possible), press any key on the keyboard, or wait until `kdmconfig` exits the kdmconfig Window System Configuration Test screen automatically, and then repeat Step 17 on page 97 through Step 21 on page 97 until the colors are displayed accurately and you can move the pointer as expected.
- If yes, click Yes.

OpenWindows starts. An empty desktop and the Solaris Install Console window are displayed with the message:

```
The system is coming up.  Please wait.
```

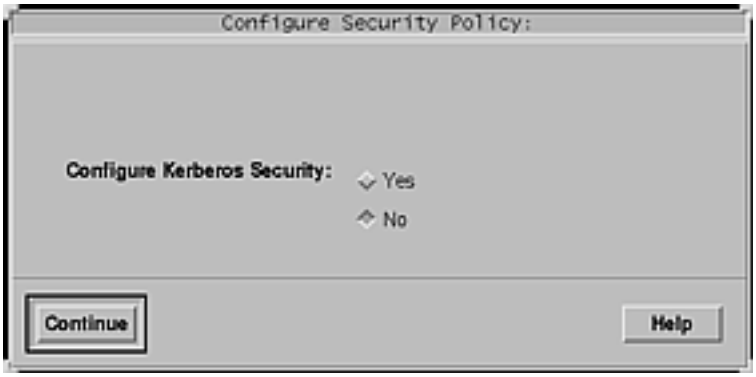
After a few seconds, the Identify This System dialog box is displayed:



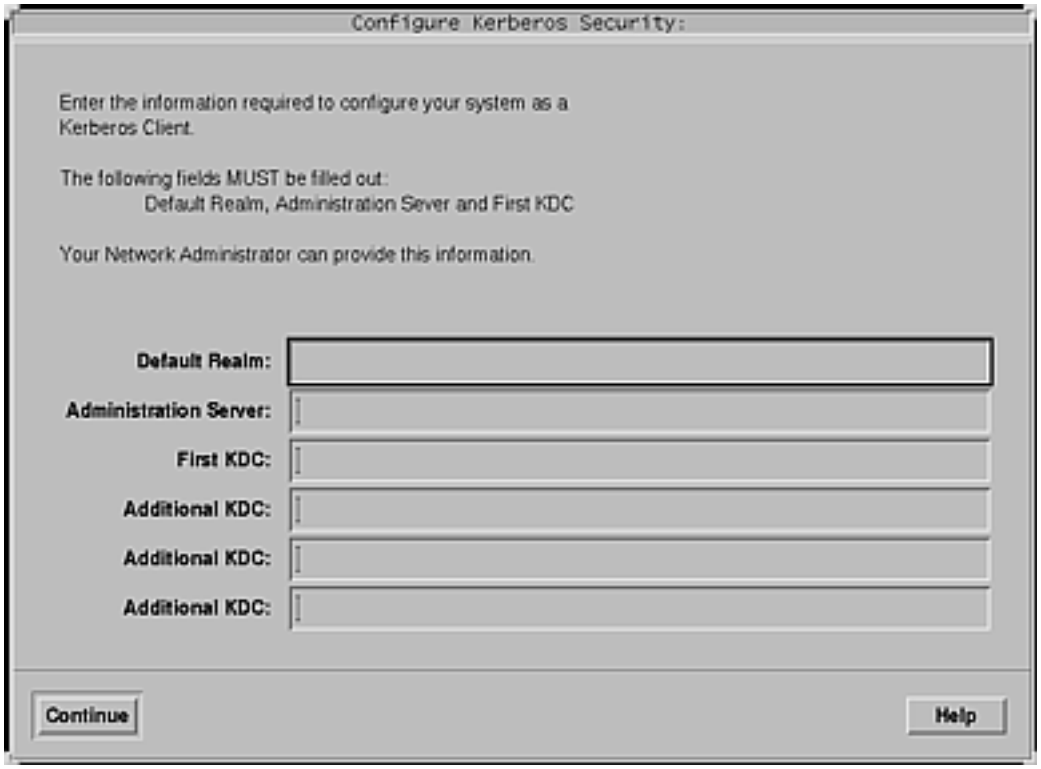
▼ IA: To Identify the System

1. **On the Identify This System dialog box, click Continue.**

   The Configure Security Policy dialog box is displayed:



2. **Do you want to configure Kerberos security for the system?**
   - If yes, select Yes and click Continue.
     The Configure Kerberos Security dialog box is displayed:



   - If no, select No and click Continue.

The Confirm Information dialog box is displayed.

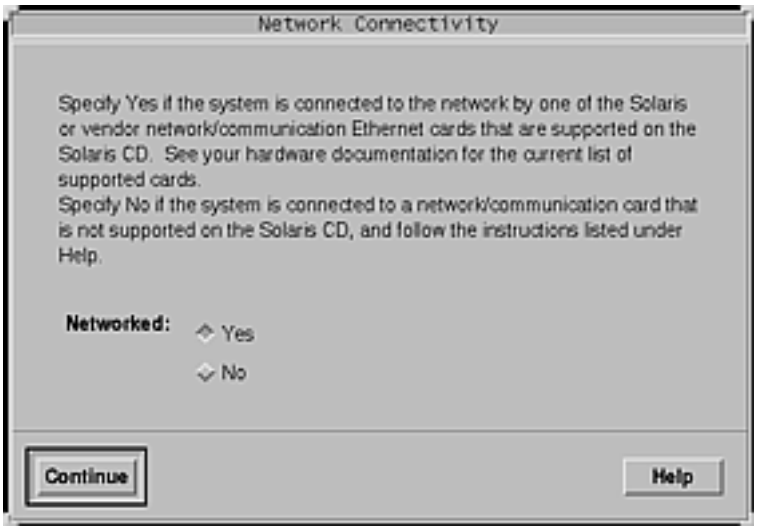
3. **Did you choose to configure Kerberos security in the preceding step?**

   - If no, go to the next step.
   - If yes, fill in the Configure Kerberos Security dialog box and click Continue.

     The Confirm Information dialog box is displayed.

4. **On the Confirm Information dialog box, click Continue.**

   - If your system is already networked or you have preconfigured the system configuration (as described in Chapter 4) and the Solaris 8 Interactive Installation Program is able to identify your system completely, the Solaris Interactive Installation dialog box is displayed.
   - If your system is not currently networked or it cannot identify your system completely, the Solaris 8 Interactive Installation Program displays the dialog boxes that enable you to provide the information, starting with the Network Connectivity dialog box:



5. **Was the Solaris 8 Interactive Installation Program able to identify your system completely?**

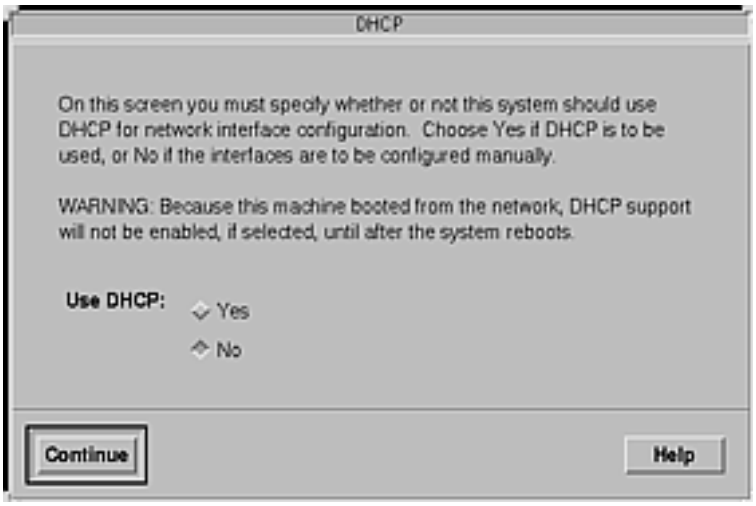
   - If yes, go to Step 1 on page 109.
   - If no, go to the next step.

6. **Is the system networked?**

   - If no, on the Network Connectivity dialog box, select No, click Continue, and go to Step 9 on page 102.

- If yes, select Yes and click Continue.

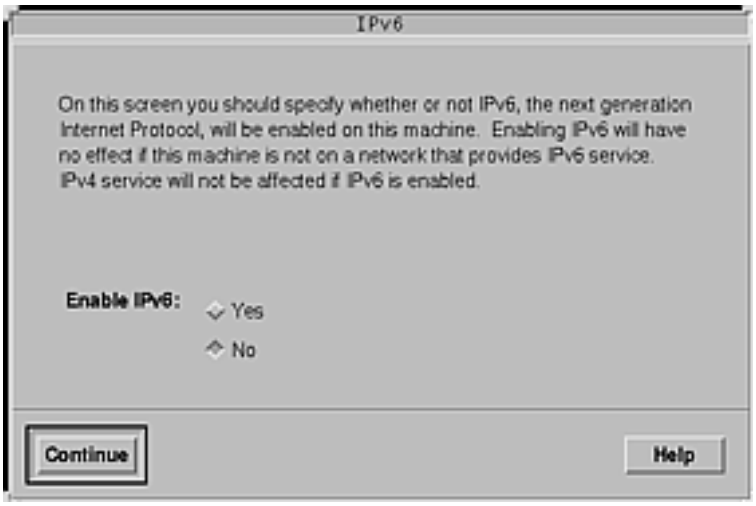
The DHCP dialog box is displayed:



7. Do you want to use DHCP for the network interface configuration?

- If no, select No, click Continue, and go to Step 9 on page 102.
- If yes, select Yes and click Continue.

The IPv6 dialog box is displayed:



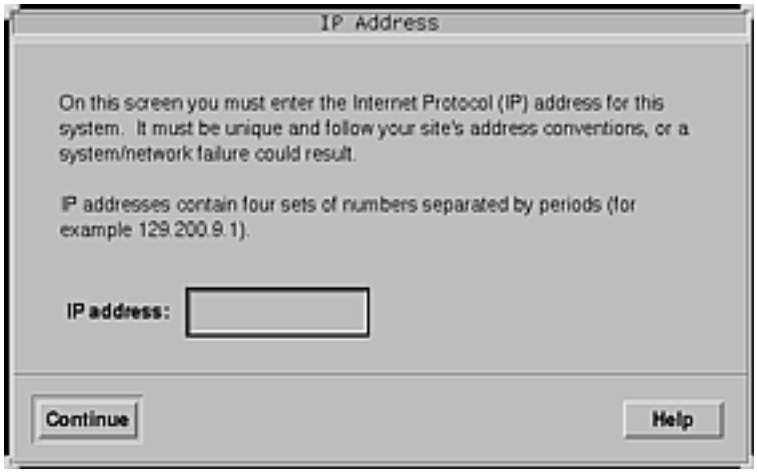
8. Do you want to enable IPv6?

- If no, select No, click Continue, and go to Step 12 on page 102.

- If yes, select Yes, click Continue, and go to Step 12 on page 102.

9. On the Host Name dialog box, type the host name you want and click Continue.

If your system is networked (that is, you selected Yes on the Network Connectivity dialog box in Step 6 on page 100), the IP Address dialog box is displayed:



If your system is not networked, the Confirm Information dialog box is displayed.

10. Is your system networked?

- If no, go to Step 19 on page 106.
- If yes, did you specify that you want DHCP used for the network interface configuration (that is, did you select Yes on the DHCP dialog box in Step 7 on page 101)?

  - If yes, go to Step 12 on page 102.
  - If no, on IP Address dialog box, type the IP address of your networked system and click Continue.

The IPv6 dialog box is displayed.

11. Do you want to enable IPv6?

- If yes, select Yes and click Continue.
- If no, select No and click Continue.

The Confirm Information dialog box is displayed.

12. Is the information shown on the Confirm Information dialog box correct?

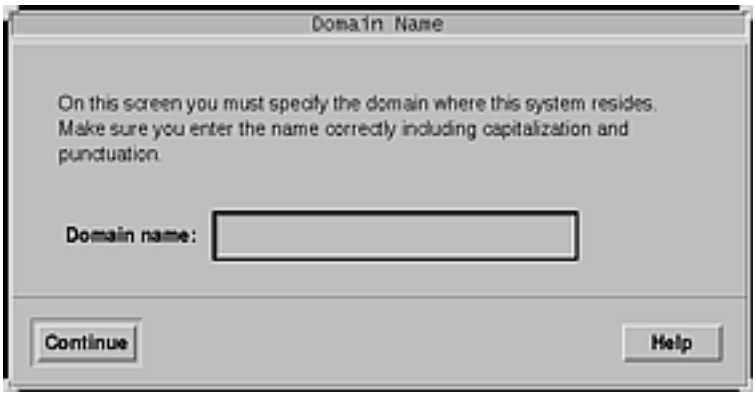
- If no, click Change and repeat the preceding steps starting from Step 6 on page 100 until the information is correct.

- If yes, click Continue.

The Name Service dialog box is displayed:

13. On the Name Service dialog box, select the name service the system will use or None, and click Continue.

If you selected NIS, NIS+, or DNS, the Domain Name dialog box is displayed:

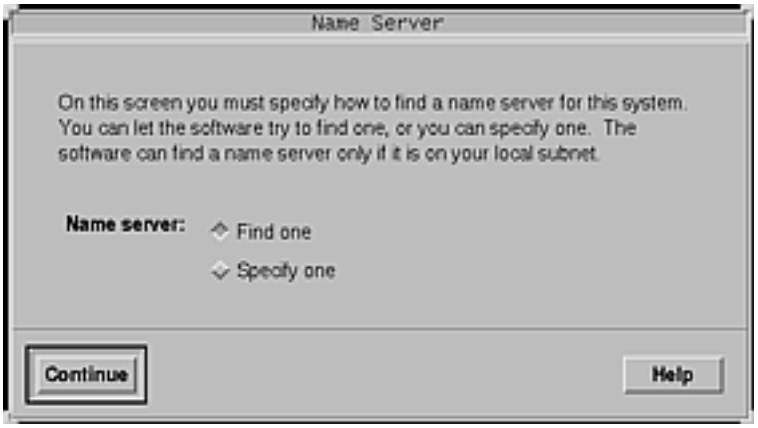


If you selected None, the Confirm Information dialog box is displayed.

14. Did you select None in Step 13 on page 103?

- If yes, go to Step 19 on page 106.
- If no, on the Domain Name dialog box, type the name of the domain in which the system is located and click Continue.

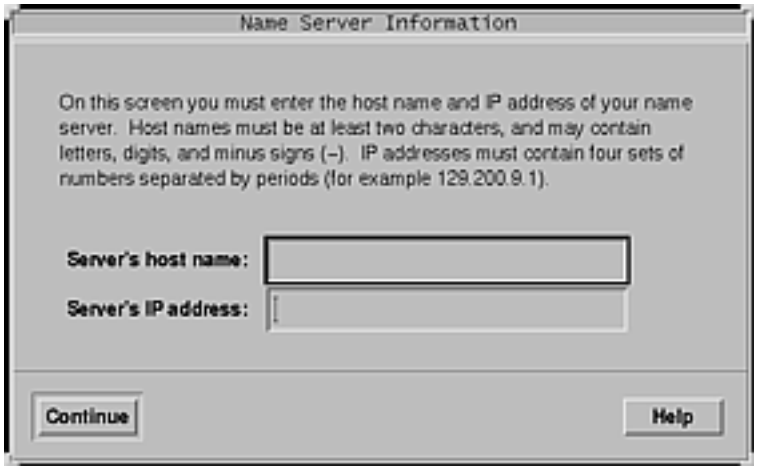
If you selected NIS+ or NIS, the Name Server dialog box is displayed:



If you selected DNS, the DNS Server Addresses dialog box is displayed:

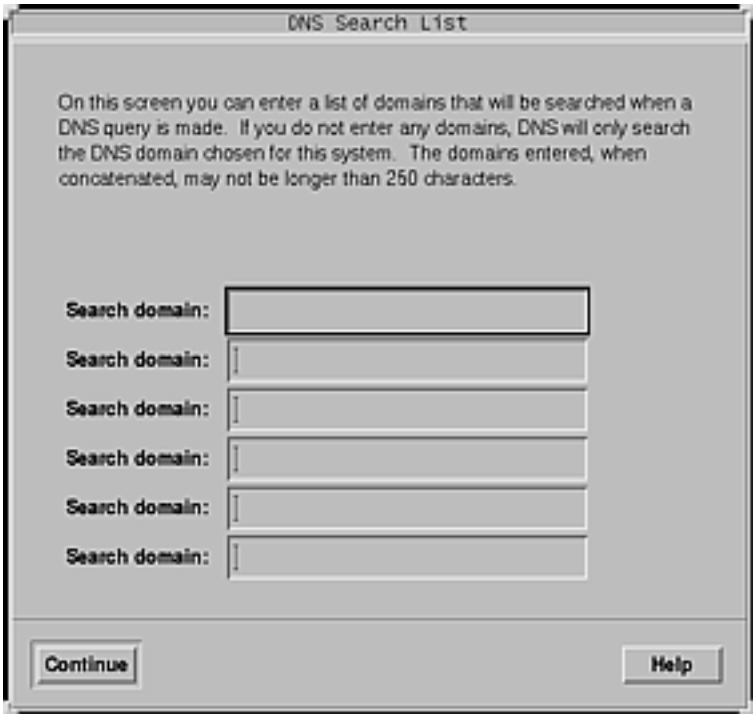
15. Are you using NIS+/NIS or DNS?

- If NIS+ or NIS, select “Find one” or “Specify one” and click Continue.
  - If you selected “Find one,” the Confirm Information dialog box is displayed.
  - If you selected “Specify one,” the Name Server Information dialog box is displayed:



- If DNS, type the IP address of the DNS server or servers you want and click Continue.

  The DNS Search List dialog box is displayed:

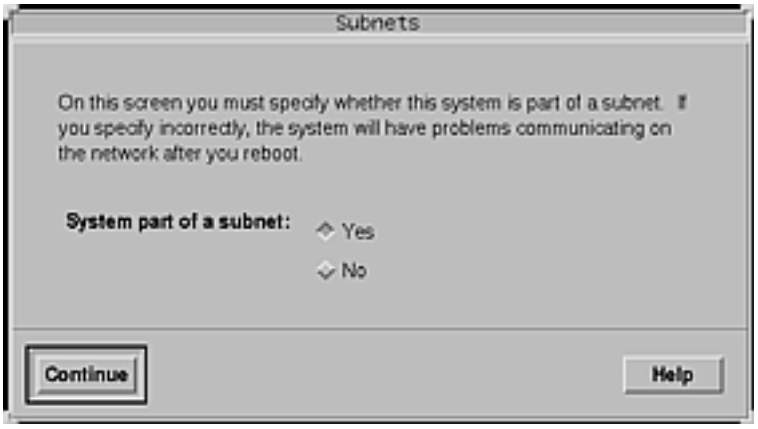


16. Are you using NIS+/NIS or DNS?

- If NIS+ or NIS, did you select “Specify one” or “Find one” in the previous step?

- If “Find one,” go to Step 19 on page 106.
- If “Specify one,” type the server’s host name and IP address, and click Continue.

The Subnets dialog box is displayed:

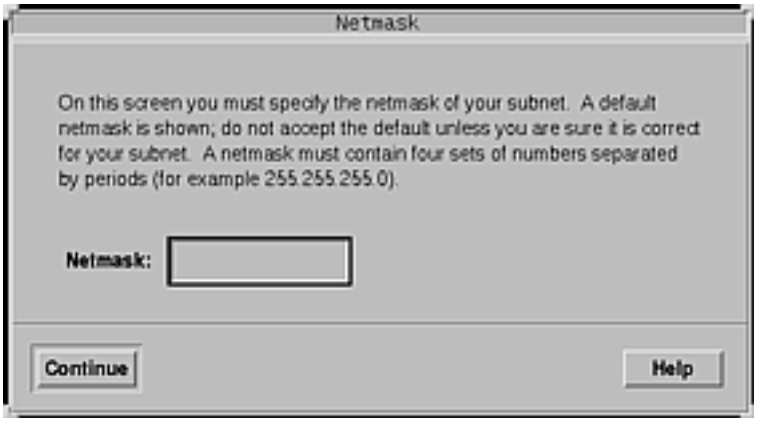


- If DNS, type the name of the domain or domains you want searched when a DNS query is made, if any, click Continue, and go to Step 19 on page 106.

17. Is the name server you specified part of a subnet?

- If yes, select Yes and click Continue.

  The Netmask dialog box is displayed:



- If no, click Continue and go to Step 19 on page 106.

18. Type the netmask you want and click Continue.

The Confirm Information dialog box is displayed.

19. Is the information shown on the Confirm Information dialog box correct?

- If no, is the system networked?
  - If no, click Change and repeat the preceding steps starting from Step 6 on page 100 until the information is correct.
  - If yes, click Change and repeat the preceding steps starting from Step 13 on page 103 until the information is correct.
- If yes, click Continue.

The Time Zone dialog box is displayed.

20. On the Time Zone dialog box, select how you want to set your default time zone and click Set.

The Geographic Region, Offset From GMT, or Time Zone File dialog box is displayed, depending on the method you chose.

21. Use this decision table to determine what to do next:

If you chose	Then
Geographic Region	Select the region you want in the left window and the time zone in the right, and click Continue.
Offset From GMT	Drag the slider toward the left (for west of Greenwich, England) or right (for east of Greenwich, England), and click Continue.
Time Zone File	Specify the name of a file in `/usr/share/lib/zoneinfo`, or click Select to choose a file in this directory, and click Continue.

The Date and Time dialog box is displayed.

22. If necessary, correct the date and time and click Continue.

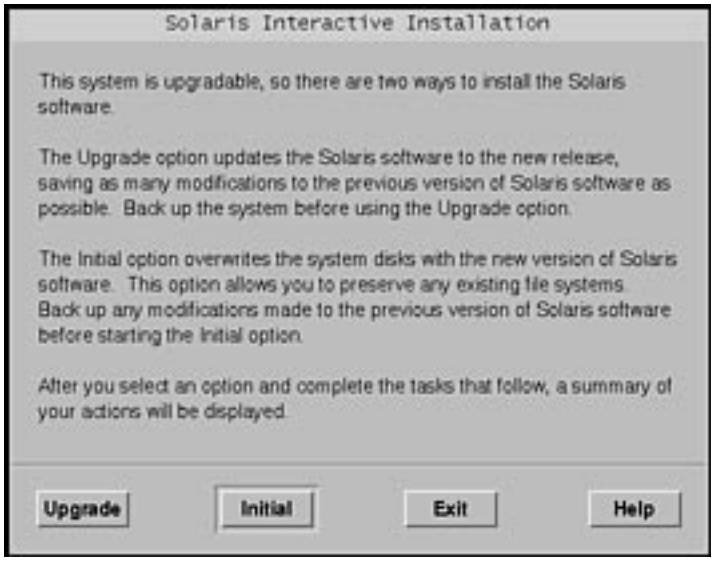
The Confirm Information dialog box is displayed.

23. Is the information shown on the Confirm Information dialog box correct?

- If no, click Change and repeat the steps starting from Step 20 on page 107 until the information is correct.
- If yes, click Continue.

If the Solaris operating environment is *not* installed on the system, this version of the Solaris Interactive Installation dialog box is displayed:

If the Solaris operating environment is already installed on the system, this version of the Solaris Interactive Installation dialog box is displayed (if not, see Chapter 12):



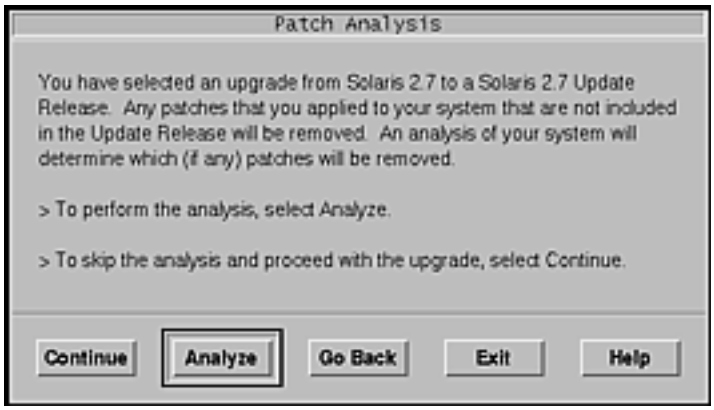
▼ IA: To Install the Solaris 8 Software

1. **On the Solaris Interactive Installation dialog box, click Initial, Continue, or Upgrade.**

   If you selected Initial, additional information is displayed on the Solaris Interactive Installation dialog box:

   If you selected Continue or you selected Upgrade and you are *not* installing a Solaris 8 Update, the Select Geographic Regions dialog box is displayed:

If you selected Upgrade and you *are* installing a Solaris 8 Update, the Patch Analysis dialog box is displayed:



2. In the previous step, did you select Initial, Continue, or Upgrade?

- If Initial, click Continue and go to Step 9 on page 113.
- If Continue, go to Step 9 on page 113.

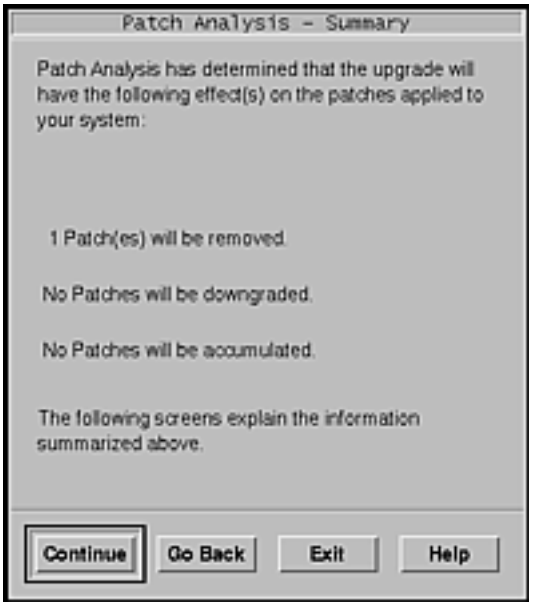
- If Upgrade, go to the next step.

3. Are you installing a Solaris 8 Update?

- If no, go to Step 9 on page 113.
- If yes, do you want to perform a patch analysis?

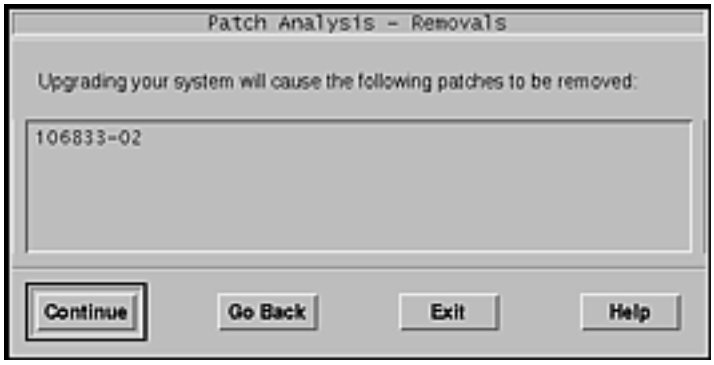
  - If no, click Continue and go to Step 9 on page 113.
  - If yes, click Analyze.

    The Solaris 8 Interactive Installation Program analyzes your system to determine which patches (if any) will be removed. When it is finished, the Patch Analysis – Summary dialog box is displayed:



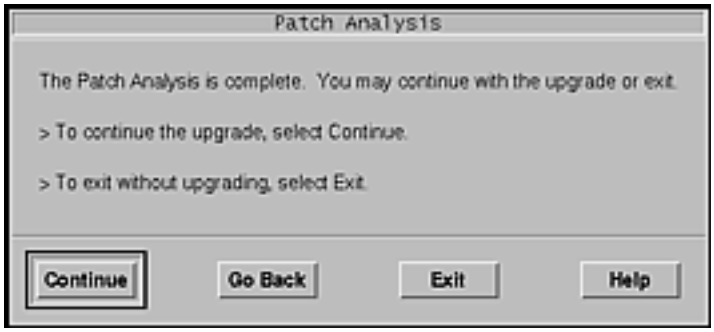
4. Click Continue.

The Patch Analysis – Removals dialog box is displayed:



5. **Click Continue until you're finished listing all the patches that will be downgraded, accumulated, or obsoleted.**

   When you're finished, the Patch Analysis dialog box is displayed with new information:



6. **Do you want to continue the upgrade or exit either to manage the patches currently on your system or to apply patches *only* (and consequently stop the upgrade)?**

   - If continue, click Continue and go to Step 9 on page 113.
   - If exit, click Exit.

     A warning dialog box that states you can restart the Solaris 8 Interactive Installation Program from the console window is displayed.

7. **On the Warning dialog box, click Exit.**

8. **Do you want to manage the patches currently on your system or apply updated patches *only* (and consequently stop the upgrade)?**

   - If manage patches currently on your system, do what you need to do with the patches, and when you're finished, select Restart Install on the Install Workspace menu and resume or restart the installation.

- If apply updated patches *only*, use the Solaris 8 Maintenance Update to apply the Maintenance Update patches to your system.

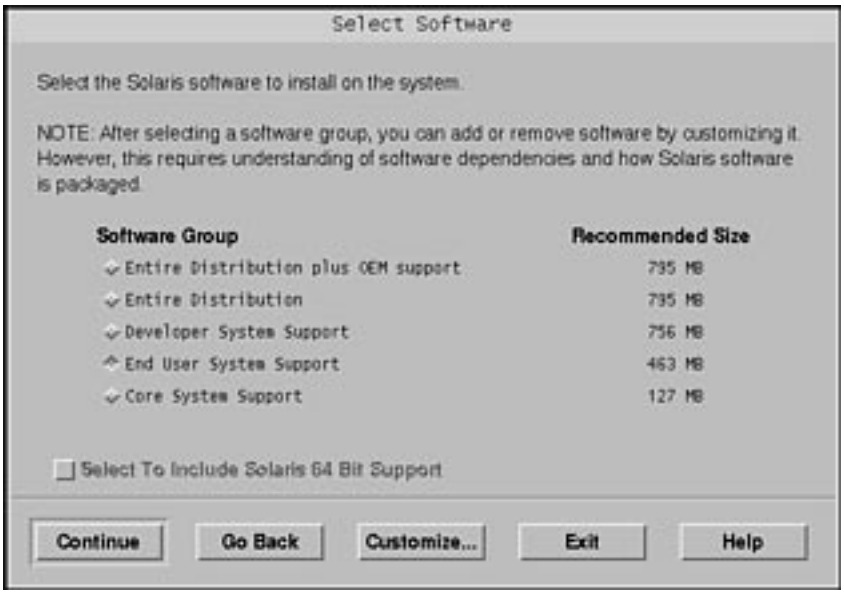
Note - The Solaris 8 Maintenance Update is located on the Solaris 8 Maintenance Update CD, which is included with the Solaris 8 Update release. Instructions for applying patches are provided in the Maintenance Update Release Notes.

---

9. On the Select Geographic Region dialog box, select the geographic region or regions you want to use in the Solaris 8 user interface and click Continue.

Note - English (United States, en_US) is installed by default.

The Select Software dialog box is displayed:



10. Select the software group you want to install.

11. Do you want to modify the composition of the software group you selected in the previous step by adding or removing software clusters or packages?

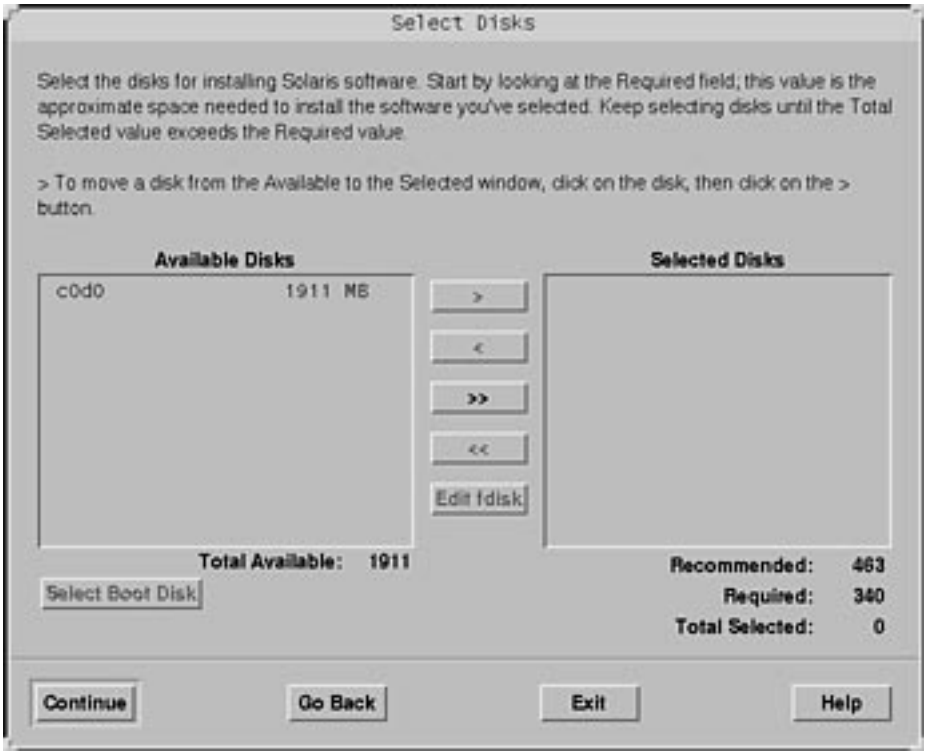
- If no, go to the next step.

- If yes, click Customize and use the Customize Software dialog box to add or remove the software clusters or packages you want.

12. Click Continue.

If a boot partition is found on the system's disk, the Use x86boot partition? dialog box is displayed:

Otherwise, the Select Disks dialog box is displayed:



13. Was a boot partition detected on the disk in the preceding step?

- If no, go to the next step.
- If yes, select the boot disk you want to reuse or "None of the above" and click Continue.

  The Select Disks dialog box is displayed.

14. If the disk you want isn't already shown in the Selected Disks window, highlight the disk you want in the Available Disks window and click the > button.

The disk you highlighted is moved to the Selected Disks window.

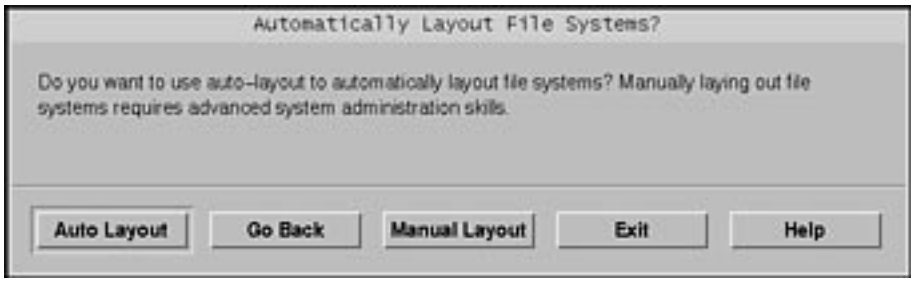
15. Do you want to create an `fdisk` partition on the selected disk in which to install the Solaris software?

- If no, go to the next step.

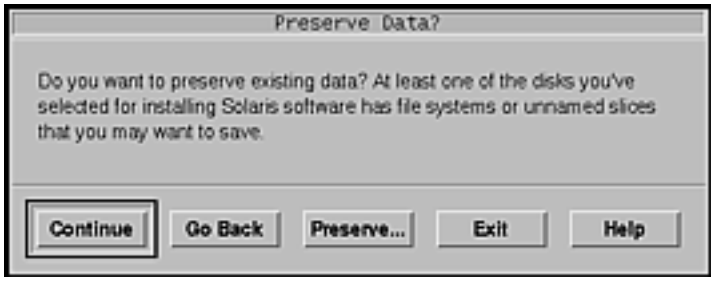
- If yes, follow the steps in "Preserving Existing Operating Systems and User Data" in the *Solaris 8 (Intel Platform Edition) Installation Guide*, and then go to the next step.

16. Click Continue.

If the disk does not contain data, the Automatically Layout File Systems? dialog box is displayed:



If the disk you selected already contains data, the Preserve Data? dialog box is displayed:



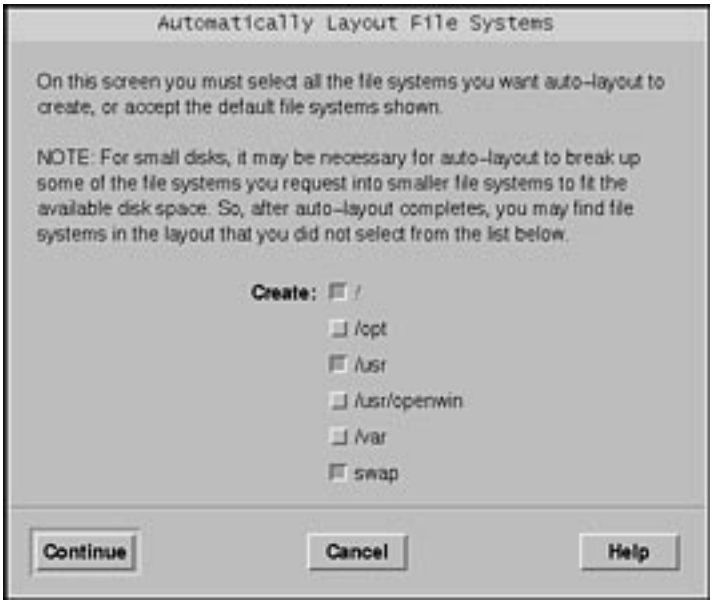
17. Is the Preserve Data? dialog box displayed?

- If no, go to the next step.
- If yes, do you want to preserve the data in the disk?
  - If no, go to the next step.
  - If yes, click Preserve and follow the directions on the dialog boxes that follow.

18. Do you want the Solaris 8 Interactive Installation Program to lay out file systems for you automatically?

- If yes, click Auto Layout.

  The Automatically Layout File Systems dialog box is displayed:



- If no, click Manual Layout.

  The File System and Disk Layout dialog box is displayed:

19. Did you select Auto Layout or Manual Layout?

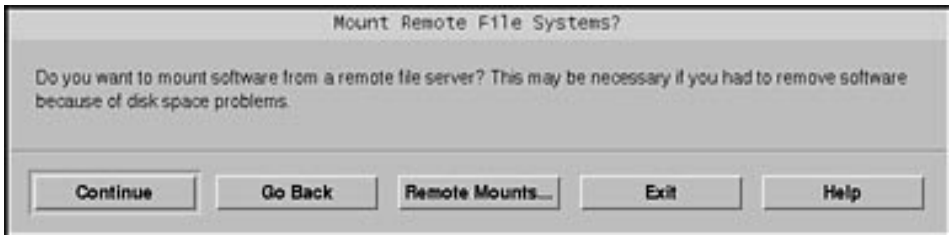
- If Manual Layout, go to the next step.
- If Auto Layout, select the file systems you want to create, if any, and click Continue.

The File System and Disk Layout dialog box is displayed.

20. Do you want to customize the file system and disk layout?

- If yes, click Customize and follow the directions on the dialog boxes that follow.
- If no, click Continue.

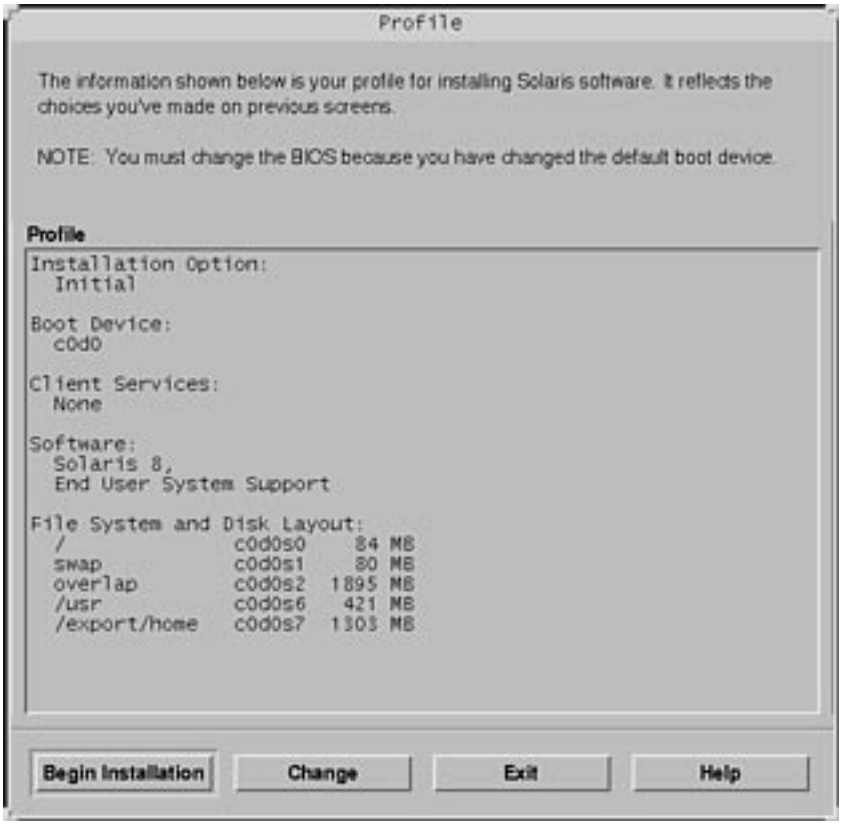
The Mount Remote File System dialog box is displayed:



21. Do you want to mount software from a remote file server?

- If yes, click Remote Mounts and follow the directions on the dialog boxes that follow.
- If no, click Continue.

The Profile dialog box is displayed:

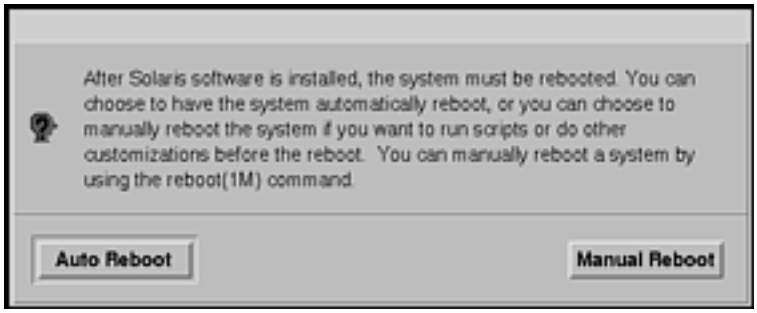


22. Click Begin Installation.

A Warning dialog box is displayed that reminds you to change the default boot device specified in the system's BIOS from the CD-ROM or diskette drive to the hard drive after you install the Solaris software:

23. Click OK.

A dialog box with two buttons on it is displayed: Auto Reboot and Manual Reboot:



24. Click Auto Reboot or Manual Reboot.

An Information dialog box is displayed that reminds you to eject the Solaris 8 Software 1 of 2 Intel Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition CD (if it was required) and/or the diskette that contains the Solaris Device Configuration Assistant:

25. Did you insert the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition into the diskette drive in Step 6 on page 94?

- If no, go to the next step.
- If yes, eject it.

26. Eject the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition from the CD-ROM drive.

27. On the Information dialog box, click OK.

The Installing Solaris Software – Progress dialog box is displayed:

When the Solaris 8 Interactive Installation Program is finished installing the Solaris software, the system reboots automatically or prompts you to reboot manually.

After installation is finished, a log of how the Solaris 8 software was installed on the system is saved in a file.

TABLE 5–8 IA: Installation Log Locations

If the system was installed using the	The location of the log file is
Initial installation option	■ Before the system reboots: `/a/var/sadm/system/logs/install_log` ■ After the system reboots: `/var/sadm/system/logs/install_log`
Upgrade option	■ Before the system reboots: `/a/var/sadm/system/logs/upgrade_log` ■ After the system reboots: `/var/sadm/system/logs/upgrade_log`

28. After the system reboots or after you reboot the system, make sure the active partition is set to the Solaris operating environment.

▼ IA: To Add a Software Package With pkgadd

1. Do you want to add individual packages to the Solaris 8 software you already installed?

- If no, stop, you're done.
- If yes, go to the next step.

2. Log in to the system on which you installed the Solaris software and become superuser.

3. Insert the CD that contains the packages you want to add into the system's CD-ROM drive.

Solaris Volume Manager automatically mounts the CD.

4. Use the `pkgadd`(1M) command to add the package or packages you want:

```
# /usr/sbin/pkgadd -d device_name pkgid
```

where *device_name* is the path to the CD that contains the software you want to add to the installed system and *pkgid* is the name of the software package you want to add to the installed system (SUNWaudio, for example).

5. **Verify that the package was installed correctly:**

```
# /usr/sbin/pkgchk -v pkgid
```

If the package was installed correctly, a list of installed files is displayed. If not, an error message is displayed.

IA: Example

This example shows how to add and check the installation of the SUNWaudio package:

```
# /usr/sbin/pkgadd -d /cdrom/sol_8_ia/s2/Solaris_8/Product SUNWaudio.
.
.
Installation of <SUNWaudio> was successful.
# pkgchk -v SUNWaudio
/usr
/usr/bin
/usr/bin/audioconvert
/usr/bin/audioplay
/usr/bin/audiorecord
#
```

▼ IA: To Clean Up After Upgrading

After you finish upgrading a system, you might need to clean it up. When you upgrade, the Solaris 8 Interactive Installation Program merges local software modifications of the existing system with the new Solaris software; however, in some cases, merging is not possible.

1. **See the contents of the following file to determine whether you need to fix local modifications that the Solaris 8 Interactive Installation Program could not preserve:**

   /a/var/sadm/system/data/upgrade_cleanup

Caution - Check all the contents of `upgrade_cleanup` carefully. Your system might not boot if you don't fix the unpreserved local modifications.

2. If necessary, fix any unpreserved local modifications.

3. Reboot the system:

```
# reboot
```

Note - If you've upgraded a heterogeneous operating system server, clients of that server are automatically upgraded only if their platform (SPARC or IA) and platform group (for example, sun4m or i86pc) are supported by the Solaris 8 Software 1 of 2 and Solaris 8 Software 2 of 2 CDs.

For example, if you upgrade an IA platform server using the CDs labeled Solaris 8 Software 1 of 2 Intel Platform Edition and Solaris 8 Software 2 of 2 Intel Platform Edition, only IA clients that share the platform group on the CDs are upgraded as well.

To upgrade clients of different platforms and platform groups, you must use the `server_upgrade`(1M) command.

CHAPTER 6

Preparing Custom JumpStart Installations

This chapter provides step-by-step instructions about how to prepare the systems at your site from which and on which you intend to install the Solaris 8 software using the custom JumpStart installation method.

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

Custom JumpStart Scenario

Custom JumpStart provides a way to install groups of systems automatically and identically. The first step when preparing custom JumpStart installations is deciding how you want to install Solaris on the systems at your site. The following scenario illustrates how to set up and perform a custom JumpStart installation at a particular site. Suppose, for example:

- You need to install Solaris on 100 new systems.
- Seventy of the systems are SPARC based, owned by your engineering group, and need to be installed as standalone systems with the Solaris operating environment software group for developers.
- The remaining 30 systems are IA (Intel Architecture) based, owned by your marketing group, and need to be installed as standalone systems with the Solaris operating environment software group for end users.

After you decide how you want the systems at your site to be installed, you must create a `rules` file and a profile for each group of systems. The `rules` file is a text file that contains a rule for each group of systems (or single systems) on which you want to install Solaris automatically.

Each rule distinguishes a group of systems based on one or more system attributes, and it links each group to a profile, a text file that defines how the Solaris software is to be installed on each system in the group. Both the `rules` file and profile must be located in a JumpStart directory.

You, as the system administrator at this site, need to create a `rules` file that contains two different rules, one for the engineering group and another for the marketing group. For each rule, you use the platform group for each type of system to distinguish the engineering group from the marketing group: SPARC and IA, respectively.

Each rule also contains a link to an appropriate profile. For example, in the rule for the engineering group, you add a link to the profile, called `eng_profile`, that you created for the engineering group. And, in the rule for the marketing group, you add a link to the profile, called `market_profile`, that you created for the marketing group.

After creating the `rules` file and profile, you must validate them with the `check` script. If the `check` script runs successfully, the `rules.ok` file is created, which is a generated version of the `rules` file that JumpStart uses to install the Solaris software.

What Happens During a Custom JumpStart Installation

JumpStart reads the `rules.ok` file and tries to find the first rule whose defined system attributes match the system on which JumpStart is attempting to install the Solaris software. If a match occurs, JumpStart uses the profile specified in the rule to install Solaris on the system automatically.

Figure 6–1 illustrates how a custom JumpStart installation works on a standalone, non-networked system using a diskette in the system's diskette drive.

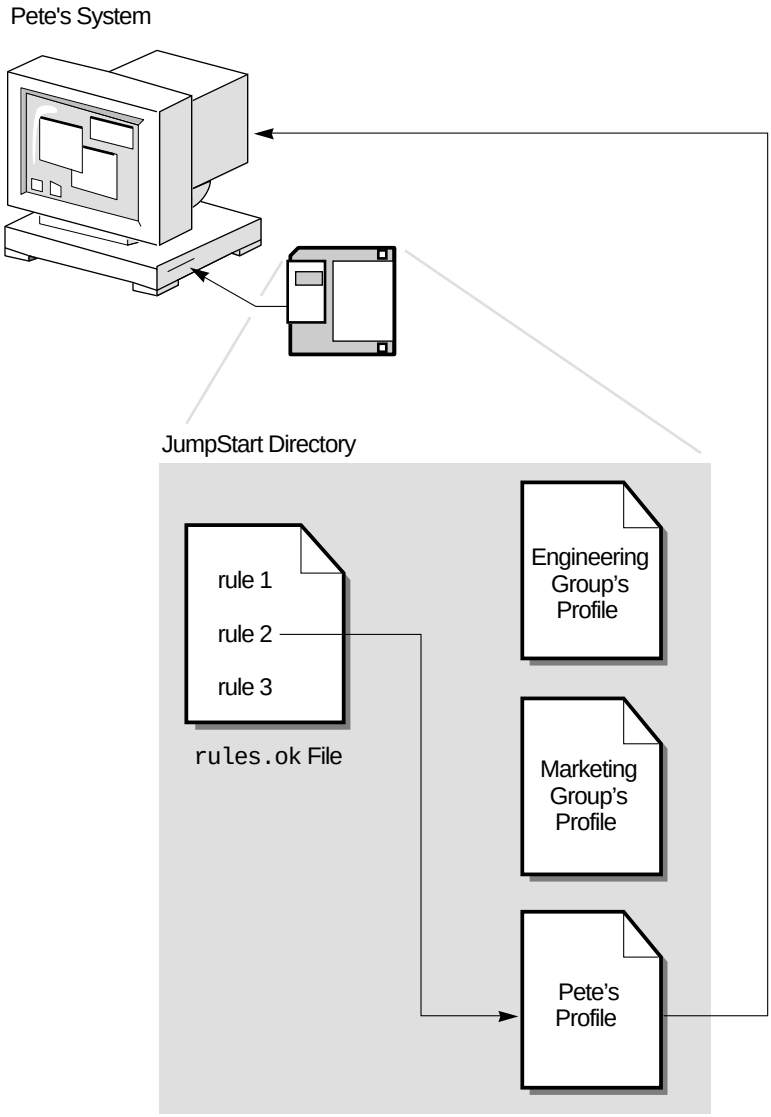


Figure 6–1 How a Custom JumpStart Installation Works: Non-Networked Example

Figure 6–2 illustrates how a custom JumpStart installation works for more than one system on a network in which different profiles are accessed from a single server.

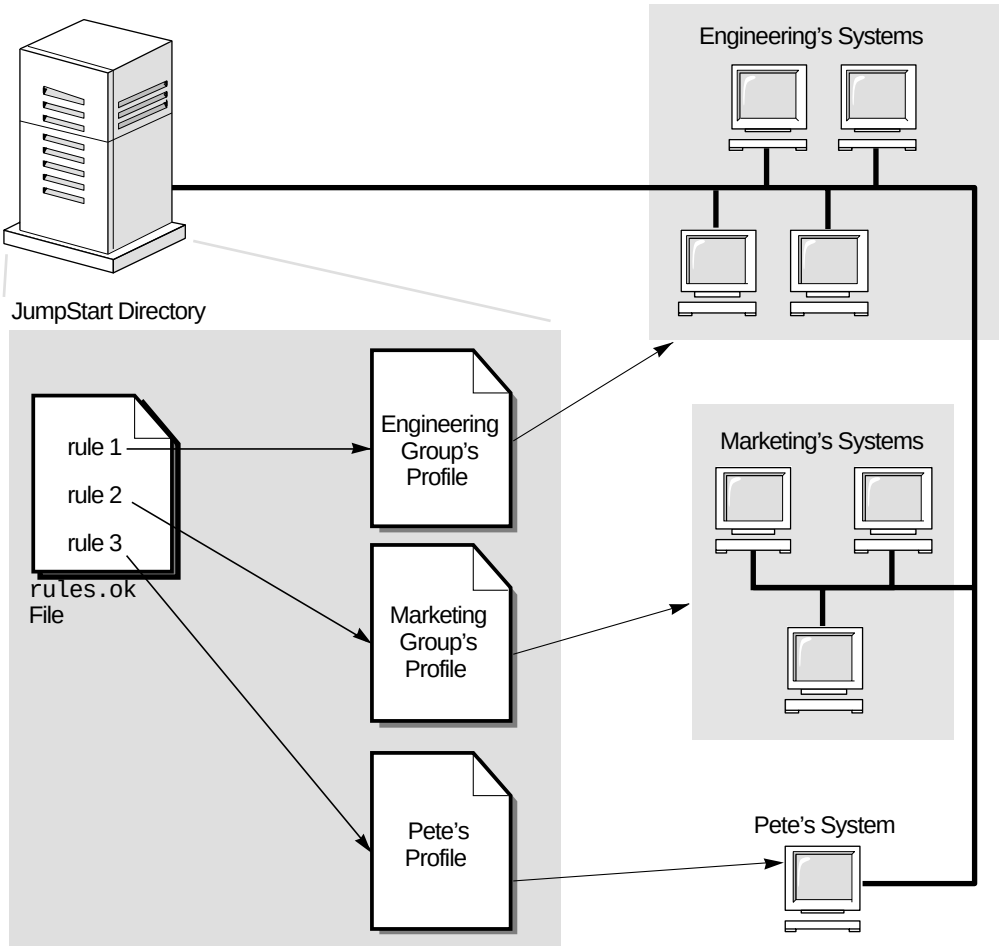


Figure 6–2 How a Custom JumpStart Installation Works: Networked Example

As shown in Figure 6–1 and Figure 6–2, the custom JumpStart files you need to set up can be located on either a diskette or server (called a profile diskette and profile server, respectively).

- A profile diskette is required when you want to perform custom JumpStart installations on non-networked, standalone systems.
- A profile server is used when you want to perform custom JumpStart installations on networked systems that have access to a server.

Figure 6–3 describes what happens on a system during a custom JumpStart installation and shows the order in which JumpStart looks for custom JumpStart files.

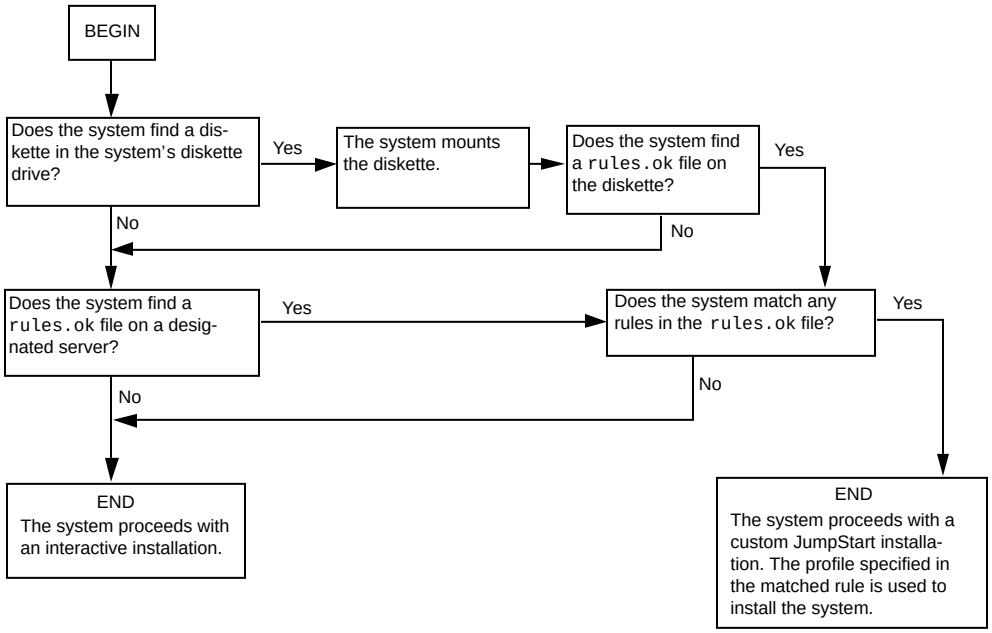


Figure 6–3 What Happens During a Custom JumpStart Installation

Task Map: Preparing Custom JumpStart Installations

TABLE 6–1 Task Map: Preparing Custom JumpStart Installations

Task	Description	For instructions, go to
Create a JumpStart directory	**On a diskette** If you want to perform custom JumpStart installations on systems that are not connected to a network, you must create a profile diskette, which is a diskette that contains the custom JumpStart files.	"Creating a Profile Diskette" on page 136
	On a server If you want to perform custom JumpStart installations on systems connected to a network, you must create a profile server, which is a server that contains a JumpStart directory for the custom JumpStart files.	"Creating a Profile Server" on page 132
Allow all systems access to the profile server	*Optional*. When you use a profile server, you can enable all systems at once to access the profile server. By doing this, you don't have to individually enable every system to access the profiles on the profile server.	"Allowing All Systems Access to the Profile Server" on page 134
Add rules to the `rules` file	After you decide how you want each group of systems (or single systems) at your site to be installed, you have to create a rule for each specific group that you want to install. Each rule distinguishes a group based on one or more system attributes, and it links each group to a profile.	"Creating the `rules` File" on page 141
Create a profile for every rule	A profile is a text file that defines how to install the Solaris software (for example, which software group to install) on a system. Every rule specifies a profile to define how a system is to be installed with Solaris when the rule is matched. You usually create a different profile for every rule; however, the same profile can be used in more than one rule.	"Creating a Profile" on page 149

TABLE 6–1 Task Map: Preparing Custom JumpStart Installations *(continued)*

Task	Description	For instructions, go to
Test the profiles	*Optional*. After you create a profile, use the `pfinstall`(1M) command to test the profile before you actually use it to install or upgrade a system.	"Testing a Profile" on page 174
Validate the `rules` file	The `rules.ok` file is a generated version of the `rules` file that JumpStart uses to match the system to be installed with a profile. You must use the `check` script to validate the `rules` file.	"Validating the `rules` File" on page 179

Creating a Profile Server

When setting up custom JumpStart installations for systems on the network, you need to create a directory on a server (called a JumpStart directory). A JumpStart directory contains all the essential custom JumpStart files (for example, the `rules` file, `rules.ok` file, and profiles) at its root level.

The server that contains a JumpStart directory is called a *profile server*. A profile server can be the same system as an install or boot server, or it can be a completely different server.

Ensure that `root` owns the JumpStart directory and that its permissions are set to 755.

Note - A profile server can provide custom JumpStart files for different platforms. For example, an IA server can provide custom JumpStart files for both SPARC and IA based systems.

▼ To Create a JumpStart Directory on a Server

Note - This procedure assumes that the system is running *Volume Manager*. If you are not using Volume Manager to manage diskettes and CDs, refer to *System Administration Guide, Volume I* for detailed information about managing removable media without Volume Manager.

---

1. **Log in as superuser on the server on which you want to create the JumpStart directory.**

2. **Create the JumpStart directory anywhere on the server:**

```
# mkdir -m 755 jumpstart_dir_path
```

   where *jumpstart_dir_path* is the absolute path of the JumpStart directory.

   For example, the following command creates a directory called `jumpstart` in the root (`/`) directory and sets its permissions to 755:

```
mkdir -m 755 /jumpstart
```

3. **Edit the `/etc/dfs/dfstab` file by adding the following entry:**

```
share -F nfs -o ro,anon=0 jumpstart_dir_path
```

   For example, the following entry shares the `/jumpstart` directory:

```
share -F nfs -o ro,anon=0 /jumpstart
```

4. **Type `shareall` and press Return or Enter.**

5. **Do you want to copy examples of custom JumpStart files to your JumpStart directory?**
   - If no, stop; you are done creating a JumpStart directory on your profile server.

- If yes, use the decision table below to determine what to do next.

If you want to copy the examples from	Then
The Solaris 8 Software 1 of 2 CD for your platform	Insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition into the server's CD-ROM drive. Volume Manager automatically mounts the CD.
An image of the Solaris 8 Software 1 of 2 CD for your platform on a local disk	Change directory to the location of the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image. For example: `cd /export/install`

6. **Copy the example custom JumpStart files into the JumpStart directory on the profile server:**

```
# cp -r media_path/Solaris_8/Misc/jumpstart_sample/* jumpstart_dir_path
```

where *media_path* is the path to the CD or image on the local disk and *jumpstart_dir_path* is the path on the profile server where you want to place the example custom JumpStart files.

For example, the following command copies the `jumpstart_sample` directory into the `/jumpstart` directory on the profile server:

```
cp -r /cdrom/cdrom0/s2/Solaris_8/Misc/jumpstart_sample/* /jumpstart
```

7. **Update the example JumpStart files so they work in your environment.**

Allowing All Systems Access to the Profile Server

When you create a *profile server*, you must ensure that systems can access it during a custom JumpStart installation. Use one of these ways to ensure access:

- Use a wildcard in the `/etc/bootparams` file.

- Every time you add a system for network installation, use the –c option with the `add_install_client` command.

To save time when adding systems for network installations, use the following procedure to allow all systems access to the profile server. Otherwise, see "Creating the `rules` File" on page 141.

▼ To Allow All Systems Access to the Profile Server

Note - This procedure is not necessary if you intend to use a diskette with the JumpStart directory on it.

This procedure is valid only if you are using the `/etc/bootparams` file to store network installation information. If you are using the NIS or NIS+ `bootparams` database for network installation information, you need to update the `bootparams` database with the entry shown in Step 3 on page 135.

1. **On the install or boot server, log in as superuser.**

2. **Using a text editor of your choice, open `/etc/bootparams`.**

3. **Add this entry**:

```
* install_config=server:jumpstart_dir_path
```

where:

*	Is a wildcard character that specifies that all systems have access.
server	Is the host name of the profile server where the JumpStart directory is located.
jumpstart_dir_path	Is the absolute path of the JumpStart directory.

For example, the following entry allows all systems to access the `/jumpstart` directory on the profile server named `sherlock`:

```
* install_config=sherlock:/jumpstart
```

Caution - Using this procedure might produce the following error message when an install client is booted:

`WARNING: getfile: RPC failed: error 5: (RPC Timed out).`
"Booting a System Over the Network" on page 252 contains details about this error message.

All systems can now access the profile server. You no longer need to use the `–c` option with the `add_install_client` command when adding systems for network installations.

Creating a Profile Diskette

A diskette that contains a JumpStart directory is called a *profile diskette.*

Requirements

You must create a JumpStart directory on a diskette if a system is *not* connected to a network because the system does not have access to a profile server. The system on which you create a profile diskette must have a diskette drive, however.

Essential custom JumpStart files (the `rules` file, `rules.ok` file, and profiles) must be located in the root (`/`) directory on the profile diskette. Ensure that `root` owns the JumpStart directory and that its permissions are set to 755.

▼ SPARC: To Create a Profile Diskette

Note - This procedure assumes that the system is running Volume Manager. If you are not using Volume Manager to manage diskettes and CDs, refer to *System Administration Guide, Volume I* for detailed information about managing removable media without Volume Manager.

1. **Log in as superuser on a SPARC based system to which a diskette drive is attached.**

2. **Insert a blank diskette (or one that can be overwritten) into the diskette drive.**

3. **Mount the diskette:**

```
# volcheck
```

4. **Does the diskette already have a UFS (UNIX file system) on it?**
   - If you don't know, examine the contents of the file `/etc/mnttab` on the system for an entry like this:

```
/vol/dev/diskette0/scrap  /floppy/scrap  ufs  suid,rw,largefiles,dev=1740008  927147040
```

   Did you find an entry?
   - If yes, go to Step 7 on page 137.
   - If no, go to the next step.

Caution - Formatting erases all data on the diskette.

5. **Format the diskette:**

```
# fdformat -U
```

6. **Create a UFS on the diskette:**

```
# newfs /vol/dev/aliases/floppy0
```

7. **Do you want to copy examples of custom JumpStart files to your JumpStart directory?**
   - If no, stop; you are done creating a JumpStart directory on your profile diskette.

- If yes, use the decision table below to determine what to do next.

If you want to copy the examples from	Then
The Solaris 8 Software 1 of 2 SPARC Platform Edition CD	Insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition into the server's CD-ROM drive. Volume Manager automatically mounts the CD.
An image of the Solaris 8 Software 1 of 2 SPARC Platform Edition CD on a local disk	Change directory to the location of the Solaris 8 Software 1 of 2 SPARC Platform Edition CD image. For example: `cd /export/install`

8. Copy the example custom JumpStart files into the JumpStart directory on the profile diskette:

```
# cp -r media_path/Solaris_8/Misc/jumpstart_sample/* jumpstart_dir_path
```

where *media_path* is the path to the CD or image on the local disk and *jumpstart_dir_path* is the path to the profile diskette where you want to place the example custom JumpStart files.

Note - You must place all custom JumpStart installation files in the root (/) directory on the diskette.

For example, the following command copies the contents of `jumpstart_sample` on the Solaris 8 Software 1 of 2 SPARC Platform Edition CD to the root (/) directory on a profile diskette named `scrap`:

```
cp -r /cdrom/sol_8_sparc/Solaris_8/Misc/jumpstart_sample/* /floppy/scrap
```

9. Update the example JumpStart files on the profile diskette so they work in your environment.

10. Eject the diskette:

```
# eject floppy
```

You have completed creating a profile diskette. You can now update the `rules` file and create profiles on the profile diskette to perform custom JumpStart installations. To continue, go to "Creating the `rules` File" on page 141.

▼ IA: To Create a Profile Diskette

Note - This procedure assumes that the system is running Volume Manager. If you are not using Volume Manager to manage diskettes and CDs, refer to *System Administration Guide, Volume I* for detailed information about managing removable media without Volume Manager.

1. **Log in as superuser on an IA based system to which a diskette drive is attached.**

2. **Insert the Solaris 8 Device Configuration Assistant Intel Platform Edition diskette into the diskette drive (usually drive A:). You will use this diskette as the profile diskette.**

3. **Mount the diskette:**

```
# volcheck
```

4. **Copy the image of the Solaris 8 Device Configuration Assistant to the system's hard disk:**

```
# dd if=/vol/dev/aliases/floppy0 of=boot_image
```

   where *boot_image* is the name of the file into which you want to copy the image of the Solaris 8 Device Configuration Assistant. You can specify an absolute path name.

   For example, the following command copies the boot diskette to a file named `boot_save`:

```
dd if=/vol/dev/aliases/floppy0 of=boot_save
```

5. **Eject the diskette by clicking Eject Disk in the File Manager window or by typing `eject floppy` on the command line.**

6. **On the Removable Media Manager dialog box, click OK.**

7. **Manually eject the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition.**

8. **Insert a blank diskette (or one that can be overwritten) into the diskette drive.**

9. **Mount the diskette:**

```
# volcheck
```

Caution - Formatting erases all data on the diskette.

10. Format the diskette:

```
# fdformat -d -U
```

11. Copy the Solaris 8 Device Configuration Assistant image from the system's hard disk to the formatted diskette:

```
# dd if=boot_image of=/vol/dev/aliases/floppy0
```

where *boot_image* is the name of the file where you want to copy the image of the Solaris 8 Device Configuration Assistant. You can specify an absolute path name.

12. Do you want to copy examples of custom JumpStart files to your JumpStart directory?

- If no, stop; you are done creating a JumpStart directory on your profile diskette.
- If yes, use the decision table below to determine what to do next.

If you want to copy the examples from	Then
The Solaris 8 Software 1 of 2 Intel Platform Edition CD	Insert the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition into the server's CD-ROM drive. Volume Manager automatically mounts the CD.
An image of the Solaris 8 Software 1 of 2 Intel Platform Edition CD on a local disk	Change directory to the location of Solaris 8 Software 1 of 2 Intel Platform Edition CD image. For example: `cd /export/install`

13. Copy the example custom JumpStart files into the JumpStart directory on the profile diskette:

```
# cp -r media_path/Solaris_8/Misc/jumpstart_sample/* jumpstart_dir_path
```

where *media_path* is the path to the CD or image on the local disk and *jumpstart_dir_path* is the path to the profile diskette where you want to place the example custom JumpStart files.

Note - You must place all custom JumpStart installation files in the root (/) directory on the profile diskette.

For example, the following command copies the contents of `jumpstart_sample` on the Solaris 8 Software 1 of 2 Intel Platform Edition CD to the root (/) directory on a profile diskette named `scrap`:

```
cp -r /cdrom/sol_8_ia/s2/Solaris_8/Misc/jumpstart_sample/* /floppy/scrap
```

14. **Update the example JumpStart files on the profile diskette so they work in your environment.**

15. **Eject the diskette by clicking Eject Disk in the File Manager window or by typing `eject floppy` on the command line.**

16. **On the Removable Media Manager dialog box, click OK.**

17. **Manually eject the diskette.**

You have completed creating a profile diskette. Now you can update the `rules` file and create profiles on the profile diskette to perform custom JumpStart installations. To continue, go to “Creating the `rules` File” on page 141.

Creating the `rules` File

What Is a `rules` File?

The `rules` file is a text file that contains a rule for each group of systems (on a single system) on which you want to install the Solaris operating environment. Each rule distinguishes a group of systems based on one or more system attributes and links each group to a profile, which is a text file that defines how the Solaris software is to be installed on each system in the group. For example, the rule:

```
karch i86pc - basic_prof -
```

specifies that JumpStart is to automatically install any system with the `i86pc` platform group based on the information in the `basic_prof` profile. The `rules` file is used to create the `rules.ok` file, which is required for custom JumpStart installations.

Note - If you set up the JumpStart directory using the procedures in "Creating a Profile Diskette" on page 136 or "Creating a Profile Server" on page 132, an example `rules` file is already located in the JumpStart directory. The sample `rules` file contains documentation and some example rules. If you use the sample `rules` file, make sure you comment out the example rules you do not intend to use.

Syntax of the `rules` File

The `rules` file must:

- Be assigned the name `rules`
- Contain at least one rule

The `rules` file can contain:

- Commented text

  Any text included after the # symbol on a line is treated by JumpStart as commented text. If a line begins with the # symbol, the entire line is treated as a comment.

- One or more blank lines
- One or more multi-line rules

  To continue a single rule onto a new line, include a backslash character (\) just before pressing Return or Enter.

Syntax of a Rule

A rule must contain at least a:

- Keyword, a value, and a corresponding profile
- Minus sign (-) in the *begin* and *finish* fields *if there is no entry*

A rule within a `rules` file must adhere to the following syntax:

```
[!]rule_keyword rule_value [&& [!]rule_keyword rule_value] ... begin profile finish
```

TABLE 6–2 Syntax Elements of a Rule

Element	Description
!	Is a symbol used before a keyword to indicate negation.
rule_keyword	Is a predefined lexical unit or word that describes a general system attribute, such as host name (`hostname`) or memory size (`memsize`). It is used with the rule value to match a system with the same attribute to a profile. See Table 6–3 for the list of rule keywords.
rule_value	Is a value that provides the specific system attribute for the corresponding rule keyword. Rule values are described in Table 6–3.
&&	Is a symbol you must use to join rule keyword and rule value pairs together in the same rule (a logical AND). During a custom JumpStart installation, a system must match every pair in the rule before the rule matches.
begin	Is the name of an optional Bourne shell script that can be executed before the installation begins. If no begin script exists, you *must* enter a minus sign (-) in this field. All begin scripts must be located in the JumpStart directory. Information about how to create begin scripts is presented in “Creating Begin Scripts” on page 183.
profile	Is the name of a text file that defines how the Solaris software is to be installed on the system when a system matches the rule. The information in a profile consists of profile keywords and their corresponding profile values. All profiles must be located in the JumpStart directory. **Note -** Optional ways to use the profile field are described in “Using a Site-Specific Installation Program” on page 196 and “Creating Derived Profiles With a Begin Script” on page 184.
finish	Is the name of an optional Bourne shell script that can be executed after the installation completes. If no finish script exists, you must enter a minus sign (-) in this field. All finish scripts must be located in the JumpStart directory. Information about how to create finish scripts is presented in “Creating Finish Scripts” on page 185.

Rule Keywords and Values

Table 6–3 describes the keywords and values that you can use in the `rules` file.

TABLE 6–3 Descriptions of Rule Keywords and Values

Keyword	Value	Matches
`any`	minus sign (`-`)	Anything (this keyword always succeeds).
`arch`	*processor_type* Valid values for *processor_type* are: ■ SPARC: `sparc` ■ IA: `i386`	A system's processor type. The `uname -p` command reports the system's processor type.

`disksize`	*actual_disk_name size_range*
	actual_disk_name - A disk name in the form `c`*x*`t`*y*`d`*z*, such as `c0t3d0` or `c0d0`, or the special word `rootdisk`. If `rootdisk` is used, the disk to be matched is determined in the following order:
	■ SPARC: The disk that contains the preinstalled boot image (a new SPARC based system with factory JumpStart installed)
	■ The `c0t3d0s0` disk, if it exists
	■ The first available disk (searched in kernel probe order)
	size_range - The size of the disk, which must be specified as a range of Mbytes (*x*-*x*).
		The name and size of a system's disk (in Mbytes).
		Example:
		`disksize c0t3d0 250-300`
		In this example, JumpStart attempts to match a system disk named `c0t3d0` that can hold between 250 to 300 Mbytes of information.
		Example:
		`disksize rootdisk 750-1000`
		In this example, JumpStart attempts to match first, a system disk that contains a preinstalled boot image, next the `c0t3d0s0` disk, if it exists, and finally the first available disk that can hold between 750 Mbytes to 1 Gbyte of information.
		Note - When calculating *size_range*, remember that a Mbyte equals 1,048,576 bytes. A disk might be advertised as a "535 Mbyte" disk, but it might contain only 510 million bytes of disk space. JumpStart actually views the "535 Mbyte" disk as a 510 Mbyte disk because 535,000,000 / 1,048,576 = 510. So, a "535 Mbyte" disk would not match a *size_range* equal to 530-550.

TABLE 6–3 Descriptions of Rule Keywords and Values *(continued)*

Keyword	Value	Matches
`domainname`	*actual_domain_name*	A system's domain name, which controls how a name service determines information. If you have a system already installed, the `domainname` command reports the system's domain name.
`hostaddress`	*actual_IP_address*	A system's IP address.
`hostname`	*actual_host_name*	A system's host name. If you have a system already installed, the `uname -n` command reports the system's host name.
`installed`	*slice version* *slice* - A disk slice name in the form `c`*w*`t`*x*`d`*y*`s`*z*, such as `c0t3d0s5`, or the special words `any` or `rootdisk`. If `any` is used, JumpStart attempts to match all of the system's disks (in kernel probe order). If `rootdisk` is used, the disk to be matched is determined in the following order: ■ SPARC: The disk that contains the preinstalled boot image (new SPARC based system with factory JumpStart installed) ■ The `c0t3d0s0` disk, if it exists ■ The first available disk (searched in kernel probe order) *version* - A version name, `Solaris_2.`*x*, or the special words `any` or `upgrade`. If `any` is used, any Solaris or SunOS release is matched. If `upgrade` is used, any Solaris 2.1 or later release that can be upgraded is matched. If JumpStart finds a Solaris release but is unable to determine the version, the version returned is `SystemV`.	A disk that has a root (`/`) file system corresponding to a particular version of Solaris software. Example: `installed c0t3d0s1 Solaris_8` In the example, JumpStart attempts to match a system that has a Solaris 8 root (`/`) file system on `c0t3d0s1`.
`karch`	*actual_platform_group* Valid values are: `sun4d`, `sun4m`, `sun4u`, `i86pc`. (A list of systems and their corresponding platform group is presented in Appendix A.)	A system's platform group. If you have a system already installed, the `arch -k` command or the `uname -m` command reports the system's platform group.

TABLE 6–3 Descriptions of Rule Keywords and Values *(continued)*

Keyword	Value	Matches
`memsize`	*physical_mem* The value must be a range of Mbytes (*x*-*x*) or a single Mbyte value.	A system's physical memory size (in Mbytes). Example: `memsize 16-32` The example tries to match a system with a physical memory size between 16 and 32 Mbytes. If you have a system already installed, the output of the `prtconf` command (line 2) reports the system's physical memory size.
`model`	*actual_platform_name*	A system's platform name. See Appendix A for a list of valid platform names. To find the platform name of an installed system, use the `uname -i` command or the output of the `prtconf` command (line 5).
`network`	*network_num*	A system's network number, which JumpStart determines by performing a logical AND between the system's IP address and the subnet mask. Example: `network 193.144.2.8` The example tries to match a system with a 193.144.2.8 IP address (if the subnet mask is 255.255.255.0).
`osname`	`Solaris_2.`*x*	A version of Solaris software already installed on a system. Example: `osname Solaris_7` In this example, custom JumpStart attempts to match a system with Solaris 7 already installed.

TABLE 6–3 Descriptions of Rule Keywords and Values *(continued)*

Keyword	Value	Matches
`probe`	*probe_keyword*	A valid probe or custom probe keyword. Example: `probe disks` The example returns the size of a system's disks (in Mbytes) in kernel probe order (`c0t3d0s0`, `c0t3d0s1`, `c0t4d0s0`, on a SPARC based system, for example) and sets the SI_DISKLIST, SI_DISKSIZES, SI_NUMDISKS, and SI_TOTALDISK environment variables. **Note -** The `probe` keyword is unique in that it doesn't attempt to match an attribute and consequently run a profile; it simply returns a value. Consequently, you cannot specify begin scripts, profiles, and finish scripts with the `probe` rule keyword. Probe keywords are described in Chapter 8.
`totaldisk`	*size_range* The value must be specified as a range of Mbytes (*x*-*x*).	The total disk space on a system (in Mbytes). The total disk space includes all the operational disks attached to a system. Example: `totaldisk 300-500` In this example, JumpStart tries to match a system with a total disk space between 300 and 500 Mbytes. **Note -** When calculating *size_range*, remember that one Mbyte equals 1,048,576 bytes. A disk might be advertised as a "535 Mbyte" disk, but it might have only 510 million bytes of disk space. JumpStart actually views the "535 Mbyte" disk as a 510 Mbyte disk because 535,000,000 / 1,048,576 = 510. So, a "535 Mbyte" disk does not match a *size_range* equal to 530-550.

Sample `rules` File Contents

The following sample shows several example rules in a `rules` file. Each line has a rule keyword and a valid value for that keyword. JumpStart scans the `rules` file from top to bottom.

Note - Do not insert the numbers shown in the left column. They are footnotes that appear after the sample.

When JumpStart matches a rule keyword and value with a known system, it installs the Solaris software specified by the profile listed in the profile field.

```
# rule keywords and rule values       begin script       profile       finish script
# ------------------------------       ------------       --------      -------------
1 hostname eng-1                       -                  basic_prof    -
2 network 192.43.34.0 && !model \
'SUNW,SPARCstation-20'                 -                  net_prof      -
3 model SUNW,SPARCstation-LX           -                  lx_prof       complete
4 network 193.144.2.0 && karch i86pc   setup              IA_prof       done
5 memsize 16-32 && arch i386           -                  prog_prof     -
6 any  -                               -                  generic_prof  -
```

1. This rule matches if the system's host name is `eng-1`. The `basic_prof` profile is used to install the Solaris software on the system that matches this rule.

2. The rule matches if the system is on subnet 192.43.34.0 and it is *not* a SPARCstation™ 20 (`SUNW,SPARCstation-20`). The `net_prof` profile is used to install the Solaris software on systems that match this rule. This rule also provides an example of rule wrap, which is defined on "Syntax of the `rules` File" on page 142.

3. The rule matches if the system is a SPARCstation LX. The `lx_prof` profile and the `complete` finish script are used to install the Solaris software on systems that match this rule.

4. This rule matches if the system is on subnet 193.144.2.0 and is an IA based system. The `setup` begin script, the `IA_prof` profile, and the `done` finish script are used to install the Solaris software on systems that match this rule.

5. This rule matches if the system has between 16 and 32 Mbytes of memory and is an IA based system. The `prog_prof` profile is used to install the Solaris software on systems that match this rule.

6. This rule matches any system that did not match the previous rules. The `generic_prof` profile is used to install the Solaris software on systems that match this rule. If used, `any` should always be the last rule in the `rules` file.

▼ To Create a `rules` File

1. **Using a text editor of your choice, create a text file named `rules` or open the sample `rules` file in the JumpStart directory you created.**

2. **Add a rule in the `rules` file for each group of systems on which you want to install Solaris using custom JumpStart.**

3. **Save the `rules` file in the JumpStart directory.**

   Ensure that `root` owns the `rules` file and that its permissions are set to 644.

Creating a Profile

What Is a Profile?

A *profile* is a text file that defines how to install the Solaris software on a system (the software group to install, for example). Every rule specifies a profile that defines how a system is to be installed with Solaris when that rule is matched during a JumpStart installation. You usually create a different profile for every rule; however, the same profile can be used in more than one rule.

A profile consists of one or more profile keywords and their values. Each profile keyword is a command that controls one aspect of how JumpStart is to install the Solaris software on a system. For example, the profile keyword and value:

```
system_type  server
```

tells JumpStart to install the system as a server.

Note - If you created the JumpStart directory using the procedures presented in "Creating a Profile Server" on page 132 or "Creating a Profile Diskette" on page 136, sample profiles are already located in the JumpStart directory.

Syntax of Profiles

A profile *must* contain:

- The `install_type` profile keyword as the first entry
- One keyword per line

- The `root_device` keyword (if the systems being upgraded by the profile contain more than one root (/) file system that can be upgraded)

A profile can contain:

- Commented text

  Any text included after the # symbol on a line is treated by JumpStart as commented text. If a line begins with the # symbol, the entire line is treated as a comment.

- One or more blank lines

Syntax of Profile Keywords and Values

This section describes the profile keywords and values you can use in a profile.

Note - Profile keywords and their values are case sensitive.

Table 6–4 provides a quick way to determine which keywords you can use based on your installation scenario. Unless otherwise noted in the keyword descriptions, the keyword can only be used with the initial installation option.

TABLE 6–4 Overview of Profile Keywords

Profile Keywords	Installation Scenarios				
	Standalone System (Non-Networked)	**Standalone System (Networked) or Server**	**OS Server**	**Upgrade**	**Upgrade With Disk Space Reallocation**
`backup_media`					✓
`boot_device`	✓	✓	✓		
`client_arch`			✓		
`client_root`			✓		
`client_swap`			✓		
`cluster` (adding software groups)	✓	✓	✓		

TABLE 6–4 Overview of Profile Keywords *(continued)*

Profile Keywords	Installation Scenarios				
	Standalone System (Non-Networked)	**Standalone System (Networked) or Server**	**OS Server**	**Upgrade**	**Upgrade With Disk Space Reallocation**
`cluster` (adding/deleting clusters)	✓	✓	✓	✓	✓
`dontuse`	✓	✓	✓		
`fdisk` (IA only)	✓	✓	✓		
`filesys` (mounting remote file systems)		✓	✓		
`filesys` (creating local file systems)	✓	✓	✓		
`geo`	✓	✓	✓	✓	✓
`install_type`	✓	✓	✓	✓	✓
`isa_bits`	✓	✓	✓	✓	✓
`layout_constraint`					✓
`locale`	✓	✓	✓	✓	✓
`num_clients`			✓		
`package`	✓	✓	✓	✓	✓
`partitioning`	✓	✓	✓		
`root_device`	✓	✓	✓	✓	✓
`system_type`	✓	✓	✓		
`usedisk`	✓	✓	✓		

TABLE 6–4 Overview of Profile Keywords *(continued)*

backup_media Profile Keyword

```
backup_media type path
```

Note - You can use backup_media only with the upgrade option when disk space reallocation is required.

backup_media defines the media that is to be used to back up file systems if space needs to be reallocated during an upgrade because of a lack of space. If multiple tapes or diskettes are required for the backup, you are prompted to insert tapes or diskettes during the upgrade.

Valid *type* Values	Valid *path* Values	Specifies
local_tape	/dev/rmt/*n*	A local tape drive on the system being upgraded. *path* must be the character (raw) device path for the tape drive, where *n* is the number of the tape drive.
local_diskette	/dev/rdiskette*n*	A local diskette drive on the system being upgraded. *path* must be the character (raw) device path for the diskette drive, where *n* is the number of the diskette drive. **Note -** Diskettes used for the backup must be formatted.
local_filesystem	/dev/dsk/c*w*t*x*d*y*s*z* */file_system*	A local file system on the system being upgraded. You cannot specify a local file system that is being changed by the upgrade. *path* can be a block device path for a disk slice (that is, the t*x* in /dev/dsk/c*w*t*x*d*y*s*z* might not be needed) or the absolute path to a file system mounted by the /etc/vfstab file.

Valid *type* Values	Valid *path* Values	Specifies
`remote_filesystem`	*host*`:/`*file_system*	An NFS file system on a remote system. *path* must include the name or IP address of the remote system (*host*) and the absolute path to the NFS file system (*file_system*). The NFS file system must have read/write access.
`remote_system`	*user@host*`:/`*directory*	A directory on a remote system that can be reached by a remote shell (`rsh`). The system being upgraded must have access to the remote system through the remote system's `.rhosts` file. *path* must include the name of the remote system (host) and the absolute path to the directory (*directory*). If a user login ID (*user*) is not specified, `root` is used by default.

Examples:

```
backup_media local_tape /dev/rmt/0

backup_media local_diskette /dev/rdiskette1

backup_media local_filesystem /dev/dsk/c0t3d0s4

backup_media local_filesystem /export

backup_media remote_filesystem system1:/export/temp

backup_media remote_system user1@system1:/export/temp
```

`boot_device` Profile Keyword

```
boot_device device eeprom
```

`boot_device` designates the device where JumpStart is to install the root (`/`) file system and consequently the system's boot device.

If you don't specify the `boot_device` keyword in a profile, the following `boot_device` keyword is specified by default during the installation: `boot_device any update`.

device - Choose the boot device.

- SPARC: `c`*w*`t`*x*`d`*y*`s`*z* or `c`*x*`d`*y*`s`*z* - The disk slice where JumpStart places the root (`/`) file system, for example, `c0t0d0s0`.
- IA: `c`*w*`t`*x*`d`*y* or `c`*x*`d`*y* - The disk where JumpStart places the root (`/`) file system, for example, `c0d0`.

- `existing` - JumpStart places the root (/) file system on the system's existing boot device.
- `any` - JumpStart chooses where to place the root (/) file system. It tries to use the system's existing boot device; however, it might choose a different boot device if necessary.

eeprom - Choose to update or preserve the system's EEPROM.

Choose if you want to update or preserve the system's EEPROM to the specified boot device.

You must specify the `preserve` value.

- `update` - JumpStart updates the system's EEPROM to the specified boot device, so the installed system automatically boots from it.
- `preserve` - The boot device value in the system's EEPROM is not changed. If you specify a new boot device without changing the system's EEPROM, you need to change the system's EEPROM manually so it can automatically boot from the new boot device.

SPARC platform only - On SPARC based systems, the *eeprom* value also enables you to update the system's EEPROM if you change the system's current boot device, so the system can automatically boot from the new boot device.

Example:

```
boot_device c0t0d0s2 update
```

Note - `boot_device` must match any `filesys` keywords that specify the root (/) file system and the `root_device` keyword (if specified).

`client_arch` Profile Keyword

```
client_arch karch_value ...
```

`client_arch` specifies that the operating system server is to support a different platform group than it uses. If you do not specify `client_arch` in the profile, any diskless client that uses the operating system server must contain the same platform group as the server. You must specify each platform group that you want the operating system server to support.

Valid values for *karch_value* are: `sun4d`, `sun4m`, `sun4u`, `i86pc`. (Appendix A contains a detailed list of the platform names of various systems.)

Note - You can use `client_arch` only when `system_type` is specified as `server`.

`client_root` Profile Keyword

```
client_root root_size
```

`client_root` defines the amount of root space (*root_size* in Mbytes) to allocate for each client. If you do not specify `client_root` in a server's profile, the installation software automatically allocates 15 Mbytes of root space per client by default. The size of the client root area is used in combination with the `num_clients` keyword to determine how much space to reserve for the `/export/root` file system.

Note - You can use `client_root` only when `system_type` is specified as `server`.

`client_swap` Profile Keyword

```
client_swap swap_size
```

`client_swap` defines the amount of swap space (*swap_size* in Mbytes) to allocate for each diskless client. If you do not specify `client_swap` in the profile, 32 Mbytes of swap space is allocated by default.

Example:

```
client_swap 64
```

The previous example specifies that each diskless client is to have a swap space of 64 Mbytes.

Note - You can use `client_swap` only when `system_type` is specified as `server`.

`cluster` Profile Keyword (Adding Software Groups)

```
cluster group_name
```

`cluster` designates the software group to add to the system. The *group_name* for each software group is listed in the following table.

Software Group	*group_name*
Core	SUNWCreq
End User System Support	SUNWCuser
Developer System Support	SUNWCprog
Entire Distribution	SUNWCall
Entire Distribution Plus OEM Support	SUNWCXall

You can specify only one software group in a profile, and it must be specified before other `cluster` and `package` entries. If you do not specify a software group with `cluster` in the profile, the end user software group (`SUNWCuser`) is installed on the system by default.

`cluster` Profile Keyword (Adding or Deleting Clusters)

```
cluster cluster_name add_delete_switch
```

Note - `cluster` (adding or deleting clusters) can be used with both the initial installation and upgrade options.

`cluster` designates whether a cluster is to be added or deleted from the software group that is to be installed on the system.

cluster_name must be in the form `SUNWC`*name*. To view detailed information about clusters and their names, start Admintool on an installed system and choose Software from the Browse menu.

add_delete_switch represents the option `add` or `delete`, which you use to indicate whether to add or delete the specified cluster. If you do not specify *add_delete_switch*, `add` is used by default.

For an upgrade:

- All clusters already on the system are automatically upgraded.
- If you specify *cluster_name* `add`, and *cluster_name* is not installed on the system, the cluster is installed.
- If you specify *cluster_name* `delete`, and *cluster_name* is installed on the system, the package is deleted *before* the upgrade begins.

dontuse Profile Keyword

```
dontuse disk_name ...
```

By default, JumpStart uses all the operational disks on the system when `partitioning default` is specified. `dontuse` designates one or more disks that you don't want JumpStart to use. *disk_name* must be specified in the form c*x*t*y*d*z* or c*y*d*z*, for example, `c0t0d0`.

Note - You cannot specify the `dontuse` keyword and the `usedisk` keyword in the same profile.

IA: fdisk Profile Keyword

```
fdisk disk_name type size
```

`fdisk` defines how the `fdisk` partitions are set up on an IA based system. You can specify `fdisk` more than once. This is what happens by default when `fdisk` partitions an IA based system:

- All `fdisk` partitions on the disk are preserved unless you specifically delete them with the `fdisk` keyword (if *size* is `delete` or `0`). Also, all existing `fdisk` partitions are deleted when *size* is set to `all`.
- A Solaris `fdisk` partition that contains a root (`/`) file system is always designated as the active partition on the disk.

IA platform only - The system boots from the active partition by default.

- If the `fdisk` keyword is not specified in a profile, the following `fdisk` keyword is used by default during the installation:

```
fdisk all solaris maxfree
```

- `fdisk` entries are processed in the order in which they are listed in the profile.

disk_name - Choose where the `fdisk` partition is to be created or deleted:

- c*x*t*y*d*z* or c*y*d*z* - A specific disk, for example, `c0t3d0`.
- `rootdisk` - The variable that contains the value of the system's root disk, which is determined by JumpStart (described in "How the System's Root Disk Is Determined" on page 169).
- `all` - All the selected disks.

type - Choose what type of `fdisk` partition is to be created or deleted on the specified disk:

- `solaris` - A Solaris `fdisk` partition (`SUNIXOS` `fdisk` type).
- `dosprimary` - An alias for primary DOS `fdisk` partitions (not for extended or data DOS `fdisk` partitions). When deleting `fdisk` partitions (*size* is `delete`), `dosprimary` is an alias for the DOSHUGE, DOSOS12, and DOSOS16 `fdisk` types (they are all deleted). When creating an `fdisk` partition, `dosprimary` is an alias for the DOSHUGE `fdisk` partition (a DOSHUGE `fdisk` partition is created).
- *DDD* - An integer `fdisk` partition. *DDD* is an integer between 1 and 255 inclusive.

IA platform only - You can specify this value only if *size* is `delete`.

- 0x*HH* - A hexadecimal `fdisk` partition. *HH* is a hexadecimal number between 01 and FF.

IA platform only - You can specify this value only if *size* is `delete`.

The following table shows the integer and hexadecimal numbers for some of the `fdisk` types.

`fdisk` **Type**	***DDD***	***HH***
DOSOS12	`1`	`01`
PCIXOS	`2`	`02`
DOSOS16	`4`	`04`
EXTDOS	`5`	`05`
DOSHUGE	`6`	`06`
DOSDATA	`86`	`56`
OTHEROS	`98`	`62`
UNIXOS	`99`	`63`

size - Is one of the following values:

- *DDD* - An `fdisk` partition of size *DDD* (in Mbytes) is created on the specified disk. *DDD* must be an integer, and JumpStart automatically rounds the number up to the nearest cylinder boundary. If `0` is specified, it is the same as specifying `delete`.

- `all` - An `fdisk` partition is created on the entire disk (all existing `fdisk` partitions are deleted).

IA platform only - This value can be specified only if *type* is `solaris`.

- `maxfree` - An `fdisk` partition is created in the largest contiguous free space on the specified disk. If an `fdisk` partition of the specified *type* already exists on the disk, the existing `fdisk` partition is used (a new `fdisk` partition is *not* created on the disk).

IA platform only - There must be at least one unused `fdisk` partition on the disk, and the disk must have free space or installation fails. This value can be specified only if *type* is `solaris` or `dosprimary`.

- `delete` - All `fdisk` partitions of the specified *type* are deleted on the specified disk.

`filesys` Profile Keyword (Mounting Remote File Systems)

```
filesys server:path server_address mount_pt_name [mount_options]
```

This instance of `filesys` sets up the installed system to automatically mount remote file systems when it boots. You can specify `filesys` more than once.

Example:

```
filesys sherlock:/export/home/user2 - /home
```

server: - The name of the server where the remote file system is located (followed by a colon).

path - The remote file system's mount point name, `/usr` or `/export/home`, for example.

server_address - The IP address of the server specified in *server*:*path*. If a name service is not running on the network, this value can be used to populate the `/etc/hosts` file with the server's host name and IP address. If you don't want to specify the server's IP address (if you have a name service running on the network), you must specify a minus sign (`-`).

mount_pt_name - The name of the mount point on which the remote file system is to be mounted.

mount_options - One or more mount options (same as the –`o` option of the `mount`(1M) command) that are added to the `/etc/vfstab` entry for the specified *mount_pt_name*.

Note - If you need to specify more than one mount option, the mount options must be separated by commas and no spaces (`ro,quota`, for example).

`filesys` Profile Keyword (Creating Local File Systems)

```
filesys slice size [file_system optional_parameters]
```

This instance of `filesys` creates local file systems during the installation. You can specify `filesys` more than once.

slice - Choose one of the following options:

- `any` - JumpStart places the file system on any disk.

Note - You cannot specify `any` when `size` is `existing`, `all`, `free`, *start*:*size*, or `ignore`.

- `c`*w*`t`*x*`d`*y*`s`*z* or `c`*x*`d`*y*`s`*z* - The disk slice where JumpStart places the file system (`c0t0d0s0` or `c0d0s0`, for example).
- `rootdisk.s`*n* - The variable that contains the value for the system's root disk, which is determined by JumpStart (described in "How the System's Root Disk Is Determined" on page 169). The `s`*n* suffix indicates a specific slice on the disk.

size - Choose one of the following options:

- *num* - The size of the file system is set to *num* (in Mbytes).
- `existing` - The current size of the existing file system is used.

Note - When using this value, you can change the name of an existing slice by specifying *file_system* as a different *mount_pt_name.*

- `auto` - The size of the file system is automatically determined and depends on the selected software.
- `all` - The specified *slice* uses the entire disk for the file system. When you specify this value, no other file systems can be placed on the specified disk.
- `free` - The remaining unused space on the disk is used for the file system.

Note - If `free` is used as the value to `filesys`, it must be the last `filesys` entry in a profile.

- *start*:*size* - The file system is explicitly partitioned: *start* is the cylinder where the slice begins; *size* is the number of cylinders for the slice.

file_system - You can use this optional value when *slice* is specified as `any` or `c`*w*`t`*x*`d`*y*`s`*z*. If *file_system* is not specified, `unnamed` is set by default, but then you can't specify the *optional_parameters* value. Choose one of the following options:

- *mount_pt_name* - The file system's mount point name, `/var`, for example.
- `swap` - The specified *slice* is used as `swap`.
- `overlap` - The specified *slice* is defined as a representation of a disk region (VTOC value is V_BACKUP). By default, slice 2 is an overlap slice that is a representation of the whole disk.

Note - You can specify `overlap` only when *size* is `existing`, `all`, or *start*:*size*.

- `unnamed` - The specified *slice* is defined as a raw slice, so *slice* does not have a mount point name. If you do not specify *file_system*, `unnamed` is used by default.
- `ignore` - The specified *slice* is not used or recognized by JumpStart. You can use this option to specify you want a file system ignored on a disk during installation, so JumpStart can create a new file system on the same disk with the same name. You can use `ignore` only when `partitioning existing` is specified.

optional_parameters - Choose one of the following options:

- `preserve` - The file system on the specified *slice* is preserved.

Note - `preserve` can be specified only when *size* is `existing` and *slice* is `c`*w*`t`*x*`d`*y*`s`*z*.

- *mount_options* - One or more mount options (same as the –`o` option of the `mount`(1M) command) that are added to the `/etc/vfstab` entry for the specified *mount_pt_name*.

Note - If you need to specify more than one mount option, the mount options must be separated by commas and no spaces (`ro,quota`, for example).

`geo` *locale* Profile Keyword

`geo` *locale*

Note - You can use `geo` with both the initial installation and upgrade options.

`geo` designates the regional locale or locales you want to install on a system (or to add when upgrading a system). Values you can specify for *locale* are:

Value	Description
N_Africa	Northern Africa, including Egypt
C_America	Central America, including Costa Rica, El Salvador, Guatemala, Mexico, Nicaragua, Panama
N_America	North America, including Canada, United States
S_America	South America, including Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela
Asia	Asia, including Japan, Republic of Korea, Republic of China, Taiwan, Thailand
Ausi	Australasia, including Australia, New Zealand
C_Europe	Central Europe, including Austria, Czech Republic, Germany, Hungary, Poland, Slovakia, Switzerland
E_Europe	Eastern Europe, including Albania, Bosnia, Bulgaria, Croatia, Estonia, Latvia, Lithuania, Macedonia, Romania, Russia, Serbia, Slovenia, Turkey
N_Europe	Northern Europe, including Denmark, Finland, Iceland, Norway, Sweden
S_Europe	Southern Europe, including Greece, Italy, Portugal, Spain
W_Europe	Western Europe, including Belgium, France, Great Britain, Ireland, Netherlands
M_East	Middle East, including Israel

A complete list of the component locale values that make up each regional locale listed above is presented in Appendix B.

Note - You can specify a `geo` keyword for each locale you need to add to a system.

`install_type` Profile Keyword

```
install_type initial_install_upgrade_switch
```

`install_type` defines whether to erase and install a new Solaris operating environment on a system or upgrade the existing Solaris environment on a system.

Note - You must specify `install_type` in a profile, and it must be the first profile keyword in every profile.

---

initial_install_upgrade_switch represents the option `initial_install` or `upgrade`, which you use to indicate the type of installation to be performed.

You must specify *initial_install_upgrade_switch.*

Note - Some profile keywords can only be used with the `initial_install` option, and this also applies to the `upgrade` option.

`isa_bits` Profile Keyword

```
isa_bits bit_switch
```

`isa_bits` specifies whether 64-bit or 32-bit Solaris 8 packages are to be installed.

bit_switch represents the option `64` or `32`, which you use to indicate whether 64-bit or 32-bit Solaris 8 packages are to be installed. If you do not set this keyword in the profile, JumpStart installs:

- 64-bit packages on UltraSPARC™ systems
- 32-bit packages on all other systems

Note - If you use the `isa_bits` keyword, you must also use the latest `check` script in the `Solaris_8/Misc/jumpstart_sample` directory on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD.

`layout_constraint` Profile Keyword

```
layout_constraint slice constraint [minimum_size]
```

Note - You can use `layout_constraint` only for the upgrade option when you need to reallocate disk space.

`layout_constraint` designates the constraint auto-layout has on a file system if it needs to reallocate space during an upgrade because of space problems.

If you don't specify the `layout_constraint` keyword, the:

- File systems requiring more space for the upgrade are marked changeable
- File systems on the same disk as the file system requiring more space (mounted by the `/etc/vfstab` file) are marked changeable
- Remaining file systems are marked fixed (auto-layout can't change them)

If you specify one or more `layout_constraint` keywords, the:

- File systems requiring more space for the upgrade are marked changeable
- File systems for which you specified a `layout_constraint` keyword are marked with the specified constraint
- Remaining file systems are marked fixed

Even though you can't change the constraint on file systems requiring more space for the upgrade (they must be marked changeable), you can use `layout_constraint` on those file systems to change their *minimum_size* values.

Note - To help auto-layout reallocate space, select more file systems to be changeable or moveable, especially those that are located on the same disks as the file systems that require more space for the upgrade.

---

slice - This is the file system's disk slice on which to specify the constraint. You must specify the system's disk slice in the form `c`*w*`t`*x*`d`*y*`s`*z* or `c`*x*`d`*y*`s`*z*.

constraint - Choose one the following constraints for the specified file system:

- `changeable` - Auto-layout can move the file system to another location and it can change its size. This constraint can only be specified on file systems that are mounted by the `/etc/vfstab` file. You can change the file system's size by specifying the *minimum_size* value.

  When you mark a file system as changeable and *minimum_size* is not specified, the file system's minimum size is set to 10 percent greater than the minimum size required. For example, if the minimum size for a file system is 100 Mbytes, the changed size is 110 Mbytes. If *minimum_size* is specified, any free space left (original size minus minimum size) is used for other file systems.
- `movable` - Auto-layout can move the file system to another slice (on the same disk or different disk) and its size stays the same.
- `available` - Auto-layout can use all of the space on the file system to reallocate space. All the data in the file system is lost. This constraint can only be specified on file systems that are not mounted by the `/etc/vfstab` file.
- `collapse` - Auto-layout moves (collapses) the specified file system into its parent file system. You can use this option to reduce the number of file systems on a system as part of the upgrade. For example, if a system has the `/usr` and `/usr/openwin` file systems, collapsing the `/usr/openwin` file system moves it into `/usr` (its parent). You can specify this constraint on only file systems that are mounted by the `/etc/vfstab` file.

minimum_size - This value specifies the size of the file system after auto-layout reallocates space. This option enables you to change the size of a file system. The size of the file system may end up being more if unallocated space is added to it, but the size is never less than the value you specify. You can use this optional value only if you have marked a file system as changeable, and the minimum size cannot be less than what the file system needs for its existing contents.

Examples:

```
layout_constraint c0t3d0s1 changeable 200

layout_constraint c0d0s4 movable

layout_constraint c0t3d1s3 available

layout_constraint c0t2d0s1 collapse
```

`locale` *locale_name* Profile Keyword

`locale` *locale_name*

Note - You can use `locale` with both the initial installation and upgrade options.

`locale` designates the locale packages you want to install (or to add when upgrading) for the specified *locale_name*. The *locale_name* values are the same as those used for the $LANG environment variable. Appendix B contains a list of valid locale values.

Note - If you have preconfigured a default locale, it is automatically installed. The English language packages are installed by default.

Note - You can specify a `locale` keyword for each locale you need to add to a system.

`num_clients` Profile Keyword

`num_clients` *client_num*

When a server is installed, space is allocated for each diskless client's root (`/`) and `swap` file systems. `num_clients` defines the number of diskless clients (*client_num*) that a server supports. If you do not specify `num_clients` in the profile, five diskless clients are allocated by default.

Note - You can use `num_clients` only when `system_type` is specified as `server`.

`package` Profile Keyword

```
package package_name [add_delete_switch]
```

Note - You can use `package` with both the initial installation and upgrade options.

`package` designates whether a package is to be added to or deleted from the software group that is to be installed on the system.

You must specify *package_name* in the form `SUNW`*name*. Use the `pkginfo -l` command or Admintool (choose Software from the Browse menu) on an installed system to view detailed information about packages and their names.

add_delete_switch represents the option `add` or `delete`, which you use to indicate whether to add or delete the specified package. If you do not specify *add_delete_switch*, `add` is used by default.

For an upgrade:

- All packages already on the system are automatically upgraded.
- If you specify *package_name* `add`, and *package_name* is not installed on the system, the package is installed.
- If you specify *package_name* `delete`, and *package_name* is installed on the system, the package is deleted *before* the upgrade begins.
- If you specify *package_name* `delete`, and *package_name* is not installed on the system, the package is not installed if it is part of a cluster that is designated to be installed.

`partitioning` Profile Keyword

```
partitioning type
```

`partitioning` defines how the disks are divided into slices for file systems during the installation.

type - Choose one of the following options:

- `default` - JumpStart selects the disks and creates the file systems on which to install the specified software, except for any file systems specified by the `filesys`

keywords. `rootdisk` is selected first; additional disks are used if the specified software does not fit on `rootdisk`.

- `existing` - JumpStart uses the existing file systems on the system's disks. All file systems except `/`, `/usr`, `/usr/openwin`, `/opt`, and `/var` are preserved. JumpStart uses the last mount point field from the file system superblock to determine which file system mount point the slice represents.

Note - When using both the `filesys` and `partitioning existing` profile keywords, you must set size *size* to `existing`.

- `explicit` - JumpStart uses the disks and creates the file systems specified by the `filesys` keywords. If you specify only the root (`/`) file system with the `filesys` keyword, all the Solaris software is installed in the root (`/`) file system.

Note - If you use the `explicit` profile value, you must use the `filesys` keyword to specify the disks to use and file systems to create.

If you do not specify `partitioning` in the profile, the `default` type of partitioning is used by default.

`root_device` Profile Keyword

```
root_device slice
```

Note - You can use `root_device` with both the initial installation and upgrade options.

`root_device` designates the system's root disk. "How the System's Root Disk Is Determined" on page 169 contains additional information.

For an upgrade:

`root_device` designates the root (`/`) file system and the file systems mounted by its `/etc/vfstab` file to be upgraded. You must specify `root_device` if more than one root (`/`) file system can be upgraded on a system. You must specify *slice* in the form `c`*w*`t`*x*`d`*y*`s`*z* or `c`*x*`d`*y*`s`*z*.

Example:

```
root_device c0t0d0s2
```

Note - If you specify `root_device` on a system with only one disk, the `root_device` and the disk must match. Also, any `filesys` keywords that specify the root (`/`) file system must match `root_device`.

---

system_type Profile Keyword

```
system_type type_switch
```

system_type defines the type of system on which the Solaris environment is to be installed.

type_switch represents the option standalone or server, which you use to indicate the type of system on which Solaris is to be installed. If you do not specify system_type in a profile, standalone is used by default.

usedisk Profile Keyword

```
usedisk disk_name ...
```

By default, JumpStart uses all the operational disks on the system when you specify partitioning default. The usedisk profile keyword designates one or more disks that you want JumpStart to use. You must specify *disk_name* in the form c*x*t*y*d*z* or c*y*d*z*, for example, c0t0d0 or c0d0s0.

If you specify usedisk in a profile, JumpStart uses only the disks that you specify after the usedisk keyword.

Note - You cannot specify the usedisk keyword and the dontuse keyword in the same profile.

How the Size of swap Is Determined

If a profile does not explicitly specify the size of swap, JumpStart determines the size of the swap space based on the system's physical memory. Table 6–5 shows how the size of swap is determined during a custom JumpStart installation.

TABLE 6–5 How swap Size Is Determined

Physical Memory (in Mbytes)	Swap Space (in Mbytes)
16 - 64	32
64 - 128	64

TABLE 6–5 How `swap` Size Is Determined *(continued)*

Physical Memory (in Mbytes)	Swap Space (in Mbytes)
128 - 512	128
Greater than 512	256

JumpStart makes the size of `swap` no more than 20 percent of the disk where it is located, unless there is free space left on the disk after laying out the other file systems. If free space exists, JumpStart allocates the free space to `swap`, and if possible, allocates the amount shown in Table 6–5.

Note - Physical memory plus swap space must total a minimum of 32 Mbytes.

How the System's Root Disk Is Determined

A system's *root disk* is the disk on the system that contains the root (`/`) file system. In a profile, you can use the `rootdisk` variable in place of a disk name, which JumpStart sets to the system's root disk. Table 6–6 describes how JumpStart determines the system's root disk for the installation.

Note - This process only applies during an initial installation; you cannot change a system's root disk during an upgrade.

TABLE 6–6 How JumpStart Determines a System's Root Disk (Initial Installation)

Stage	Action
1	If the `root_device` keyword is specified in the profile, JumpStart sets `rootdisk` to the root device.
2	If `rootdisk` is not set and the `boot_device` keyword is specified in the profile, JumpStart sets `rootdisk` to the boot device.
3	If `rootdisk` is not set and a `filesys` c*w*t*x*d*y*s*z* *size* `/` entry is specified in the profile, JumpStart sets `rootdisk` to the disk specified in the entry.
4	If `rootdisk` is not set and a `rootdisk.s`*n* entry is specified in the profile, JumpStart searches the system's disks (in kernel probe order) for an existing root file system on the specified slice. If a disk is found, JumpStart sets `rootdisk` to the found disk.

TABLE 6–6 How JumpStart Determines a System's Root Disk (Initial Installation) *(continued)*

Stage	Action
5	If `rootdisk` is not set and `partitioning existing` is specified in the profile, JumpStart searches the system's disks (in kernel probe order) for an existing root file system. If a root file system is not found or more than one is found, an error occurs. If a root file system is found, JumpStart sets `rootdisk` to the found disk.
6	If `rootdisk` is not set, JumpStart sets `rootdisk` to the disk where the root (`/`) file system is installed.

▼ To Create a Profile

1. **Using a text editor of your choice, open a new text file and name it descriptively, or open a sample profile in the JumpStart directory you created.**

   Note - Ensure that the name of the profile reflects how you intend to use it to install Solaris on a system (for example, `basic_install`, `eng_profile`, or `user_profile`).

2. **Add profile keywords and values to the profile.**

3. **Save the profile in the JumpStart directory.**

   Ensure that `root` owns the profile and that its permissions are set to 644.

4. **Test the profile (optional).**

   "Testing a Profile" on page 174 contains information about testing profiles.

Sample Profiles

The following samples of profiles show how to use different profile keywords and profile values to control how the Solaris software is installed on a system. "Syntax of Profile Keywords and Values" on page 150 contains a description of profile keywords and values.

Note - Do not insert the numbers shown in the left column. They are footnotes that appear after the sample.

Mounting Remote File Systems and Adding and Deleting Packages

```
# profile keywords        profile values
# -----------------       -----------------
1 install_type            initial_install
2 system_type             standalone
3 partitioning            default
  filesys                 any 60 swap   # specify size of /swap
  filesys                 s_ref:/usr/share/man - /usr/share/man ro
  filesys                 s_ref:/usr/openwin/share/man -
                                /usr/openwin/share/man ro,quota
4 cluster                 SUNWCprog
5 package                 SUNWman delete
  package                 SUNWolman delete
  package                 SUNWxwman delete
  package                 SUNWoldem add
  package                 SUNWxwdem add
  package                 SUNWoldim add
  package                 SUNWxwdim add
```

1. This profile keyword is required in every profile.

2. This profile keyword defines that the system is to be installed as a standalone system.

3. The file system slices are determined by the software to be installed (`default` value); however, the size of `swap` is set to 60 Mbytes and is installed on any disk (`any` value). The standard and OpenWindows man pages are mounted from the file server, `s_ref`, on the network.

4. The Developer System Support software group (`SUNWCprog`) is installed on the system.

5. Because the man pages are being mounted remotely, those packages are *not* to be installed on the system; however, the packages containing the OPEN LOOK and X Window System demonstration programs and images are selected to be installed on the system.

Specifying Where to Install File Systems

```
# profile keywords        profile values
# ----------------        -------------------
  install_type            initial_install
  system_type             standalone

1 partitioning            explicit
  filesys                 c0t0d0s0 auto /
```

(Continuation)

```
  filesys                 c0t3d0s1 32 swap
  filesys                 any auto usr
2 cluster                 SUNWCall
```

1. The file system slices are determined by the `filesys` keywords (`explicit` value). The size of root (`/`) is based on the selected software (`auto` value) and is installed on `c0t0d0s0`; the size of `swap` is set to 32 Mbytes and is installed on `c0t3d0s1`; and `usr` is based on the selected software, and the installation program determines where it is installed (`any` value).

2. The Entire Distribution software group (`SUNWCall`) is installed on the system.

IA: Using the `fdisk` Keyword

```
# profile keywords      profile values
# ----------------      -------------------
  install_type          initial_install
  system_type           standalone

1 fdisk                 c0t0d0 0x04 delete
2 fdisk                 c0t0d0 solaris maxfree
3 cluster               SUNWCall
4 cluster               SUNWCacc delete
```

1. All `fdisk` partitions of type DOSOS16 (04 hexadecimal) are deleted from the `c0t0d0` disk.

2. A Solaris `fdisk` partition is created on the largest contiguous free space on the `c0t0d0` disk.

3. The Entire Distribution software group (`SUNWCall`) is installed on the system.

4. The system accounting utilities (`SUNWCacc`) are *not* to be installed on the system.

Reallocating Disk Space for an Upgrade

```
# profile keywords          profile values
# ----------------          --------------------
1 install_type              upgrade

2 root_device               c0t3d0s2

3 backup_media              remote_filesystem timber:/export/scratch
4 layout_constraint         c0t3d0s2 changeable 100
  layout_constraint         c0t3d0s4 changeable
  layout_constraint         c0t3d0s5 movable

5 package                   SUNWbcp delete
6 package                   SUNWolman add
  package                   SUNWxwman add
  cluster                   SUNWCumux add

7 locale                    de
```

1. This profile upgrades a system by reallocating disk space. In this example, disk space must be reallocated because some file systems on the system did not have enough room for the upgrade.

2. The root file system on `c0t3d0s2` is upgraded.

3. A remote system named `timber` is to be used to back up data during the disk space reallocation.

4. The `layout_constraint` keywords designate that auto-layout can change slice 2 and 4 (the slices can be moved to another location and their size can be changed) and that it can move slice 5 (the slice can be moved to another location but its size stays the same) when it tries to reallocate disk space for the upgrade.

5. The binary compatibility package (`SUNWbcp`) is not installed on the system after the upgrade.

6. This code ensures that the OPEN LOOK and X Window System man pages and the universal multiplexor software are to be installed if they are not already installed on the system. (All packages already on the system are automatically upgraded.)

7. The German localization packages are to be installed on the system.

Testing a Profile

After you create a profile, use the `pfinstall`(1M) command to test the profile before you actually use it to install or upgrade a system. Testing a profile is especially useful when you are creating upgrade profiles that reallocate disk space.

By looking at the installation output generated by `pfinstall`, you can quickly determine if a profile works as you intended. You can, for example, use the profile to determine if a system has enough disk space to upgrade to a new release of Solaris before you actually perform the upgrade on that system.

Ways to Test a Profile

`pfinstall` enables you to test a profile against:

- The system's disk configuration where `pfinstall` is being run.
- Other disk configurations by using a *disk configuration file* that represents a structure of a disk (for example, a disk's bytes/sector, flags, slices). Creating disk configuration files is described in:
  - "SPARC: Creating Disk Configuration Files" on page 190
  - "IA: Creating Disk Configuration Files" on page 192

Note - You cannot use a disk configuration file to test a profile you intend to use to upgrade a system. Instead, you must test the profile against the system's actual disk configuration and the software currently installed on that system.

Overview of Testing a Profile

To test a profile for a particular Solaris release successfully and accurately, you must test a profile within the Solaris environment of the same release. For example, if you want to test a Solaris 8 initial installation profile, you have to run the `pfinstall` command on a system running Solaris 8.

However, if you want to test a Solaris 8 upgrade profile on a system running a previous version of Solaris, or if you don't have a Solaris 8 system installed yet to test Solaris 8 initial installation profiles, you need to create a temporary installation environment by:

- Booting a system from a Solaris 8 Software 1 of 2 SPARC Platform Edition *or* Solaris 8 Software 1 of 2 Intel Platform Edition CD image
- Responding to system identification questions
- Selecting the Solaris 8 Interactive Installation Program as the program to install Solaris 8
- Exiting out of the first screen that's displayed.
- Executing the `pfinstall` command from the shell.

Syntax of `pfinstall`

This is the syntax of the `pfinstall` command you use to test a profile:

```
# /usr/sbin/install.d/pfinstall disk_configuration [-c path] profile
```

TABLE 6–7 Description of the `pfinstall` Command Arguments

Argument	Description
disk_configuration	Represents the option –D or –d *disk_config_file*, which tells `pfinstall` to use the current system's disk configuration to test the profile (–D), or use the disk configuration file, *disk_config_file*, to test the profile. If *disk_config* is not located in the directory where `pfinstall` is run, you must specify the path. You cannot use the –d *disk_config_file* option with an upgrade profile (`install_type upgrade`). You must always test an upgrade profile against a system's disk configuration (that is, you must use the –D option).
–c *path*	Is the path to the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image. You use this option, for example, if the system is using Volume Manager to mount the Solaris 8 Software 1 of 2 CD for your platform. **Note -** This option is not required if you have booted from a Solaris 8 Software 1 of 2 CD image for your platform because this CD image is mounted on `/cdrom` as part of the booting process.
profile	Is the name of the profile to test. If *profile* is not in the directory where `pfinstall` is being run, you must specify the path.

▼ To Test a Profile

1. **Locate a system on which to test the profile that is the same type of platform (SPARC or IA) for which the profile was created.**

   If you are testing an upgrade profile, you must test it on the actual system that you intend to upgrade.

2. **Use the decision table below to determine what to do next.**

If you	Then
Need to test an initial installation profile and have a system running Solaris 8	Become superuser on the system and go to Step 9 on page 178.
Need to test an upgrade profile, or you don't have a system running Solaris 8 to test an initial installation profile	Go to Step 3 on page 177.

3. **Boot the system from a Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image, either from the system's local CD-ROM drive or from an install server.**

   Chapter 5 contains additional information about booting a system.

   Note - If you are testing an upgrade profile, boot the system that you are going to upgrade.

4. **If prompted, respond to the system identification questions.**

5. **If you are presented with a choice of installation methods, select Solaris Interactive Installation.**

6. **Exit from the first screen of the Solaris 8 Interactive Installation Program.**

   After the Solaris 8 Interactive Installation Program exits, a shell prompt is displayed.

7. **Create a temporary mount point:**

```
# mkdir /tmp/mnt
```

8. **Mount the directory that contains the profile(s) you want to test:**

If you want to	Then type
Mount a remote NFS file system (for systems on the network)	**mount -F nfs** *server_name*:*path* **/tmp/mnt**
Mount a UFS-formatted diskette	**mount -F ufs /dev/diskette /tmp/mnt**
Mount a PCFS-formatted diskette	**mount -F pcfs /dev/diskette /tmp/mnt**

9. To test the profile with a specific system memory size, set SYS_MEMSIZE to the specific memory size in Mbytes:

```
# SYS_MEMSIZE=memory_size
# export SYS_MEMSIZE
```

10. Did you mount a directory in Step 8 on page 177?

- If yes, change directory to `/tmp/mnt`:

```
# cd /tmp/mnt
```

- If no, change directory to where the profile is located, which is usually the JumpStart directory:

```
# cd jumpstart_dir_path
```

Caution - In the following step, you *must* include the –`d` or –`D` option (represented by *disk_configuration*), or `pfinstall` actually uses the profile you specify to install Solaris 8 and subsequently overwrites all the data already on the system.

11. Test the profile with the `pfinstall`(1M) command:

```
# /usr/sbin/install.d/pfinstall disk_configuration [–c path] profile
```

Example–Testing a Profile

The following example shows how to use `pfinstall` to test a profile named `basic_prof` against the disk configuration on a system on which Solaris 8 is installed. The `basic_prof` profile is located in the `/jumpstart` directory, and the path to the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image is specified because Volume Manager is being used.

```
# cd /jumpstart
# /usr/sbin/install.d/pfinstall -D -c /cdrom/pathname basic_prof
```

The following example shows how to use `pfinstall` to test the profile named `basic_prof` on a Solaris 8 system against the `535_test` disk configuration file and 64 Mbytes of system memory. This example uses a Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image located in the `/export/install` directory.

```
# SYS_MEMSIZE=64
# export SYS_MEMSIZE
# /usr/sbin/install.d/pfinstall -d 535_test -c /export/install basic_prof
```

Validating the `rules` File

Before you can use a profile and `rules` file, you must run the `check` script to validate that these files are set up correctly. If all rules and profiles are correctly set up, the `rules.ok` file is created, which is required by the custom JumpStart installation software to match a system to a profile.

Table 6–8 describes what the `check` script does.

TABLE 6–8 What Happens When You Use `check`

Stage	Description
1	The `rules` file is checked for syntax. `check` makes sure that the rule keywords are legitimate, and the *begin*, *class*, and *finish* fields are specified for each rule (the *begin* and *finish* fields can consist of a minus sign (`-`) instead of a file name).
2	If no errors are found in the `rules` file, each profile specified in the rules is checked for syntax.
3	If no errors are found, `check` creates the `rules.ok` file from the `rules` file, removes all comments and blank lines, retains all rules, and adds the following comment line at the end: # `version=2 checksum=num`

Note - Ensure that `root` owns the `rules.ok` file and that its permissions are set to 644.

Syntax of `check`

This is the syntax of the `check` script you use to test a `rules` file:

```
$ ./check [-p path] [-r file_name]
```

TABLE 6–9 Description of `check` Script Arguments

Argument	Description
–p *path*	Validates the `rules` file by using the `check` script from the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image, instead of the `check` script from the system you are using. *path* is the image on a local disk or a mounted Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD. Use this option to run the most recent version of `check` if your system is running a previous version of Solaris.
–r *file_name*	Specifies a rules file other than the one named `rules`. Using this option, you can test the validity of a rule before integrating it into the `rules` file.

▼ To Validate the `rules` File

1. **Make sure that the `check` script is located in the JumpStart directory.**

   Note - The `check` script is in the `Solaris_8/Misc/jumpstart_sample` directory on the Solaris 8 Software 1 of 2 SPARC Platform Edition, or the Solaris 8 Software 1 of 2 Intel Platform Edition CD.

2. **Change directory to the JumpStart directory.**

3. **Run the `check` script to validate the `rules` file:**

   ```
   $ ./check [-p path -r file_name]
   ```

   As the `check` script runs, it reports the checking of the validity of the `rules` file and each profile. If no errors are encountered, it reports: `The custom JumpStart configuration is ok`.

Once you've validated the `rules` file, you can learn more about optional custom JumpStart features in Chapter 7 and about performing custom JumpStart installations in Chapter 10.

CHAPTER 7

Using Optional Custom JumpStart Features

This chapter describes the optional features that are available to create additional custom JumpStart installation tools.

Note - Instructions in this chapter are valid for either a SPARC or IA server that is being used to provide custom JumpStart files (called a *profile server*). A profile server can provide custom JumpStart files for different platform types. For example, a SPARC server can provide custom JumpStart files for both SPARC and IA based systems.

Creating Begin Scripts

What Is a Begin Script?

A *begin script* is a user-defined Bourne shell script, specified within the `rules` file, that performs tasks before the Solaris software is installed on a system. You can use begin scripts only when using custom JumpStart to install Solaris.

Possible Uses of Begin Scripts

- Creating derived profiles
- Backing up files before upgrading

Important Information About Begin Scripts

- Be careful that you do not specify something in the script that would prevent the mounting of file systems onto `/a` during an initial or upgrade installation. If JumpStart cannot mount the file systems onto `/a`, an error occurs and installation fails.
- Output from the begin script is deposited in `/var/sadm/begin.log`.
- Ensure that `root` owns the begin script and that its permissions are set to 644.

Creating Derived Profiles With a Begin Script

A *derived profile* is a profile that is dynamically created by a begin script during a custom JumpStart installation. Derived profiles are needed when you cannot set up the `rules` file to match specific systems to a profile (when you need more flexibility than the `rules` file can provide). For example, you might need to use derived profiles for identical system models that have different hardware components (for example, systems that contain different frame buffers).

To set up a rule to use a derived profile, you must:

- Set the profile field to an equal sign (=) instead of a profile.
- Set the begin field to a begin script that creates a derived profile depending on the system on which you intend to install Solaris.

When a system matches a rule with the profile field equal to an equal sign (=), the begin script creates the derived profile that is used to install the Solaris software on the system.

An example of a begin script that creates the same derived profile every time is shown below. However, you can write a begin script to create different derived profiles depending on the evaluation of rules.

```
#!/bin/sh
echo "install_type        initial_install"    > ${SI_PROFILE}
echo "system_type         standalone"        >> ${SI_PROFILE}
echo "partitioning        default"           >> ${SI_PROFILE}
echo "cluster             SUNWCprog"         >> ${SI_PROFILE}
echo "package       SUNWman     delete"      >> ${SI_PROFILE}
```

(continued)

(Continuation)

```
echo "package       SUNWolman   delete"      >> ${SI_PROFILE}
echo "package       SUNWxwman   delete"      >> ${SI_PROFILE}
```

As shown above, the begin script must use the SI_PROFILE environment variable for the name of the derived profile.

Note - If a begin script is used to create a derived profile, make sure there are no errors in it. A derived profile is not verified by the `check` script because it is not created until the execution of the begin script.

Creating Finish Scripts

What Is a Finish Script?

A *finish script* is a user-defined Bourne shell script, specified within the `rules` file, that performs tasks after the Solaris software is installed on a system, but before the system reboots. You can use finish scripts only when using custom JumpStart to install Solaris.

Possible Uses of Finish Scripts

- Adding files
- Adding individual packages or patches in addition to the ones installed in a particular software group
- Customizing the root environment
- Setting the system's root password

Important Information About Finish Scripts

- The Solaris 8 Interactive Installation Program mounts the system's file systems onto `/a`. The file systems remain mounted on `/a` until the system reboots. Therefore, you can use the finish script to add, change, or remove files from the

newly installed file system hierarchy by modifying the file systems respective to `/a`.

- Output from the finish script is deposited in `/var/sadm/finish.log`.
- Ensure that `root` owns the finish script and that its permissions are set to 644.

Adding Files With a Finish Script

Through a finish script, you can add files from the JumpStart directory to an already installed system. This is possible because the JumpStart directory is mounted on the directory specified by the SI_CONFIG_DIR variable (which is set to `/tmp/install_config` by default).

Note - You can also replace files by copying files from the JumpStart directory to already existing files on the installed system.

The following procedure enables you to create a finish script to add files to a system after the Solaris software is installed on it:

▼ To Add Files With a Finish Script

1. **Copy all the files you want added to the installed system into the JumpStart directory.**

2. **Insert the following line into the finish script for each file you want copied into the newly installed file system hierarchy:**

```
cp ${SI_CONFIG_DIR}/file_name  /a/path_name
```

For example, assume you have a special application, `site_prog`, developed for all users at your site. If you place a copy of `site_prog` into the JumpStart directory, the following line in a finish script copies `site_prog` from the JumpStart directory into a system's `/usr/bin` directory during a custom JumpStart installation:

```
cp ${SI_CONFIG_DIR}/site_prog  /a/usr/bin
```

Adding Packages or Patches With a Finish Script

You can create a finish script to automatically add packages or patches after Solaris is installed on a system. Adding packages in this way not only saves time, but ensures consistency in what packages and patches are installed on different systems at your site.

When using the `pkgadd`(1M) or `patchadd`(1M) commands in your finish scripts, use the `–R` option to specify `/a` as the root path.

Code Example 7–1 shows an example of a finish script that adds packages.

CODE EXAMPLE 7–1 Adding Packages With a Finish Script

```
 #!/bin/sh

  BASE=/a
  MNT=/a/mnt
  ADMIN_FILE=/a/tmp/admin

  mkdir ${MNT}
1 mount -f nfs sherlock:/export/package ${MNT}
2 cat >${ADMIN_FILE} <<DONT_ASK
  mail=root
  instance=overwrite
  partial=nocheck
  runlevel=nocheck
  idepend=nocheck
  rdepend=nocheck
  space=ask
  setuid=nocheck
  conflict=nocheck
  action=nocheck
  basedir=default
  DONT_ASK

3 /usr/sbin/pkgadd -a ${ADMIN_FILE} -d ${MNT} -R ${BASE} SUNWxyz

  umount ${MNT}
  rmdir ${MNT}
```

1. Mounts a directory on a server that contains the package to install.

2. Creates a temporary package administration file, `admin`, to force the `pkgadd`(1M) command not to perform checks (and prompt for questions) when installing a package. This enables you to maintain a hands-off installation when you are adding packages.

3. Adds the package by using the `–a` option (specifying the package administration file) and the `–R` option (specifying the root path).

Note - In the past, the `chroot`(1M) command was used with the `pkgadd` and `patchadd` commands in the finish script environment. In the rare instances in which some packages or patches do not work with the –`R` option, you must create a dummy `/etc/mnttab` file in the `/a` root path before issuing the `chroot` command.

To create a dummy `/etc/mnttab` file, add the following line to your finish script:

```
cp /etc/mnttab /a/etc/mnttab
```

Customizing the Root Environment With a Finish Script

You can also use finish scripts to customize files already installed on a system. For example, the finish script in Code Example 7–2 customizes the root environment by appending information to the `.cshrc` file in the root (`/`) directory.

CODE EXAMPLE 7–2 Customizing the Root Environment With a Finish Script

```
#!/bin/sh
#
# Customize root's environment
#
echo "***adding customizations in /.cshrc"
test -f a/.cshrc || {
cat >> a/.cshrc <<EOF
set history=100 savehist=200 filec ignoreeof prompt="\$user@'uname -n'> "
alias cp cp -i
alias mv mv -i
alias rm rm -i
alias ls ls -FC
alias h history
alias c clear
unset autologout
EOF
}
```

Setting a System's Root Password With a Finish Script

After Solaris software is installed on a system, the system reboots. Before the boot process is completed, the system prompts for the root password. Until someone enters a password, the system cannot finish booting.

A finish script called `set_root_pw` in the `auto_install_sample` directory shows how to avoid this problem by setting the root password automatically, without prompting. `set_root_pw` is shown in Code Example 7–3.

CODE EXAMPLE 7–3 Setting the System's Root Password With a Finish Script

```
  #!/bin/sh
  #
  #       @(#)set_root_pw 1.4 93/12/23 SMI
  #
  # This is an example Bourne shell script to be run after installation.
  # It sets the system's root password to the entry defined in PASSWD.
  # The encrypted password is obtained from an existing root password entry
  # in /etc/shadow from an installed machine.

  echo "setting password for root"

  # set the root password
1 PASSWD=dKO5IBkSF42lw
  #create a temporary input file
2 cp /a/etc/shadow /a/etc/shadow.orig

  mv /a/etc/shadow /a/etc/shadow.orig
  nawk -F: '{
3          if ( $1 == "root" )
           printf"%s:%s:%s:%s:%s:%s:%s:%s:%s\n",$1,passwd,$3,$4,$5,$6,$7,$8,$9
      else
          printf"%s:%s:%s:%s:%s:%s:%s:%s:%s\n",$1,$2,$3,$4,$5,$6,$7,$8,$9
      }' passwd="$PASSWD" /a/etc/shadow.orig > /a/etc/shadow
 #remove the temporary file
4 rm -f /a/etc/shadow.orig
 # set the flag so sysidroot won't prompt for the root password
5 sed -e 's/0 # root/1 # root/' ${SI_SYS_STATE} > /tmp/state.$$
  mv /tmp/state.$$ ${SI_SYS_STATE}
```

1. Sets the variable PASSWD to an encrypted root password obtained from an existing entry in a system's `/etc/shadow` file.

2. Creates a temporary input file of `/a/etc/shadow`.

3. Changes the root entry in the `/etc/shadow` file for the newly installed system using $PASSWD as the password field.

4. Removes the temporary `/a/etc/shadow` file.

5. Changes the entry from `0` to a `1` in the state file, so that the user is not prompted for the root password. The state file is accessed using the variable SI_SYS_STATE, whose value currently is `/a/etc/.sysIDtool.state`. (To avoid problems with your scripts if this value changes, always

(continued)

reference this file using $SI_SYS_STATE.) The `sed` command shown here contains a tab character after the `0` and after the `1`.

Note - If you set the system's root password by using a finish script, safeguard against those who might attempt to discover the root password from the encrypted password in your finish script.

SPARC: Creating Disk Configuration Files

This section describes how to create single- and multiple-disk configuration files for a SPARC based system. Disk configuration files enable you to test profiles against different disk configurations before actually installing Solaris software.

▼ SPARC: To Create a Disk Configuration File

Disk configuration files enable you to use `pfinstall`(1M) from a single system to test profiles against different disk configurations. Follow this procedure to create single- or multiple-disk configuration files:

1. **Locate a SPARC based system with a disk you want to test.**

2. **Become superuser.**

3. **Create a single disk configuration file by redirecting the output of the `prtvtoc`(1M) command to a file:**

```
# prtvtoc /dev/rdsk/device_name >disk_config
```

   where `/dev/rdsk/`*device_name* is the device name of the system's disk (*device_name* must be in the form `c`*w*`t`*x*`d`*y*`s2` or `c`*x*`d`*y*`s2`) and *disk_config* is the name of the disk configuration file.

4. **Do you want to test installing Solaris software on multiple disks?**
   - If no, stop, you're done.

- If yes, concatenate the single disk configuration files together and save the output in a new file:

```
# cat disk_file1 disk_file2 >multi_disk_config
```

The new file becomes the multiple-disk configuration file. For example:

```
# cat 104_disk2 104_disk3 104_disk5 >multi_disk_test
```

5. **Are the target numbers in the disk device names unique in the multiple-disk configuration file you created in the previous step?**
   - If yes, stop, you're done.
   - If no, open the file with the text editor of your choice and make them unique.

     If, for example, the file contains the same target number (`t0`) for different disk device names as shown here:

```
* /dev/rdsk/c0t0d0s2 partition map
...
* /dev/rdsk/c0t0d0s2 partition map
```

Change the second target number to `t2`, as shown here:

```
* /dev/rdsk/c0t0d0s2 partition map
...
* /dev/rdsk/c0t2d0s2 partition map
```

SPARC: Example

The following example shows how to create a single disk configuration file, `104_test`, on a SPARC based system with a 104-Mbyte disk.

You redirect the output of the `prtvtoc` command to a single disk configuration file named `104_test`:

```
# prtvtoc /dev/rdsk/c0t3d0s2 >104_test
```

The contents of the `104_test` file look like this:

```
* /dev/rdsk/c0t3d0s2 partition map
*
* Dimensions:
*     512 bytes/sector
*      72 sectors/track
*      14 tracks/cylinder
*    1008 sectors/cylinder
*    2038 cylinders*    2036 accessible cylinders
* Flags:
*   1: unmountable
*  10: read-only
*
*                           First     Sector    Last
* Partition  Tag  Flags    Sector     Count    Sector  Mount Directory
       1      2    00          0     164304   164303   /
       2      5    00          0    2052288  2052287
       3      0    00     164304     823536   987839   /disk2/b298
       5      0    00     987840     614880  1602719   /install/298/sparc/work
       7      0    00    1602720     449568  2052287   /space
```

You have completed creating disk configuration files for a SPARC based system. “Testing a Profile” on page 174 contains information about using disk configuration files to test profiles.

IA: Creating Disk Configuration Files

This section describes how to create single- and multiple-disk configuration files for an Intel 32–bit processor architecture (IA) based system. Disk configuration files enable you to test profiles against different disk configurations before actually installing Solaris software.

▼ IA: To Create a Disk Configuration File

Disk configuration files enable you to use `pfinstall`(1M) from a single system to test profiles against different disk configurations. Follow this procedure to create single- and multiple-disk configuration files:

1. **Locate an IA based system that contains a disk you want to test.**
2. **Become superuser.**
3. **Create part of the single disk configuration file by saving the output of the `fdisk`(1M) command in a file:**

```
# fdisk -R -W disk_config /dev/rdsk/device_name
```

where *disk_config* is the name of a disk configuration file and `/dev/rdsk/` *device_name* is the device name of the `fdisk` layout of the entire disk. *device_name* must be in the form `c`*w*`t`*x*`d`*y*`p0` or `c`*x*`d`*y*`p0`.

4. Append the output of the `prtvtoc`(1M) command to the disk configuration file:

```
# prtvtoc /dev/rdsk/device_name >>disk_config
```

where `/dev/rdsk/`*device_name* is the device name of the system's disk (*device_name* must be in the form `c`*w*`t`*x*`d`*y*`s2` or `c`*x*`d`*y*`s2`) and *disk_config* is the name of the disk configuration file.

5. Do you want to test installing Solaris software on multiple disks?

- If no, stop, you're done.
- If yes, concatenate the single disk configuration files together and save the output in a new file:

```
# cat disk_file1 disk_file2 >multi_disk_config
```

The new file becomes the multiple-disk configuration file. For example:

```
# cat 104_disk2 104_disk3 104_disk5 >multi_disk_test
```

6. Are the target numbers in the disk device names unique in the multiple-disk configuration file you created in the previous step?

- If yes, stop, you're done.
- If no, open the file with the text editor of your choice and make them unique.

  If, for example, the file contains the same target number (`t0`) for different disk device names as shown here:

```
* /dev/rdsk/c0t0d0s2 partition map
...
* /dev/rdsk/c0t0d0s2 partition map
```

Change the second target number to `t2`, as shown here:

```
* /dev/rdsk/c0t0d0s2 partition map
...
* /dev/rdsk/c0t2d0s2 partition map
```

IA: Example

The following example shows how to create a single disk configuration file, `500_test`, on an IA based system that contains a 500-Mbyte disk.

First, you save the output of the `fdisk` command to a file named `500_test`:

```
# fdisk -R -W 500_test /dev/rdsk/c0t0d0p0
```

The `500_test` file looks like this:

```
 * /dev/rdsk/c0t0d0p0 default fdisk table
* Dimensions:
*     512 bytes/sector
*      94 sectors/track
*      15 tracks/cylinder
*    1455 cylinders
*
*  HBA Dimensions:
*     512 bytes/sector
*      94 sectors/track
*      15 tracks/cylinder
*    1455 cylinders
*
* systid:
*  1:    DOSOS12
*  2:    PCIXOS
*  4:    DOSOS16
*  5:    EXTDOS
*  6:    DOSBIG
*  86:   DOSDATA
*  98:   OTHEROS
*  99:   UNIXOS
* 130:   SUNIXOS
*
* Id  Act Bhead Bsect   Bcyl  Ehead  Esect  Ecyl Rsect  Numsect
 130  128 44    3       0     46    30     1001 1410   2050140
```

Second, you append the output of the `prtvtoc` command to the `500_test` file:

```
# prtvtoc /dev/rdsk/c0t0d0s2 >>500_test
```

The `500_test` file is now a complete disk configuration file:

```
* /dev/rdsk/c0t0d0p0 default fdisk table
* Dimensions:
*     512 bytes/sector
*      94 sectors/track
*      15 tracks/cylinder
*    1455 cylinders
*
*  HBA Dimensions:
*     512 bytes/sector
*      94 sectors/track
*      15 tracks/cylinder
*    1455 cylinders
*
* systid:
*  1:    DOSOS12
*  2:    PCIXOS
*  4:    DOSOS16
*  5:    EXTDOS
*  6:    DOSBIG
*  86:   DOSDATA
*  98:   OTHEROS
*  99:   UNIXOS
*  130:  SUNIXOS
*
* Id  Act Bhead Bsect Bcyl  Ehead  Esec  Ecyl Rsect  Numsect
 130  128 44    3     0     46    30    1001 1410   2050140
* /dev/rdsk/c0t0d0s2 partition map
*
* Dimensions:
*      512 bytes/sector
*       94 sectors/track
*       15 tracks/cylinder
*     1110 sectors/cylinder
*     1454 cylinders
*     1452 accessible cylinders
*
* Flags:
*   1: unmountable
*  10: read-only
*                          First    Sector    Last
* Partition  Tag  Flags    Sector     Count    Sector  Mount Directory
       2      5    01       1410   2045910   2047319
       7      6    00       4230   2043090   2047319  /space
       8      1    01          0      1410     1409
       9      9    01       1410      2820     422987
```

You have completed creating disk configuration files for an IA based system. "Testing a Profile" on page 174 contains information about using disk configuration files to test profiles.

Using a Site-Specific Installation Program

You can also use begin and finish scripts to create your own installation program to install Solaris software.

When you specify a minus sign (-) in the profile field, begin and finish scripts control how Solaris software is installed on a system (not the profile and the Solaris 8 Interactive Installation Program).

For example, if the following rule matched a system, the `x_install.beg` begin script and the `x_install.fin` finish script install Solaris software on the system named `sherlock`:

```
hostname sherlock x_install.beg - x_install.fin
```

Custom JumpStart Environment Variables

There are several useful environment variables you can use in your begin and finish scripts. For example, a begin script could extract the disk size (SI_DISKSIZES) and install or not install particular packages on a system based on the actual disk size the script extracts.

Information gathered about a system is stored in these environment variables, which are generally set or not, depending on the rule keywords and values you use in the `rules` file.

For example, information about which operating system is already installed on a system is only available (in SI_INSTALLED) after the `installed` keyword is used.

Table 7–1 describes these variables and their values.

TABLE 7–1 Installation Environment Variables

This environment variable	Is set to
SI_ARCH	The hardware architecture of the install client. This variable is set when the `arch` keyword is used in the `rules` file.
SI_BEGIN	The name of the begin script, if one is used.
SI_CLASS	The name of the profile used to install the install client.
SI_DISKLIST	A comma-separated list of disk names on the install client. This variable is set when the `disksize` keyword is used and matched in the `rules` file. The SI_DISKLIST and SI_NUMDISKS variables are used to determine the physical disk to use for the `rootdisk` (described in "How the System's Root Disk Is Determined" on page 169).
SI_DISKSIZES	A comma-separated list of disk sizes on the install client. This variable is set when the `disksize` keyword is used and matched in the `rules` file.
SI_DOMAINNAME	The domain name. This variable is set when the `dommainname` keyword is used and matched in the `rules` file.
SI_FINISH	The name of the finish script, if one is used.
SI_HOSTADDRESS	The install client's IP address.
SI_HOSTNAME	The install client's host name. This variable is set when the `hostname` keyword is used and matched in the `rules` file.
SI_INSTALLED	The device name of a disk with a specific operating system on it (Solaris, SunOS, or System V). This variable is set when the `installed` keyword is used and matched in the the `rules` file. SI_INST_OS and SI_INST_VER are used to determine the value of SI_INSTALLED.
SI_INST_OS	The name of the operating system. SI_INST_OS and SI_INST_VER are used to determine the value of SI_INSTALLED.

TABLE 7–1 Installation Environment Variables *(continued)*

This environment variable	Is set to
SI_INST_VER	The version of the operating system. SI_INST_OS and SI_INST_VER are used to determine the value of SI_INSTALLED.
SI_KARCH	The install client's kernel architecture. This variable is set when the `karch` keyword is used and matched in the `rules` file.
SI_MEMSIZE	The amount of physical memory on the install client. This variable is set when the `memsize` keyword is used and matched in the `rules` file.
SI_MODEL	The install client's model name. This variable is set when the `model` keyword is used and matched in the `rules` file.
SI_NETWORK	The install client's network number. This variable is set when the `network` keyword is used and matched in the `rules` file.
SI_NUMDISKS	The number of disks on an install client. This variable is set when the `disksize` keyword is used and matched in the `rules` file. The SI_NUMDISKS and SI_DISKLIST variables are used to determine the physical disk to use for the `rootdisk` (described in "How the System's Root Disk Is Determined" on page 169).
SI_OSNAME	The operating system release on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image. You can, for example, use this variable in a script if you want to install Solaris on systems based on the version of the operating system on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image.
SI_ROOTDISK	The device name of the disk represented by the logical name `rootdisk`. This variable is set when the `disksize` or the `installed` keyword is set to `rootdisk` in the `rules` file.

TABLE 7–1 Installation Environment Variables *(continued)*

This environment variable	Is set to
SI_ROOTDISKSIZE	The size of the disk represented by the logical name `rootdisk`. This variable is set when the `disksize` or the `installed` keyword is set to `rootdisk` in the `rules` file.
SI_TOTALDISK	The total amount of disk space on the install client. This variable is set when the `totaldisk` keyword is used and matched in the `rules` file.

CHAPTER 8

Creating Custom Rule and Probe Keywords

This chapter provides information and procedures for creating your own custom rule and probe keywords.

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

Probe Keywords

What Is a Probe Keyword?

To understand what a probe keyword is, you first need to recall what a rule keyword is: a predefined lexical unit or word that describes a general system attribute, such as host name (`hostname`) or memory size (`memsize`). Rule keywords and their associated values enable you to match a system that has the same attribute to a profile, which defines how the Solaris software is to be installed on each system in the group.

Custom JumpStart environment variables, which you use in begin and finish scripts, are set on demand. For example, information about which operating system is

already installed on a system is only available (in SI_INSTALLED) after the `installed` rule keyword is used.

In some situations, however, you might need to extract this same information in a begin or finish script for a purpose other than to match a system and run a profile. *Probe keywords* provide the solution. They extract this same attribute information without your having to set up a matching condition and run a profile.

Probe Keywords and Values

Table 8–1 describes each rule keyword and its equivalent probe keyword.

Note - Always place probe keywords at or near the beginning of the `rules` file.

TABLE 8–1 Descriptions of Probe Keywords

Rule Keyword	Equivalent Probe Keyword	Description of Probe Keyword
`any`	None	
`arch`	`arch`	Determines the kernel architecture (i386 or SPARC) and sets SI_ARCH.
`disksize`	`disks`	Returns the size of a system's disks (in Mbytes) in kernel probe order (c0t3d0s0, c0t3d0s1, c0t4d0s0) and sets SI_DISKLIST, SI_DISKSIZES, SI_NUMDISKS, and SI_TOTALDISK.
`domainname`	`domainname`	Returns a system's NIS or NIS+ domain name or (if none) blank and sets SI_DOMAINNAME (this keyword actually returns the output of `domainname`(1M)).
`hostaddress`	`hostaddress`	Returns a system's IP address (the first address listed in the output of `ifconfig`(1M) `-a` that is not lo0) and sets SI_HOSTADDRESS.
`hostname`	`hostname`	Returns a system's host name (output from `uname`(1) `-n`) and sets SI_HOSTNAME.
`installed`	`installed`	Returns the version name, `Solaris_2.`*x* or `Solaris_`*x*, of the Solaris operating environment that is installed on a system and sets SI_ROOTDISK and SI_INSTALLED. If JumpStart finds a Solaris release but is unable to determine the version, the version returned is `SystemV`.
`karch`	`karch`	Returns a system's platform group (i86pc, sun4m, and sun4u, for example) and sets SI_KARCH. Appendix A contains a list of platform names.

TABLE 8–1 Descriptions of Probe Keywords *(continued)*

Rule Keyword	Equivalent Probe Keyword	Description of Probe Keyword
`memsize`	`memsize`	Returns the size of physical memory on a system (in Mbytes) and sets SI_MEMSIZE.
`model`	`model`	Returns a system's platform name and sets SI_MODEL. Appendix A contains a list of platform names.
`network`	`network`	Returns a system's network number, which JumpStart determines by performing a logical AND between the system's IP address and the subnet mask (which are extracted from the first address listed in the output of `ifconfig`(1M) `-a` that is not lo0); also sets SI_NETWORK.
`osname`	`osname`	Returns the version and operating system name, `Solaris_2.`*x* or `Solaris_`*x*, of the Solaris operating environment that is found on a CD and sets SI_OSNAME. If JumpStart finds a Solaris release but is unable to determine the version, the version returned is `SystemV`.
	`rootdisk`	Returns the name and size (in Mbytes) of a system's root disk and sets SI_ROOTDISK.
`totaldisk`	`totaldisk`	Returns the total disk space on a system (in Mbytes) and sets SI_TOTALDISK. The total disk space includes all the operational disks attached to a system.

Creating a `custom_probes` File

If the rule and probe keywords described in Table 6–3 and Table 8–1 are not enough for your needs, you can define your own custom rule or probe keywords by creating a `custom_probes` file.

What Is a `custom_probes` File?

The `custom_probes` file, which must be located in the same JumpStart directory as the `rules` file, is a Bourne shell script that contains two types of functions.

TABLE 8–2 Types of Functions You Define in `custom_probes`

Type of Function	Description
Probe	Gathers the information you want or does the actual work and sets a corresponding SI_ environment variable you define. Probe functions become probe keywords.
Comparison	Calls a corresponding probe function, compares the output of the probe function, and returns 0 if the keyword matches or 1 if the keyword doesn't match. Comparison functions become rule keywords.

Syntax of the `custom_probes` File

The `custom_probes` file *can* contain any valid Bourne shell command, variable, or algorithm.

Note - You can define probe and comparison functions that require a single argument in the `custom_probes` file. When you subsequently use the corresponding custom probe keyword in the `rules` file, the argument after the keyword is interpreted (as $1).

When you subsequently use the corresponding custom rule keyword in the `rules` file, the argument is interpreted starting after the keyword and ending before the next && or begin script, whichever comes first.

The `custom_probes` file *must*:

- Be named `custom_probes`
- Be owned by `root`
- Be executable (have its permissions set to 755)
- Contain at least one probe function and one corresponding comparison function

To improve clarity and organization, define all probe functions first, at the top of the file, followed by all comparison functions.

Syntax of Function Names in `custom_probes`

The name of a probe function *must* begin with `probe_`. The name of a comparison function *must* begin with `cmp_`.

Functions that begin with `probe_` define new probe keywords (the function `probe_tcx` defines the new probe keyword `tcx`, for example). Functions that begin with `cmp_` define new rule keywords (`cmp_tcx` defines the new rule keyword `tcx`, for example).

Example of a `custom_probes` File

This `custom_probes` file contains a probe and comparison function that tests for the presence of a TCX graphics card.

Note - You can find additional examples of probe and comparison functions in:

- `/usr/sbin/install.d/chkprobe` on a system that has Solaris installed
- `/Solaris_8/Tools/Boot/usr/sbin/install.d/chkprobe` on the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition

---

```
#!/bin/sh
#
# custom_probe script to test for the presence of a TCX graphics card.
#

#
# PROBE FUNCTIONS
#
probe_tcx() {
  SI_TCX=‘modinfo | grep tcx | nawk ’{print $6}’‘
  export SI_TCX
}

#
# COMPARISON FUNCTIONS
#
cmp_tcx() {
  probe_tcx

  if [ "X${SI_TCX}" = "X${1}" ]; then
     return 0
  else
     return 1
  fi
}
```

Example of a Custom Probe Keyword Used in a `rules` File

This example `rules` file shows the use of the probe keyword defined in the preceding example (`tcx`). If a TCX graphics card is installed and found in a system, `profile_tcx` is run. Otherwise, `profile` is run.

Note - Always place probe keywords at or near the beginning of the `rules` file to ensure that they are read and run before other rule keywords (that may rely on them).

```
probe tcx
tcx     tcx     -     profile_tcx     -
any     any     -     profile         -
```

▼ To Create a `custom_probes` File

1. **Using a text editor of your choice, create a Bourne shell script text file named `custom_probes`.**

2. **In the `custom_probes` text file, define the probe and comparison functions you want.**

   Note - You can define probe and comparison functions that require arguments in the `custom_probes` file. When you subsequently use the corresponding custom probe keyword in the `rules` file, the arguments after the keyword are interpreted in sequence (as $1, $2, and so on).

   When you subsequently use the corresponding custom rule keyword in the `rules` file, the arguments are interpreted in sequence starting after the keyword and ending before the next && or begin script, whichever comes first.

   ---

3. **Save the `custom_probes` file in the JumpStart directory (next to the `rules` file).**

   Ensure that `root` owns the `rules` file and that its permissions are set to 644.

Validating the custom_probes File

Before you can use a profile, rules, and custom_probes file, you must run the check script to validate that these files are set up correctly. If all profiles, rules, and probe and comparison functions are correctly set up, the rules.ok and custom_probes.ok files are created. Table 8–3 describes what the check script does.

TABLE 8–3 What Happens When You Use check

Stage	Description
1	check searches for a custom_probes file.
2	If the file exists, check creates the custom_probes.ok file from the custom_probes file, removes all comments and blank lines, retains all Bourne shell commands, variables, and algorithms, and adds the following comment line at the end: # version=2 checksum=num

Note - Ensure that root owns the custom_probes.ok file and that its permissions are set to 755.

Syntax of check

This is the syntax of the check script you use to test a custom_probes file:

```
$ ./check [-p path -r file_name]
```

TABLE 8–4 Description of `check` Script Arguments

Argument	Description
–p *path*	Validates the `custom_probes` file by using the `check` script from the Solaris 8 Software 1 of 2 CD image for your platform, instead of the `check` script from the system you are using. *path* is the image on a local disk or a mounted Solaris 8 Software 1 of 2 CD. Use this option to run the most recent version of `check` if your system is running a previous version of Solaris.
–r *file_name*	Specifies a file name other than the one named `custom_probes`. Using this option, you can test the validity of a set of functions before integrating it into the `custom_probes` file.

▼ To Validate the `custom_probes` File

1. **Make sure the `check` script is located in the JumpStart directory.**

   Note - The `check` script is in the `Solaris_8/Misc/jumpstart_sample` directory on the Solaris 8 Software 1 of 2 SPARC Platform Edition and Solaris 8 Software 1 of 2 Intel Platform Edition CD.

2. **Change to the JumpStart directory.**

3. **Run the `check` script to validate the `rules` and `custom_probes` files.**

   ```
   $ ./check [-p path -r file_name]
   ```

   As the `check` script runs, it reports the validity of the `rules` and `custom_probes` files and each profile. If no errors are encountered, it reports: "The custom JumpStart configuration is ok" and creates the `rules.ok` and `custom_probes.ok` files in the JumpStart directory.

4. **Is the `custom_probes.ok` file executable?**

   - If yes, stop, you're done.
   - If no, type the command:

     `chmod +x custom_probes`

CHAPTER 9

Preparing to Install Solaris Software Over the Network

The typical way to install Solaris software is to use a system's CD-ROM drive. However, if your systems are connected through a network, you can install Solaris software on systems over the network instead.

Network installations enable you to install the Solaris software from a system that has access to the Solaris 8 CD images, called an *install server*, to other systems on the network. You can copy the contents of the Solaris 8 CDs to the install server's hard disk.

This chapter covers the following topics:

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

Task Map: Preparing to Install Solaris Software Over the Network

TABLE 9–1 Task Map: Preparing to Install Solaris Over the Network

Task	Description	For instructions, go to
Create an install server	You can create an install server by copying the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition to the server's hard disk (using the command `setup_install_server`(1M) command), and then copying the CDs labeled Solaris 8 Software 2 of 2 SPARC Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition and Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition to the server's hard disk (using the `add_to_install_server`(1M) command). You can also add the Solaris Web Start user interface software to the net install image if you want by using the `modify_install_server`(1M) command.	"To Create an Install Server" on page 214
Create boot servers	If you want to install systems over the network that are not on the same subnet as the install server, you must create a boot server on the subnet to boot the systems. Use the `setup_install_server`(1M) command with the `–b` option and the `add_to_install_server`(1M) and `modify_install_server`(1M) commands to create a boot server.	"To Create a Boot Server on a Subnet" on page 218

TABLE 9–1 Task Map: Preparing to Install Solaris Over the Network *(continued)*

Task	Description	For instructions, go to
Set up systems to be installed over the network	You can use the command `add_install_client`(1M) on the command line to add network installation information about a system to an install or boot server's `/etc` files, so the system can install over the network.	"To Set Up Systems to Be Installed Over the Network With `add_install_client`" on page 223

Servers Required for Network Installation

Systems that install Solaris software over the network require:

- *Install server* – A networked system that provides Solaris 8 CD images from which you can install Solaris 8 on another system on the network. You can create an install server by copying the images on the Solaris 8 Software 1 of 2, Solaris 8 Software 2 of 2, and Solaris 8 Languages CDs to the server's hard disk.

  By copying these CD images to the server's hard disk, you enable a single install server to provide Solaris 8 CD images for multiple releases, including Solaris 8 CD images for different platforms.

  For example, a SPARC install server could provide the:

  - Solaris 7 CD image
  - Solaris 8 Software 1 of 2 SPARC Platform Edition CD image
  - Solaris 8 Software 2 of 2 SPARC Platform Edition CD image
  - Solaris 8 Languages SPARC Platform Edition CD image

  as well as the:

  - Solaris 8 Software 1 of 2 Intel Platform Edition CD image
  - Solaris 8 Software 2 of 2 Intel Platform Edition CD image
  - Solaris 8 Languages Intel Platform Edition CD image

- *Name server* – A system that manages a distributed network database (such as NIS or NIS+) that contains information about users and other systems on the network.

Note - The install server and name server can be the same or different systems.

- *Boot server* – A system used to boot the system to be installed over the network. A boot server and install server are typically the same system. However, if the system on which Solaris 8 is to be installed is located in a *different* subnet than the install server, a boot server is required on that subnet.

  A single boot server can provide Solaris 8 boot software for multiple releases, including the Solaris 8 boot software for different platforms. For example, a SPARC boot server could provide the Solaris 7 and Solaris 8 boot software for SPARC based systems, and the same SPARC boot server could also provide the Solaris 8 boot software for IA based systems.

- *OS server* – A system that provides Solaris operating environment software including services, file systems, or both.

  An OS server can also provide several LAN interfaces, each servicing a separate subnet.

Figure 9–1 illustrates the servers required for network installation.

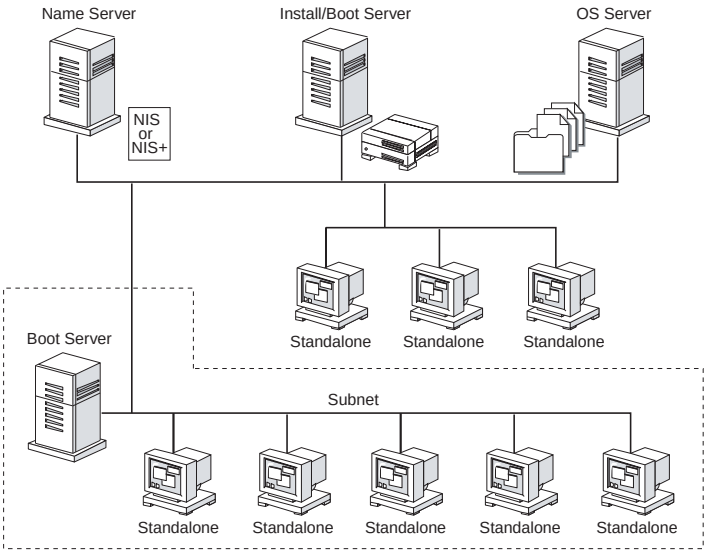


Figure 9–1 Network Installation Servers

Network Installation Commands

Table 9–2 lists the commands you need to use to set up network installations.

TABLE 9–2 Network Installation Commands

Command	Platform	Description
`add_install_client`	All	A command that adds network installation information about a system to an install or boot server's `/etc` files so the system can install over the network.
`setup_install_server`	All	A script that copies the Solaris 8 CDs to an install server's local disk or copies the boot software to a boot server. The `setup_install_server`(1M) man page contains more information.
`add_to_install_server`	All	A script that copies additional packages within a product tree on the Solaris 8 Software and Solaris 8 Languages CDs to the local disk on an existing install server. The `add_to_install_server`(1M) man page contains more information.
`modify_install_server`	All	A script that adds the Solaris Web Start user interface software to the Solaris 8 Software and Solaris 8 Languages CD images on an existing install server, thus enabling users to use Solaris Web Start to boot a system and install the Solaris 8 software over a network. The `modify_install_server`(1M) man page contains more information.
`mount`	All	A command that shows mounted file systems, including the file system on the Solaris 8 Software and Solaris 8 Languages CDs. The `mount`(1M) man page contains more information.
`uname -i`	All	A command for determining a system's platform name (for example, SUNW,SPARCstation-5 or i86pc). This information is sometimes required during installation. The `uname`(1) man page contains more information.
`patchadd -C` *net_install_image*	All	A command to add patches to the files located in the miniroot (that is, `Solaris_8/Tools/Boot`) on an image of an installation CD image created by `setup_install_server`. This facility enables you to patch Solaris installation commands and other miniroot-specific commands. *net_install_image* is the absolute path name of the net install image. The `patchadd`(1M) man page contains more information.

TABLE 9–2 Network Installation Commands *(continued)*

Command	Platform	Description
`reset`	SPARC	A command for resetting the terminal settings and display. It is sometimes useful to use `reset` before booting. Or, if you boot and see a series of error messages about I/O interrupts, press the Stop and A keys at the same time, and then type `reset` at the `ok` or > PROM prompt. The `reset`(1F) man page contains more information.
`banner`	SPARC	A command that displays system information, such as model name, Ethernet address, and memory installed. You can issue this command only at the `ok` or > PROM prompt. The `banner`(1) man page contains more information.

Creating an Install Server and a Boot Server

You must create an install server, and possibly a boot server, to install the Solaris software on a system over the network. This section describes how to:

- Create an install server by copying the Solaris 8 CD images to the server's hard disk.

SPARC platform only - You cannot use a SunOS 4.1.*x* system as an install server.

- Create separate boot servers (required *only* if systems are not in the same subnet as the install server) for each subnet. Instead of creating separate boot servers, you can create an install server for each subnet; however, this requires more disk space.

▼ To Create an Install Server

1. **On the system that is going to be the install server, log in and become superuser.**

   This system must include a CD-ROM drive and be part of the site's network and name service. The system must also be in the NIS or NIS+ name service. (If your site doesn't use the NIS or NIS+ name service, you must distribute information about this system by following your site's policies.)

Note - This procedure assumes that the system is running Volume Manager. If you are not using Volume Manager to manage diskettes and CDs, refer to *System Administration Guide, Volume I* for detailed information about managing removable media without Volume Manager.

2. **Insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition into the system's CD-ROM drive.**

3. **If necessary, mount the CD.**

   Volume Manager automatically mounts the CD.

4. **Change to the** `Tools` **directory on the mounted CD**:

```
# cd /cdrom/sol_8_sparc#2/s0/Solaris_8/Tools
```

```
# cd /cdrom/sol_8_ia#1/s2/Solaris_8/Tools
```

5. **Copy the CD in the CD-ROM drive to the install server's hard disk by using the** `setup_install_server` **command**:

```
# ./setup_install_server install_dir_path
```

   where *install_dir_path* specifies the directory where the CD image is to be copied. The directory must be empty.

Note - The `setup_install_server` command indicates whether or not there is enough disk space available for the Solaris 8 Software CD images. To determine available disk space, use the `df -kl` command.

6. **Eject the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD.**

7. **Insert the CD labeled Solaris 8 Software 2 of 2 SPARC Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition into the system's CD-ROM drive.**

8. **If necessary, mount the CD.**

   Volume Manager automatically mounts the CD.

9. **Change to the `Tools` directory on the mounted CD:**

```
# cd /cdrom/sol_8_sparc_2#1/Solaris_8/Tools
```

```
# cd /cdrom/sol_8_ia_2#1/Solaris_8/Tools
```

10. **Copy the CD in the CD-ROM drive to the install server's hard disk by using the `add_to_install_server` command:**

```
# ./add_to_install_server install_dir_path
```

where *install_dir_path* specifies the directory where the CD image is to be copied.

11. **Eject the Solaris 8 Software 2 of 2 SPARC Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition CD.**

12. **Insert the CD labeled Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition into the system's CD-ROM drive.**

13. **If necessary, mount the CD.**

Volume Manager automatically mounts the CD.

14. **Change to the `Tools` directory on the mounted CD:**

```
# cd /cdrom/sol_8_lang_sparc#2/Tools
```

```
# cd /cdrom/sol_8_lang_ia#1/Tools
```

15. **Copy the CD in the CD-ROM drive to the install server's hard disk by using the `add_to_install_server` command:**

```
# ./add_to_install_server install_dir_path
```

where *install_dir_path* specifies the directory where the CD image is to be copied.

16. **Do you want to enable users to use Solaris Web Start to boot a system and install the Solaris 8 software over a network?**

- If no, eject the Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition CD and go to Step 21 on page 217.

- If yes, eject the Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition CD.

17. Insert the CD labeled Solaris 8 Installation English SPARC Platform Edition, Solaris 8 Installation Multilingual SPARC Platform Edition, Solaris 8 Installation English Intel Platform Edition, or Solaris 8 Installation Multilingual Intel Platform Edition into the system's CD-ROM drive.

18. If necessary, mount the CD.

Volume Manager automatically mounts the CD.

19. Change to the directory that contains `modify_install_server` on the mounted CD:

```
# cd /cdrom/en_icd_sol_8_sparc/s0
```

```
# cd /cdrom/en_icd_sol_8_ia/s2
```

or

```
# cd /cdrom/multi_icd_sol_8_sparc/s0
```

```
# cd /cdrom/multi_icd_sol_8_ia/s2
```

20. Use the `modify_install_server` command to copy the Solaris Web Start interface software to the install server:

IA platform only - `modify_install_server` is located in the `s2` directory on the CD labeled Solaris 8 Installation English Intel Platform Edition or Solaris 8 Installation Multilingual Intel Platform Edition.

```
# ./modify_install_server install_dir_path installer_miniroot_path
```

where *install_dir_path* specifies the directory where the Solaris Web Start interface is to be copied and *installer_miniroot_path* specifies the directory on the CD in the CD-ROM drive from which the Solaris Web Start interface is to be copied.

21. Do you want to patch the files located in the miniroot (`Solaris_8/Tools/Boot`) on the net install image created by `setup_install_server`?

- If no, go to the next step.

- If yes, use the `patchadd -C` command to patch the files located in the miniroot.

22. Use the decision table below to determine what to do next.

If the install server is	Then
On the same subnet as the system to be installed	You don't need to create a boot server. Go to "Setting Up Systems to Be Installed Over the Network" on page 222.
Not on the same subnet as the system to be installed	You must follow the steps in "To Create a Boot Server on a Subnet" on page 218.

SPARC: Example—Creating an Install Server

The following example illustrates how to create an install server by copying the CDs labeled Solaris 8 Software 1 of 2 SPARC Platform Edition, Solaris 8 Software 2 of 2 SPARC Platform Edition, Solaris 8 Languages SPARC Platform Edition, and Solaris 8 Installation Multilingual SPARC Platform Edition to the install server's `/export/install` directory:

```
# cd /cdrom/sol_8_sparc#2/s0/Solaris_8/Tools
# ./setup_install_server /export/install
# cd /cdrom/sol_8_sparc_2#1/Solaris_8/Tools
# ./add_to_install_server /export/install
# cd /cdrom/sol_8_lang_sparc#2/Tools
# ./add_to_install_server /export/install
# cd /cdrom/en_icd_sol_8_sparc/s0
# ./modify_install_server /export/install /cdrom/en_icd_sol_8_sparc/s2
```

Note - In this example, each CD is inserted and automatically mounted before and removed after each of the commands shown above.

▼ To Create a Boot Server on a Subnet

You can install Solaris software over the network from any install server on the network. However, a system that needs to use an install server on another subnet *requires* a separate boot server on its own subnet. A *boot server* contains enough of the boot software to boot systems over the network, and then the install server takes over to install the Solaris software.

1. **On the system you intend to make the boot server for the subnet, log in and become superuser.**

   This system must include a local CD-ROM drive or have access to the remote Solaris 8 CD images. The system must also be included in the NIS or NIS+ name service. (If your site doesn't use the NIS or NIS+ name service, you must distribute information about this system by following your site's policies.)

Note - This procedure assumes that the system is running Volume Manager. If you are not using Volume Manager to manage diskettes and CDs, refer to *System Administration Guide, Volume I* for detailed information about managing removable media without Volume Manager.

---

2. **Use the decision table below to determine what to do next.**

If you want to	Then
Mount the Solaris 8 Software 1 of 2 CD for your platform on the boot server's CD-ROM drive	1. Insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition into the CD-ROM drive. 2. If necessary, mount the CD. Volume Manager automatically mounts the CD.
Mount a Solaris 8 Software 1 of 2 CD image for your platform from a remote install server via NFS	1. Mount the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image: # **mount -F nfs -o ro** *server_name*:*path* **/mnt** where *server_name*:*path* is the host name and absolute path to the CD image. 2. Change directory to the mounted CD image: # **cd /mnt**

3. **Change to the `Tools` directory on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image:**

```
# cd Solaris_8/Tools
```

4. **Copy the boot software to the boot server by using the `setup_install_server` command:**

```
# ./setup_install_server -b boot_dir_path
```

–b	Specifies that the system is to be set up as a boot server.
boot_dir_path	Specifies the directory where the boot software is to be copied. The directory must be empty.

Note - The `setup_install_server` command indicates whether or not there is enough disk space available for the Solaris 8 Software CD images. To determine available disk space, use the `df -kl` command.

---

5. **Eject the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD.**

6. **Insert the CD labeled Solaris 8 Software 2 of 2 SPARC Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition into the system's CD-ROM drive.**

7. **If necessary, mount the CD.**

   Volume Manager automatically mounts the CD.

8. **Change to the `Tools` directory on the mounted CD:**

```
# cd Solaris_8/Tools
```

9. **Copy the CD in the CD-ROM drive to the install server's hard disk by using the `add_to_install_server` command:**

```
# ./add_to_install_server install_dir_path
```

   where *install_dir_path* specifies the directory where the CD image is to be copied.

10. **Eject the Solaris 8 Software 2 of 2 SPARC Platform Edition or Solaris 8 Software 2 of 2 Intel Platform Edition CD.**

11. **Insert the CD labeled Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition into the system's CD-ROM drive.**

12. **If necessary, mount the CD.**

    Volume Manager automatically mounts the CD.

13. **Change to the `Tools` directory on the mounted CD:**

```
# cd /cdrom/sol_8_lang_sparc#2/Tools
```

```
# cd /cdrom/sol_8_lang_ia#1/Tools
```

14. Copy the CD in the CD-ROM drive to the install server's hard disk by using the `add_to_install_server` command:

```
# ./add_to_install_server install_dir_path
```

where *install_dir_path* specifies the directory where the CD image is to be copied.

15. Do you want to enable users to use Solaris Web Start to boot a system and install the Solaris 8 software over a network?

- If no, eject the Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition CD and go to Step 21 on page 217.
- If yes, eject the Solaris 8 Languages SPARC Platform Edition or Solaris 8 Languages Intel Platform Edition CD.

16. Insert the CD labeled Solaris 8 Installation English SPARC Platform Edition, Solaris 8 Installation Multilingual SPARC Platform Edition, Solaris 8 Installation English Intel Platform Edition, or Solaris 8 Installation Multilingual Intel Platform Edition into the system's CD-ROM drive.

17. If necessary, mount the CD.

Volume Manager automatically mounts the CD.

18. Use the `modify_install_server` command to copy the Solaris Web Start interface software to the install server:

IA platform only - `modify_install_server` is located in the `s2` directory on the CD labeled Solaris 8 Installation English Intel Platform Edition or Solaris 8 Installation Multilingual Intel Platform Edition.

```
# ./modify_install_server install_dir_path installer_miniroot_path
```

where *install_dir_path* specifies the directory where the Solaris Web Start interface is to be copied and *installer_miniroot_path* specifies the directory on the CD in the CD-ROM drive from which the Solaris Web Start interface is to be copied.

SPARC: Example—Creating a Boot Server on a Subnet

The following example illustrates how to create a boot server on a subnet by copying the boot software from the Solaris 8 Software 1 of 2 SPARC Platform Edition CD image to `/export/install/boot` on the system's local disk, and then copying the Solaris 8 Software 2 of 2 SPARC Platform Edition, Solaris 8 Languages SPARC Platform Edition, and Solaris 8 Installation Multilingual SPARC Platform Edition CDs to the install server's `/export/install/boot` directory:

```
# cd /cdrom/sol_8_sparc#2/s0/Solaris_8/Tools
# ./setup_install_server -b /export/install/boot
# cd /cdrom/sol_8_sparc_2#1/Solaris_8/Tools
# ./add_to_install_server /export/install/boot
# cd /cdrom/sol_8_lang_sparc#2/Tools
# ./add_to_install_server /export/install/boot
# cd /cdrom/en_icd_sol_8_sparc/s0
# ./modify_install_server /export/install/boot /cdrom/en_icd_sol_8_sparc/s2
```

Note - In this example, each CD is inserted and automatically mounted before and removed after each of the commands shown above.

Setting Up Systems to Be Installed Over the Network

After you've created an install server and, if necessary, a boot server, you are ready to install the Solaris software on other systems over the network. However, to be installed over the network, a system needs to know where to:

- Install from (install server)
- Boot from (install server or boot server)
- Find its profile during a custom JumpStart installation (JumpStart directory on the profile server)

Because a system looks for this information in the name service (`bootparams` database in the `/etc` files, NIS, or NIS+), when it installs over the network, you must add this information to the name service for every system that is going to be installed over the network. You add this information by using the `add_install_client` command.

Note - If you use the `/etc` files to store network installation information, the information must be located on the install server or the boot server (if a boot server is required).

▼ To Set Up Systems to Be Installed Over the Network With `add_install_client`

You can use the `add_install_client`(1M) command to set up systems to be installed over the network.

Note - The `add_install_client` command updates only the `/etc` files.

1. **Become superuser on the install server (or the boot server if a system requires one).**

2. **Make sure the following information about the system to be installed has been added to the name service (`/etc` files, NIS, or NIS+):**
   - Host name
   - IP address
   - Ethernet address

3. **Change to the `Tools` directory on the Solaris 8 Software 1 of 2 SPARC Platform Edition or Solaris 8 Software 1 of 2 Intel Platform Edition CD image on the install server or the boot server's boot directory:**

```
# cd Solaris_8/Tools
```

4. **Use the `add_install_client` command to set up a system to be installed over the network:**

```
# ./add_install_client [-d] [-c server:jumpstart_dir_path] [-s install_server:install_dir_path] \
[-p server:path] host_name platform_group
```

–d	Specifies that the client is to use DHCP to obtain the network install parameters.
–c *server*:*jumpstart_dir_path*	Specifies a JumpStart directory for custom JumpStart installations. This option and its arguments are required only for custom JumpStart installations. *server* is the host name of the server on which the JumpStart directory is located. *jumpstart_dir_path* is the absolute path to the JumpStart directory.
–s *install_server*:*install_dir_path*	Specifies the install server. This option is required only when you are using `add_install_client` on a boot server. *install_server* is the host name of the install server. *install_dir_path* is the absolute path to the Solaris 8 Software 1 of 2 CD image for your platform.
–p *server*:*path*	Specifies the `sysidcfg` file for preconfiguring system information. *server* is either a valid host name or IP address for the server that contains the file. *path* is the absolute path to the `sysidcfg` file.
host_name	Is the host name of the system to be installed over the network. (This is *not* the host name of the install server.) The host must be in the name service for this command to work.
platform_group	Is the platform group of the system to be installed. A detailed list of platform groups appears in Appendix A.

SPARC: Example—Adding Systems to Be Installed Over the Network With `add_install_client`

The following example illustrates how to add a system named `basil`, which is a SPARCstation 10, to be installed over the network. The system requires a boot server, so the command is run on the boot server. The –s option is used to specify the install server named `install_server1`, which contains a Solaris 8 Software 1 of 2 SPARC Platform Edition CD image in `/export/install`:

```
# cd /export/boot/Solaris_8/Tools
# ./add_install_client -s install_server1:/export/install basil sun4m
```

CHAPTER 10

Performing a Custom JumpStart Installation

This chapter describes how to perform a custom JumpStart installation on a SPARC or an IA based system. You need to follow these procedures on the system on which you intend to install the Solaris 8 software.

Note - The *Solaris 8 Start Here* booklet and the *Solaris 8 (SPARC Platform Edition) Installation Guide* or *Solaris 8 (Intel Platform Edition) Installation Guide* describe how to install Solaris on a single system from a local CD-ROM. Using the Solaris 8 Interactive Installation Program to install Solaris 8 software is described in Chapter 5.

Installing Solaris Using Custom JumpStart

▼ SPARC: To Perform a Custom JumpStart Installation

1. **Use Table 10–1 to ensure that the system on which you intend to install Solaris 8 is correctly set up for a custom JumpStart installation.**

TABLE 10–1 SPARC: Task Map: Setting Up a System for a Custom JumpStart Installation

Task	Description	For instructions, go to
Back up existing Solaris 1.*x* (SunOS 4.*x*) files	If a previous Solaris 1.*x* release (SunOS 4.*x*) is installed on the system, you can convert or merge some Solaris 1.*x* files into Solaris 8 files. You can use begin and finish scripts to convert or merge the files.	*Solaris Transition Guide*
Check if the system is supported	Check the hardware documentation to see if the system is supported in Solaris 8.	*Solaris 8 Sun Hardware Platform Guide*
Decide how to upgrade the system if a previous version of Solaris installed on it	If a previous release of Solaris is installed on the system, you need to determine how to upgrade the system. Make sure you know what to do before and after you upgrade a system, as planning will help you set up your profiles, begin scripts, and finish scripts.	Chapter 5
Check if the system has enough disk space for the Solaris 8 software	*Optional.* There are many considerations when planning disk space, such as deciding which software group you want to install.	Chapter 2
Preconfigure system configuration information	*Optional.* You can use the `sysidcfg` file or the name service to preconfigure installation information (for example, `locale`) for a system so you won't be prompted to supply the information during the installation.	Chapter 4
Prepare the system for custom Jumpstart installation	You need to do some initial work to set up the system before you can install Solaris 8 software with custom JumpStart.	Chapter 6

TABLE 10–1 SPARC: Task Map: Setting Up a System for a Custom JumpStart Installation *(continued)*

Task	Description	For instructions, go to
Set up the system to install over the network	**For network installations only** To install a system from a remote Solaris 8 Software SPARC Platform Edition CD image, you need to set up the system to boot and install from an install or boot server.	Chapter 9

2. **If the system is part of a network, make sure an Ethernet connector or similar network adapter is plugged into your system.**

3. **If you are installing a system connected through a `tip`(1) line, make sure your window display is at least 80 columns wide and 24 rows long.**

   Otherwise, the character installation interface displays incorrectly. To determine the current dimensions of your `tip` window, use the `stty`(1) command.

4. **If you are using the system's CD-ROM drive to install the Solaris 8 software on the system, insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition into that system's CD-ROM drive.**

5. **Do you intend to use a profile diskette to perform a custom JumpStart installation?**
   - If no, go to the next step.
   - If yes, insert the profile diskette into the system's diskette drive.

6. **Boot the system.**

If the system is	And	Then
New, out of the box	—	Turn the system on
Existing	You are installing from an install server on the network	Display the `ok` prompt and type: `ok` **`boot net - install`**
	You are installing from the system's local CD-ROM drive	Display the `ok` prompt and type: `ok` **`boot cdrom - install`** **Note -** For systems with older EEPROMs, replace `cdrom` with `sd(0,6,2)` to boot from the system's CD-ROM.

SPARC platform only - The system checks hardware and system components and your SPARC based system boots. Booting lasts several minutes.

For more information about displaying the `ok` prompt, refer to *System Administration Guide, Volume I.*

7. Have you preconfigured the system configuration?

- If yes, go to the next step.
- If no, when prompted, answer the questions about system configuration.

After booting, the Solaris 8 Interactive Installation Program might prompt you to provide configuration information about the system.

8. Follow the instructions on the screen to install the software.

After the installation is finished, a log of how the Solaris 8 software was installed on the system is saved in a file, as shown in Table 10–2.

TABLE 10–2 SPARC: Installation Log Locations

If the system was installed using the	The location of the log file is
Initial installation option	■ Before the system reboots: `/a/var/sadm/system/logs/install_log` ■ After the system reboots: `/var/sadm/system/logs/install_log`
Upgrade option	■ Before the system reboots: `/a/var/sadm/system/logs/upgrade_log` ■ After the system reboots: `/var/sadm/system/logs/upgrade_log`

9. Do you want to add packages to the Solaris 8 software you already installed?

- If no, stop, you're done.
- If yes, go to the next step.

10. Log in to the installed system and become superuser.

11. Insert the CD that contains the packages you want to add into the system's CD-ROM drive.

Solaris Volume Manager automatically mounts the CD.

12. Use the `pkgadd`(1M) command to add the package or packages you want:

```
# /usr/sbin/pkgadd -d device_name pkgid
```

where *device_name* is the path to the CD that contains the software you want to add to the installed system and *pkgid* is the name of the software package you want to add to the installed system (`SUNWaudio`, for example).

13. Verify that the package was installed correctly:

```
# /usr/sbin/pkgchk -v pkgid
```

If the package was installed correctly, a list of installed files is displayed. If not, an error message is displayed.

SPARC: When Does a System Match a Rule?

During a custom JumpStart installation, JumpStart attempts to match the system being installed to the rules in the `rules.ok` file from the first rule through the last. A match occurs when the system being installed matches all the system attributes defined in the rule. As soon as a system matches a rule, JumpStart stops reading the `rules.ok` file and begins to install the system based on the matched rule's profile.

▼ IA: To Perform a Custom JumpStart Installation

1. **Use Table 10–3 to ensure that the system on which you intend to install Solaris 8 is correctly set up for a custom JumpStart installation.**

TABLE 10–3 IA: Task Map: Setting Up a System for a Custom JumpStart Installation

Task	Description	For instructions, go to
Determine if you need to preserve an existing operating system and user data	If the existing operating system on the system uses the entire disk, you must preserve the existing operating system so it can co-exist with the Solaris 8 software. This decision determines how to specify the `fdisk`(1M) keyword in the system's profile.	"Preserving Existing Operating Systems and User Data" in the *Solaris 8 (Intel Platform Edition) Installation Guide*
Check if the system is supported	Check the hardware documentation to see if the system is supported in Solaris 8.	*Solaris 8 (Intel Platform Edition) Hardware Compatibility List*
Decide how to upgrade the system if a previous version of Solaris is installed on it	If a previous release of Solaris is installed on the system, you need to determine how to upgrade the system. Make sure you know what to do before and after you upgrade a system, as planning will help you set up your profiles, begin scripts, and finish scripts.	Chapter 5
Check if the system has enough disk space for the Solaris 8 software	*Optional.* There are many considerations when planning disk space, such as deciding which software group you want to install.	Chapter 2

TABLE 10–3 IA: Task Map: Setting Up a System for a Custom JumpStart Installation *(continued)*

Task	Description	For instructions, go to
Preconfigure system configuration information	*Optional.* You can use the `sysidcfg` file or the name service to preconfigure installation information (for example, `locale`) for a system so you won't be prompted to supply the information during the installation.	Chapter 4
Prepare system for custom JumpStart installation	You need to do some initial work to set up the system before you can install Solaris 8 software with custom JumpStart.	Chapter 6
Set up the system to install over the network	**For network installations only** To install a system from a remote Solaris 8 Software Intel Platform Edition CD image, you need to set up the system to boot and install from an install or boot server.	Chapter 9

2. **If the system is part of a network, make sure an Ethernet connector or similar network adapter is plugged into your system.**

3. **If you are installing a system connected through a `tip`(1) line, make sure your window display is at least 80 columns wide and 24 rows long.**

   Otherwise, the character installation interface displays incorrectly. To determine the current dimensions of your `tip` window, use the `stty`(1) command.

4. **Do you intend to use a profile diskette to perform a custom JumpStart installation?**

   - If yes, insert the profile diskette into the system's diskette drive (usually the A: drive).

     IA platform only - The profile diskette contains a copy of the Solaris 8 Device Configuration Assistant in addition to profile information.

- If no, insert the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition into the system's diskette drive (usually the A: drive).

5. **If you intend to use the system's CD-ROM drive to install the Solaris 8 software on the system, insert the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition into the system's CD-ROM drive.**

6. **If the system is off, turn it on. If the system is on, reboot it.**

   The Device Configuration Assistant identifies the system's devices.

7. **When the Boot Solaris screen is displayed, select the device from which to boot the system (either the system's CD-ROM drive (CD) or an install server on the network (NET)).**

8. **At the prompt:**

```
Select the type of installation you want to perform:

        1 Solaris Interactive
        2 Custom JumpStart

Enter the number of your choice followed by the <ENTER> key.

If you enter anything else, or if you wait for 30 seconds,
an interactive installation will be started.
```

   type 2 and press Enter to select the custom JumpStart installation method.

Note - You must type 2 and press Enter before 30 seconds expire.

---

9. **Have you preconfigured the system configuration?**

   - If yes, go to the next step.
   - If no, when prompted, answer the questions about system configuration.

10. **Follow the instructions on the screen to install the software.**

    After the installation is finished, a log of how the Solaris 8 software was installed on the system is saved in a file, as shown in Table 10–4.

TABLE 10–4 IA: Installation Log Locations

If the system was installed using the	The location of the log file is
Initial installation option	■ Before the system reboots: `/a/var/sadm/system/logs/install_log` ■ After the system reboots: `/var/sadm/system/logs/install_log`
Upgrade option	■ Before the system reboots: `/a/var/sadm/system/logs/upgrade_log` ■ After the system reboots: `/var/sadm/system/logs/upgrade_log`

11. Do you want to add packages to the Solaris 8 software you already installed?

- If no, stop, you're done.
- If yes, go to the next step.

12. Log in to the installed system and become superuser.

13. Insert the CD that contains the packages you want to add into the system's CD-ROM drive.

Solaris Volume Manager automatically mounts the CD.

14. Use the `pkgadd`(1M) command to add the package or packages you want:

```
# /usr/sbin/pkgadd -d device_name pkgid
```

where *device_name* is the path to the CD that contains the software you want to add to the installed system and *pkgid* is the name of the software package you want to add to the installed system (`SUNWaudio`, for example).

15. Verify that the package was installed correctly:

```
# /usr/sbin/pkgchk -v pkgid
```

If the package was installed correctly, a list of installed files is displayed. If not, an error message is displayed.

IA: When Does a System Match a Rule?

During a custom JumpStart installation, JumpStart attempts to match the system being installed to the rules in the `rules.ok` file from the first rule through the last. A match occurs when the system being installed matches all of the system attributes defined in the rule. As soon as a system matches a rule, JumpStart stops reading the `rules.ok` file and begins to install the system based on the matched rule's profile.

CHAPTER 11

Example of Setting Up and Installing Solaris Software With Custom JumpStart

This chapter provides an example of setting up and installing Solaris software on both SPARC and IA based systems using custom JumpStart.

Note - The name of this product is Solaris 8, but code and path or package path names might appear as `Solaris_2.8` or `SunOS_5.8`. Always follow the code or path as it is written.

Sample Site Setup

Figure 11–1 shows the site setup for this example.

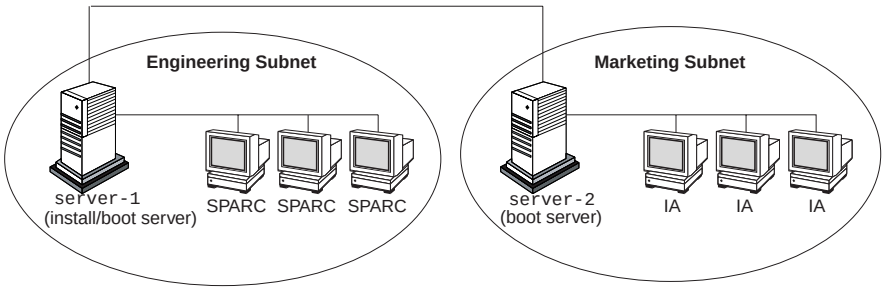


Figure 11–1 Sample Site Setup

At this sample site:

- SPARC: The engineering group is located on its own subnet. This group uses SPARCstation systems for software development.
- IA: The marketing group is located on its own subnet. This group uses IA based systems for running word processing, spreadsheets, and other office tools.
- The site uses NIS. The Ethernet addresses, IP addresses, and host names of the systems are preconfigured in the NIS maps. The subnet mask, date and time, and geographic region for the site are also preconfigured in the NIS maps.

Note - The peripheral devices for the marketing systems are preconfigured in the `sysidcfg` file.

- Both the engineering and marketing systems are to be installed with Solaris 8 software over the network.

Create an Install Server

Because the groups need to install Solaris 8 software over the network, you make `server-1` an install server for both groups. You use the `setup_install_server`(1M) command to copy the images on the CDs labeled Solaris 8 Software SPARC Platform Edition, Solaris 8 Software Intel Platform Edition, Solaris 8 Languages SPARC Platform Edition, and Solaris 8 Languages Intel Platform Edition to the `server-1` local disk (in the `/export/install` directory).

Also, because you must copy the Solaris 8 Software CD images to an empty directory, you copy the images to separate directories (the `sparc_8` and `ia_8` directories).

You insert the CD labeled Solaris 8 Software 1 of 2 SPARC Platform Edition into the CD-ROM drive attached to `server-1`:

```
server-1# cd /CD_mount_point/Solaris_8/Tools
server-1# ./setup_install_server /export/install/sparc_8
```

You insert the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition into the CD-ROM drive attached to `server-1`:

```
server-1# cd /CD_mount_point/Solaris_8/Tools
server-1# ./setup_install_server /export/install/ia_8
```

Create a Boot Server for Marketing Systems

Systems cannot boot from an install server on a different subnet, so you make `server-2` a boot server on the marketing group's subnet. You use the `setup_install_server`(1M) command to copy the boot software from the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition to the `server-2` local disk (in the `/export/boot` directory):

You insert the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition into the CD-ROM drive attached to `server-2`:

```
server-2# cd /CD_mount_point/Solaris_8/Tools
server-2# ./setup_install_server -b /export/boot
```

In the `setup_install_server` command, `–b` specifies that `setup_install_server` is to copy the boot information from the CD labeled Solaris 8 Software 1 of 2 Intel Platform Edition to the directory named `/export/boot`.

Create a JumpStart Directory

Now that you have the install and boot servers set up, you create a JumpStart directory on `server-1`. (You can use any system on the network.) This directory holds files required for a custom JumpStart installation of Solaris software. You set up this directory by copying the sample directory from either one of the Solaris 8 Software 1 of 2 CD images that has been copied to `/export/install`:

```
server-1# mkdir /jumpstart
server-1# cp -r /export/install/sparc_8/Solaris_8/Misc/jumpstart_sample  /jumpstart
```

Share the JumpStart Directory

To make the `rules` file and profiles accessible to systems on the network, you share the `/jumpstart` directory. To enable the sharing of a directory, you add the following line to the `/etc/dfs/dfstab` file:

```
share -F nfs -o ro,anon=0 /jumpstart
```

Then, at the command line, you type the `shareall` command:

```
server-1# shareall
```

SPARC: Create the Engineering Group's Profile

For the engineering systems, you create a file named `eng_prof` in the `/jumpstart` directory. The `eng_prof` file contains the following entries, which define the Solaris 8 software to be installed on systems in the engineering group:

```
1 install_type  initial_install
2 system_type   standalone
3 partitioning  default
4 cluster       SUNWCprog
5 filesys       any 50 swap
```

1. Specifies that the installation is to be treated as an initial installation, as opposed to an upgrade.
2. Specifies that the engineering systems are standalone systems.
3. Specifies that the JumpStart software uses default disk partitioning for installing Solaris software on the engineering systems.
4. Specifies that the Developer System Support software group is to be installed.
5. Specifies that each system in the engineering group is to have 50 Mbytes of swap space.

IA: Create the Marketing Group's Profile

For the marketing systems, you create a file named `marketing_prof` in the `/jumpstart` directory. The `marketing_prof` file contains the following entries, which define the Solaris 8 software to be installed on systems in the marketing group:

```
1 install_type  initial_install
2 system_type   standalone
3 partitioning  default
4 cluster       SUNWCuser
5 package       SUNWaudio
```

1. Specifies that the installation is to be treated as an initial installation, as opposed to an upgrade.
2. Specifies that the marketing systems are standalone systems.
3. Specifies that the JumpStart software is to use default disk partitioning for installing Solaris on the marketing systems.

(continued)

4. Specifies that the End User System Support software group is to be installed.

5. Specifies that the audio demo software package is to be added to each system.

Update the `rules` File

Now you must add rules to the `rules` file. The Solaris 8 Interactive Installation Program uses the rules to select the correct installation (profile) for each system during a custom JumpStart installation.

At this site, each department is located on its own *subnet* and has its own network address. The engineering department is located on subnet 255.222.43.0, and marketing is located on 255.222.44.0. You can use this information to control how the engineering and marketing systems are installed with Solaris 8. In the `/jumpstart` directory, you edit the `rules` file, delete all of the example rules, and enter:

```
network 255.222.43.0 - eng_prof -
network 255.222.44.0 - marketing_prof -
```

Basically, these rules state that systems on the 255.222.43.0 network are to be installed with Solaris 8 using the `eng_prof` profile, and systems on the 255.222.44.0 network are to be installed with Solaris 8 using the `marketing_prof` profile.

Note - These are sample rules in which you can use a network address to identify the systems to be installed with Solaris 8 by using `eng_prof` and `marketing_prof`, respectively. You can also use host names, memory size, or model type as the rule keyword. Table 6–3 contains a complete list of keywords you can use in a `rules` file.

Check the `rules` File

After the `rules` and profiles are set up, you run the `check` script to verify that the files are correct:

```
server-1# cd /jumpstart
server-1# ./check
```

If `check` doesn't find any errors, it creates the `rules.ok` file.

SPARC: Set Up Engineering Systems to Install Over the Network

After setting up the `/jumpstart` directory and files, you use the `add_install_client` command on the install server (`server-1`, which is also the boot server for the engineering group's subnet) to set up the engineering systems to install Solaris 8 from the install server:

```
server-1# cd /export/install/sparc_8/Solaris_8/Tools
server-1# ./add_install_client -c server-1:/jumpstart host-eng1 sun4m
server-1# ./add_install_client -c server-1:/jumpstart host-eng2 sun4m
.
.
.
.
```

In the `add_install_client` command:

`–c`	Specifies the server (`server-1`) and path (`/jumpstart`) to the JumpStart directory.
`host-eng1`	Is the name of a system in the engineering group.
`host-eng2`	Is the name of another system in the engineering group.
`sun4m`	Specifies the platform group of the systems that will use `server-1` as an install server. (This is the platform group for SPARCstation 5 systems.)

IA: Set Up Marketing Systems to Install Over the Network

Next, you use the `add_install_client` command on the boot server (`server-2`) to set up the marketing systems to boot from the boot server and install Solaris 8 from the install server (`server-1`):

```
server-2# cd /marketing/boot-dir/Solaris_8/Tools
server-2# ./add_install_client -s server-1:/export/install/ia_8 \
-c server-1:/jumpstart host-mkt1 i86pc
server-2# ./add_install_client -s server-1:/export/install/ia_8 \
-c server-1:/jumpstart host-mkt2 i86pc
.
.
.
```

In the `add_install_client` command:

`–s`	Specifies the install server (`server-1`) and the path to the Solaris 8 software (`/export/install/ia_8`).
`–c`	Specifies the server (`server-1`) and path (`/jumpstart`) to the JumpStart directory.
`host-mkt1`	Is the name of a system in the marketing group.
`host-mkt2`	Is the name of another system in the marketing group.
`i86pc`	Specifies the platform group of the systems that will use this boot server. (This is the platform name for IA based systems.)

SPARC: Boot the Engineering Systems and Install Solaris 8 Software

After setting up the servers and files, you can boot the engineering systems by using the following `boot` command at the `ok` (PROM) prompt of each system:

```
ok boot net
```

The Solaris operating environment is automatically installed on the engineering group's systems.

IA: Boot the Marketing Systems and Install Solaris 8 Software

If the system is not capable of booting from a CD-ROM, you can boot the marketing systems by inserting the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition and turning on each system. Solaris 8 is automatically installed on the marketing group's systems.

CHAPTER 12

Troubleshooting

This chapter contains a list of specific error messages and general problems you might encounter when installing Solaris 8 software and explains how to fix the problems. Start by using this list of sections in this chapter to determine where in the installation process the problem occurred.

Setting Up Network Installations

```
Error: Unknown client ''host_name''
```

Problem	How to fix the problem
The *host_name* argument in the `add_install_client` command is not a host in the name service.	Add the host *host_name* to the NIS or NIS+ name service and execute the `add_install_client` command again.

Booting a System

Error Messages

```
le0: No carrier - transceiver cable problem
```

Problem	How to fix the problem
The system is not connected to the network.	If this is a non-networked system, ignore this message. If this is a networked system, make sure the Ethernet cabling is attached securely.

```
The file just loaded does not appear to be executable
```

Problem	How to fix the problem
The system cannot find the proper media for booting.	Verify that the system has been set up properly to install Solaris 8 over the network from an install server. For example, make sure you specified the right platform group for the system when you set it up. Also, if you did not copy the images of the CDs labeled Solaris 8 Software 1 of 2, Solaris 8 Software 2 of 2, and Solaris 8 Languages to the install server, make sure the CD labeled Solaris 8 Software 1 of 2 is mounted and accessible on the install server.

```
boot: cannot open /kernel/unix
```

Problem	How to fix the problem
SPARC based systems only This error occurs when you override the location of the boot file by explicitly setting it to `/kernel/unix`. In Solaris 2.6 and subsequent releases, the kernel is no longer located in `/kernel/unix`, but in `/platform/`*arch*`/kernel/unix`.	Reset the boot file in the PROM to " " (blank).

```
Can't boot from file/device
```

Problem	How to fix the problem
JumpStart or the Solaris 8 Interactive Installation Program can't find the CD labeled Solaris 8 Software 1 of 2 for your platform in the system's CD-ROM drive.	Make sure the: ■ CD-ROM drive is installed properly and turned on ■ CD labeled Solaris 8 Software 1 of 2 is inserted into the CD-ROM drive

```
WARNING: clock gained xxx days -- CHECK AND RESET
DATE!
```

Problem	How to fix the problem
SPARC based systems only This is an informational message.	Ignore the message and continue with the installation.

```
Not a UFS filesystem
```

Problem	How to fix the problem
IA based systems only When Solaris 8 software was installed (either through the Solaris 8 Interactive Installation Program or custom JumpStart), the default boot drive was not selected. When an alternate boot disk is selected, you must use the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition to boot the system from that point on.	Insert the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition into the system's boot diskette drive (usually the A: drive).

General Problems

Problem	How to fix the problem
IA based systems only The system hangs or panics when non-memory PC cards are inserted.	Non-memory PCs cannot use the same memory resources used by other devices. To correct this problem, use a DOS debugger to identify device memory usage, then manually reserve memory resources for the PC card device using the following instructions: 1. Boot the system using the diskette labeled Solaris 8 Device Configuration Assistant Intel Platform Edition. 2. Go to the Device Tasks menu. 3. Select Review / Edit Devices. 4. Select Add Device. 5. Select Define Device. 6. Enter a unique name following the EISA ID naming conventions (for example, ITD4001), and select Continue. 7. Select Memory Address from the list of resources, and select Continue. 8. Enter the address range to reserve (for example, CA800–CFFFF), and select Continue. 9. Return to the Device Tasks menu and select Save Configuration. 10. Reboot the system.

Problem	How to fix the problem
IA based systems only The IDE BIOS primary drive on your system was not detected by the Solaris 8 Device Configuration Assistant during the pre-booting phase.	■ If you are using old drives, they might be unsupported. Check the *Solaris 8 (Intel Platform Edition) Hardware Compatibility List*. ■ Make sure the ribbon and power cables are plugged in correctly. Check the manufacturer's documentation. ■ If only one drive is attached to the controller, designate the drive as the master drive by setting jumpers. Some drives have different jumper settings for a single master, as opposed to a master operating with a slave. Connect the drive to the connector at the end of the cable to reduce signal ringing that occurs when an unused connector is dangling at the end of the cable. ■ If two drives are attached to the controller, jumper one drive as the master (or as a master operating with a slave), and jumper the second drive as a slave. ■ If one drive is a hard disk and the second a CD-ROM drive, designate one drive as the slave drive by setting jumpers. It doesn't matter which drive is plugged into which drive connection on the cable. ■ If there are persistent problems with two drives on a single controller, attach one drive at a time to verify that each works. Jumper the drive as master or single master, and use the drive connector at the end of the IDE ribbon cable to attach the drive. Verify that each drive works, then jumper the drives back into a master and slave configuration. ■ If the drive is a disk drive, use the BIOS setup utility to ensure that the drive type (which indicates the number of cylinders, heads, and sectors) is configured correctly. Some BIOS software might have a feature that automatically detects the drive type. ■ If the drive is a CD-ROM drive, use the BIOS setup screen to configure the drive type as a CD-ROM drive, provided the BIOS software offers this capability. ■ If MS-DOS does not recognize the drive, there is probably a hardware or BIOS configuration problem. For many systems, IDE CD-ROM drives are only recognized by MS-DOS if an MS-DOS CD-ROM driver has been installed.

Problem	How to fix the problem
IA based systems only The IDE disk or CD-ROM drive on your system was not found by the Solaris 8 Device Configuration Assistant in the pre-booting phase.	■ If disks are disabled in the BIOS, use the Solaris 8 Device Configuration Assistant Intel Platform Edition to boot from the hard disk. ■ If the system has no disks, it might be a diskless client.

Problem	How to fix the problem
IA based systems only The system hangs before displaying the system prompt.	See the *Solaris 8 (Intel Platform Edition) Hardware Compatibility List*.

Booting a System Over the Network

Error Messages

```
WARNING: getfile:
RPC failed: error 5 (RPC Timed out).
```

Problem	How to fix the problem
This error occurs when you have two or more servers on a network responding to an install client's boot request. The install client connects to the wrong boot server, and the installation hangs. The following specific reasons might cause this error to occur:	
Reason 1: There might be `/etc/bootparams` files on different servers with an entry for this install client.	*Solution for Reason 1:* Make sure that servers on the network do not have multiple `/etc/bootparams` entries for the install client. If they do, remove duplicate client entries in the `/etc/bootparams` file on all install and boot servers except the one you want the install client to use.

Problem	How to fix the problem
Reason 2: There might be multiple `/tftpboot` or `/rplboot` directory entries for this install client.	*Solution for Reason 2:* Make sure that servers on the network do not have multiple `/tftpboot` or `/rplboot` directory entries for the install client. If they do, remove duplicate client entries from the `/tftpboot` or `/rplboot` directories on all install and boot servers except the one you want the install client to use.
Reason 3: There might be an install client entry in the `/etc/bootparams` file on a server and an entry in another `/etc/bootparams` file enabling all systems to access the profile server. Such an entry looks like this: `* install_config=`*profile_server*`:`*path* A line like this in the NIS or NIS+ `bootparams` table can also cause this error.	*Solution for Reason 3:* If there's a wildcard entry in the name service `bootparams` map or table (for example, `* install_config=`), delete it and add it to the `/etc/bootparams` file on the boot server.

```
No network boot server. Unable to install the system.
 See installation instructions.
```

Problem	How to fix the problem
SPARC based systems only This error occurs on a system that you are attempting to install over the network. The system is not set up correctly.	Make sure you correctly set up the system to install over the network (see "Setting Up Systems to Be Installed Over the Network" on page 222).

```
prom_panic: Could not mount filesystem
```

Problem	How to fix the problem
SPARC based systems only This error occurs when you are installing Solaris 8 over a network, but the boot software cannot locate the Solaris 8 Software 1 of 2 CD image (either the CD labeled Solaris 8 Software 1 of 2 or a copy of the Solaris 8 Software 1 of 2 CD image on the install server).	Make sure that the installation software is mounted and shared. If you are installing Solaris 8 from the install server's CD-ROM drive, make sure the CD labeled Solaris 8 Software 1 of 2 is inserted in the CD-ROM drive, is mounted, and is shared in the `/etc/dfs/dfstab` file. If installing from a copy of the Solaris 8 Software 1 of 2 CD image on the install server's disk, make sure the directory path to the copy is shared in the `/etc/dfs/dfstab` file.

```
Timeout waiting for ARP/RARP packet...
```

Problem	How to fix the problem
SPARC based systems only The client is trying to boot over the network, but it cannot find a system that knows about the client.	Verify the system's host name is in the NIS or NIS+ name service. Also, verify the `bootparams` search order in the boot server's `/etc/nsswitch.conf` file. For example, the following line in the `/etc/nsswitch.conf` file indicates that JumpStart or the Solaris 8 Interactive Installation Program first looks in the NIS maps for `bootparams` information. If not found there, JumpStart or the Solaris 8 Interactive Installation Program looks in the boot server's `/etc/bootparams` file. `bootparams: nis files`

```
ip: joining multicasts failed on tr0 - will use link layer broadcasts for multicast
```

Problem	How to fix the problem
IA based systems only This error message is displayed when you boot a system with a token ring card. Ethernet multicast and token ring multicast do not work the same way. The driver returns this error message because an invalid multicast address was provided to it.	Ignore this error message. If multicast doesn't work, IP uses layer broadcasts instead and it won't cause the installation to fail.

```
Requesting Internet address for Ethernet_Address
```

Problem	How to fix the problem
IA based systems only The client is trying to boot over the network, but it cannot find a system that knows about the client.	Verify the system's host name is listed in the NIS or NIS+ name service. If the system's host name is listed in the NIS or NIS+ name service, and the system continues to print this error message, try rebooting.

```
RPC: Timed out
No bootparams (whoami) server responding; still trying...
```

Problem	How to fix the problem
IA based systems only The client is trying to boot over the network, but it cannot find a system with an entry in the `/etc/bootparams` file on the install server.	Use `add_install_client` on the install server. Using this command adds the proper entry in the `/etc/bootparams` file, enabling the client to boot over the network.

```
Still trying to find a RPL server...
```

Problem	How to fix the problem
IA based systems only The system is trying to boot over the network, but the server is not set up to boot this system.	On the install server, execute `add_install_client` for the system to be installed. The `add_install_client` command sets up an `/rplboot` directory, which contains the necessary network boot program.

Problem	How to fix the problem
The system boots over the network, but from a system other than the specified install server.	On the name server, update the `/etc/bootparams` entry for the system being installed. The entry should conform to the following syntax: *install_system* `root=`*boot_server*`:`*path* `install=`*install_server*`:`*path* Also, ensure there is only one `bootparams` entry on the subnet for the install client.

Problem	How to fix the problem

SPARC based systems only
 	
After you set up an install server and configure the system to install Solaris 8 over the network, the system still does not boot.
	Be sure the `tftpd` daemon is running on the install server. Type the following command and press Return:
	
	# **`ps -ef | grep tftpd`**
	
	If this command does not return a line indicating the `tftpd` daemon is running, edit the `/etc/inetd.conf` file and remove the comment (#) character from the following line:
	
	`# tftp dgram udp`
	`wait root /usr/sbin/in.tftpd`
	`in.tftpd -s /tftpboot`
	
	After making this change, try booting the system again.

Problem	How to fix the problem
IA based systems only After setting up an install server and configuring the system to install over the network, the system still does not boot.	Be sure the `tftpd` daemon is running on the install server. Type the following command and press Enter: # **`ps -ef | grep rpld`** If this command does not return a line indicating the `rpld` daemon is running, execute the following command: # **`/usr/sbin/rpld`** After making this change, try booting the system again.

Installing Solaris 8 (Initial)

```
/cdrom/Solaris_2.x/SUNWxxxx/reloc.cpio: Broken pipe
```

Problem	How to fix the problem
Bug ID: 1212370 This error message does not affect the installation.	Ignore the message and continue with the installation.

Problem	How to fix the problem
IA based systems only IDE disk drives do not automatically map out bad blocks like other drives supported by Solaris software. Before installing Solaris 8 on an IDE disk, you might want to perform a surface analysis on the disk.	To perform surface analysis on an IDE disk, follow this procedure: 1. Start the Solaris 8 Interactive Installation Program, as described in "IA: Using the Solaris 8 Interactive Installation Program" on page 92. The Solaris 8 Interactive Installation Program starts either a graphical user interface (GUI) or a character user interface (CUI), depending on whether you have a graphics or non-graphics monitor. 2. When either the GUI or CUI program starts, enter information and select Continue on the first few screens. 3. When you see the Installing Solaris - Initial screen, select Exit and exit the installation. 4. If you are using the GUI version of the Solaris 8 Interactive Installation Program, open a command tool window for the remaining steps in this procedure. If you are using the CUI version of the Solaris 8 Interactive Installation Program, use the system shell for the remaining steps in this procedure. 5. Start the `format` program by typing **`format`**. 6. Specify the IDE disk drive on which you want to perform a surface analysis. **Note -** IDE drives do not include a target number. The IDE drive naming convention is c*x*d*y*, where c*x* is the controller number and d*y* is the device number. 7. At the `format>` prompt, type **`fdisk`**. Use the `fdisk` command to create a Solaris 8 partition on the disk. (If a Solaris 8 `fdisk` partition already exists, leave it alone.) 8. At the `format>` prompt, type **`analyze`**. 9. At the `analyze>` prompt, type **`config`**. The current settings for a surface analysis are displayed. If you want to change settings, type **`setup`**. 10. At the `analyze>` prompt, type **`read`**, **`write`**, or **`compare`** for the type of surface analysis to be performed. If `format` finds bad blocks, it re-maps them. 11. At the `analyze>` prompt, type **`quit`**. 12. Do you want to specify blocks to re-map? If no, go to the next step. If yes, at the `format>` prompt, type **`repair`**. 13. Type **`quit`**. The `format` program quits. 14. Choose `Restart Install` on the Workspace menu to resume the GUI installation, or type **`suninstall`** to resume the CUI installation.

Installing Solaris 8 (Upgrade)

General Problems

Problem	How to fix the problem
The upgrade fails because the Solaris 8 Interactive Installation Program could not mount metadevices on the system.	Metadevices cannot be upgraded automatically. Instructions are provided in "Upgrading to Other Solaris Versions" in the *Solstice DiskSuite 4.2 Reference Guide*.

Problem	How to fix the problem
The upgrade fails for reasons beyond your control, such as a power failure or a network connection failure, and the system cannot be soft-booted.	1. Reboot the system from the CD labeled Solaris 8 Software 1 of 2 for your platform or from the network. 2. Choose the upgrade option for installation. The Solaris 8 Interactive Installation Program determines if the system has been partially upgraded and continues the upgrade.

Problem	How to fix the problem
The upgrade fails because the Solaris 8 Interactive Installation Program cannot mount a file system. During an upgrade, the script attempts to mount all the file systems listed in the system's `/etc/vfstab` file on the root (`/`) file system being upgraded. If the installation script cannot mount a file system, it fails and exits.	Make sure all file systems in the system's `/etc/vfstab` file can be mounted. Comment out any file systems in the `/etc/vfstab` file that can't be mounted or that might cause the problem so the Solaris 8 Interactive Installation Program doesn't try to mount them during the upgrade. **Note -** Any system-based file systems that contain software to be upgraded (for example, `/usr`) cannot be commented out.

Problem	How to fix the problem
There is not enough space on the system for the upgrade. Check the following reasons for the space problem and see if you can fix it without using auto-layout to reallocate space:	
Reason 1: Since the automounter is not active during an upgrade, the Solaris 8 Interactive Installation Program installs any package's files or directories that are symbolic links to automounted file systems. If a symbolic link is overwritten, the upgrade might fail because of insufficient disk space. **Note -** The `/var/mail` and `/var/news` directories, which are usually located on an automounted file system, are not affected by an upgrade.	*Solution for Reason 1:* During the upgrade, delete software packages in the Customize Software screen that create files or directories on the automounted file systems. Then the Solaris 8 Interactive Installation Program does not overwrite the symbolic link with a package's files or directories.
Reason 2: New software has been added to the software group that you are upgrading or some of the existing software has increased in size. During an upgrade, the Solaris 8 Interactive Installation Program installs any new software that is part of the software group previously installed on the system, and it also upgrades any existing packages on the system.	*Solution for Reason 2:* During the upgrade, delete software packages in the Customize Software screen that install into the file systems that need more space. Especially look for any new packages that have been added to the Solaris release that the system doesn't need.

Problem	How to fix the problem
During an upgrade, a message is displayed regarding some of the packages (including `SUNWolrte`, `SUNWoldcv`, `SUNWoldte`, `SUNWolaud`). An example of this message is: `Doing pkgadd of SUNWolrte to /`	This message indicates an attempt to install the same architecture and version of a package that is already installed. `Installation of SUNWolrte was successful...` No action is required; this message is informational only.

APPENDIX **A**

Platform Names and Groups

Table A–1 lists the platform names and groups of various hardware platforms. You might need this information when preparing a system on which to install Solaris 8 software.

Note - On a running system, you can also use the `uname -i` command to determine a system's *platform name* or the `uname -m` command to determine a system's *platform group*.

TABLE A–1 Platform Names and Groups

System	Platform Name	Platform Group
IA based	i86pc	i86pc
SPARCserver 1000	SUNW,SPARCserver-1000	sun4d
SPARCcenter 2000	SUNW,SPARCcenter-2000	sun4d
SPARCstation 5	SUNW,SPARCstation-5	sun4m
SPARCstation 10	SUNW,SPARCstation-10	sun4m
SPARCstation 10SX	SUNW,SPARCstation-10,SX	sun4m
SPARCstation 20	SUNW,SPARCstation-20	sun4m
SPARCstation LX	SUNW,SPARCstation-LX	sun4m

TABLE A–1 Platform Names and Groups *(continued)*

System	Platform Name	Platform Group
SPARCstation LX+	SUNW,SPARCstation-LX+	sun4m
SPARCclassic	SUNW,SPARCclassic	sun4m
SPARCclassic X	SUNW,SPARCclassic-X	sun4m
SPARCstation 4	SUNW,SPARCstation-4	sun4m
Ultra 1 systems	SUNW,Ultra-1	sun4u
Sun Enterprise 1 systems	SUNW,Ultra-1	sun4u
Ultra 30	SUNW,Ultra-30	sun4u
Ultra 2 systems	SUNW,Ultra-2	sun4u
Sun Enterprise 2 systems	SUNW,Ultra-2	sun4u
Sun Enterprise 150	SUNW,Ultra-1	sun4u
Sun Enterprise 250	SUNW,Ultra-2	sun4u
Ultra 450	SUNW,Ultra-4	sun4u
Sun Enterprise 450	SUNW,Ultra-4	sun4u
Sun Enterprise 3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500, 10000	SUNW,Ultra-Enterprise	sun4u
Ultra 5	SUNW,Ultra-5/10	sun4u
Ultra 10	SUNW,Ultra-5/10	sun4u
Ultra 60	SUNW,Ultra-60	sun4u
Ultra 80	SUNW,Ultra-80	sun4u

APPENDIX **B**

Locale Values

A *locale* determines how online information is displayed in a specific language and region. A language might also include more than one locale to accommodate regional differences, such as differences in the format of date and time, numeric and monetary conventions, and spelling.

For example, to use English with British spelling, use English for Great Britain (`en_GB`) . To use English with American spelling, use English for the United States (`en_US`). Table B–1 lists the values needed to set the `locale` keyword in a profile or to preconfigure a locale.

You might need to install a localized version of Solaris 8 to use a particular locale. Additional information about locales is presented in the *Solaris Internationalization Guide For Developers*.

TABLE B–1 Locale Values

Region	Locale Name	Code Set	Comments
Albania	`sq_AL`	ISO8859-2	
Argentina	`es_AR`	ISO8859-1	
Australia	`en_AU`	ISO8859-1	
Austria	`de_AT`	ISO8859-15	
Belgium	`fr_BE`	ISO8859-1	French
	`fr_BE.ISO8859-15`	ISO8859-15	French; supports the euro currency.

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
	nl_BE	ISO8859-1	Dutch
	nl_BE.ISO8859-15	ISO8859-15	Dutch; supports the euro currency.
Bolivia	es_BO	ISO8859-1	
Bosnia	nr	ISO8859-2	
Brazil	pt_BR	ISO8859-1	
Bulgaria	bg_BG	ISO8859-5	
Canada	en_CA	ISO8859-1	English
	fr_CA	ISO8859-1	French
Chile	es_CL	ISO8859-1	
China	zh	gb2312	Simplified Chinese EUC codeset. Contains GB 1988-80 and GB 2312-80.
	zh.GBK	GBK	Simplified Chinese with GB extension. Includes all GB 2312-80 characters and all Unified Han characters of ISO/IEC 10646-1, Japanese Hiragana and Katagana characters, and many symbol characters of Chinese, Japanese, and Korean character sets and of ISO/IEC 10646-1.
Columbia	es_CO	ISO8859-1	
Costa Rica	es_CR	ISO8859-1	
Croatia	hr_HR	ISO8859-2	

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
Czech Republic	cz	ISO8859-2	
Denmark	da	ISO8859-1	
	da.ISO8859-15	ISO8859-15	Adds support for the euro currency.
Ecuador	es_EC	ISO8859-1	
Estonia	et	ISO8859-15	Supports the euro currency.
Europe	en_EU.ISO8859-15	ISO8859-15	This locale uses a set of European cultural data and returns the euro as the default currency symbol. The language is English.
	en_EU.UTF-8	UTF-8	This locale uses a set of European cultural data and returns the euro as the default currency symbol. The language is English.
Finland	fi	ISO8859-1	
	fi.ISO8859-15	ISO8859-15	Supports the euro currency.
France	fr	ISO8859-1	
	fr.ISO8859-15	ISO8859-15	Supports the euro currency.
	fr.UTF-8	UTF-8	
Germany	de	ISO8859-1	
	de.ISO8859-15	ISO8859-15	Supports the euro currency.

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
	de.UTF-8	UTF-8	
Great Britain	en_GB	ISO8859-1	
	en_GB.ISO8859-15	ISO8859-15	Supports the euro currency.
Greece	el.sun_eu_greek	ISO8859-7 (modified)	Supports the euro currency.
Guatemala	es_GT	ISO8859-1	
Hungary	hu	ISO8859-2	
Ireland	en_IE	ISO8859-1	
	en_IE.ISO8859-15	ISO8859-15	Supports the euro currency.
Israel	he	ISO8859-8	
	he_IL	ISO8859-8	
Italy	it	ISO8859-1	
	it.ISO8859-15	ISO8859-15	Supports the euro currency.
	it.UTF-8	UTF-8	
Japan	ja	eucJP	Japanese EUC codeset. Contains JIS X0201–1976, JIS X0208–1983, JIS X0212–1990.
	ja_JP.PCK	PCK	PCK is also known as Shift JIS (SJIS).
	ja_JP.UTF-8	UTF-8	

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
Korea	ko	5601	Korean EUC codeset. Contains KS C 5636 and KS C 5601–1987.
	ko.UTF-8	UTF-8	
Latvia	lt	ISO8859-13	
Lithuania	lv	ISO8859-13	
Luxembourg	lu	ISO8859-15	
Macedonia	mk_MK	ISO8859-5	
Netherlands	nl	ISO8859-1	
	nl.ISO8859-15	ISO8859-15	Supports the euro currency.
New Zealand	en_NZ	ISO8859-1	
Nicaragua	es_NI	ISO8859-1	
Norway	no	ISO8859-1	Supports bokmål Norwegian.
	no_NY	ISO8859-1	Supports nynorsk Norwegian.
Panama	es_PA	ISO8859-1	
Paraguay	es_PY	ISO8859-1	
Peru	es_PE	ISO8859-1	
Poland	pl	ISO8859-2	
Portugal	pt	ISO8859-1	

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
	pt.ISO8859-15	ISO8859-15	Supports the euro currency.
Romania	ro_RO	ISO8859-2	
Russia	ru	ISO8859-5	
	ru.KOI8-R	KOI8-R	
El Salvador	es_SV	ISO8859-1	
Saudi Arabia	ar	ISO8859-6	
Serbia	sr_SP	ISO8859-5	
Slovakia	sk_SK	ISO8859-2	
Slovenia	sl_SI	ISO8859-2	
Spain	es	ISO8859-1	
	es.ISO8859-15	ISO8859-15	Supports the euro currency.
	es.UTF-8	UTF-8	
Sweden	sv	ISO8859-1	
	sv.ISO8859-15	ISO8859-15	Supports the euro currency.
	sv.UTF-8	UTF-8	
Switzerland	fr_CH	ISO8859-1	French
	de_CH	ISO8859-1	German
Taiwan	zh_TW	cns11643	Traditional Chinese

TABLE B–1 Locale Values *(continued)*

Region	Locale Name	Code Set	Comments
	zh_TW.BIG5	BIG5	Traditional Chinese
Thailand	th_TH	TIS 620-2533	
Turkey	tr	ISO8859-9	
United States	en_US	ISO8859-1	
	en_US.UTF-8	UTF-8	
	C	ISO/IEC 646 (US-ASCII). Does not support 8-bit characters.	
Uruguay	es_UY	ISO8859-1	
Venezuela	es_VE	ISO8859-1	

Glossary

begin script A user-defined Bourne shell script, specified within the `rules` file, that performs tasks before the Solaris software is installed on the system. You can use begin scripts only with custom JumpStart.

boot server A server that provides boot services to systems on the same subnet and diskless clients. A boot server is required if the install server is on a different subnet than the systems on which Solaris software is to be installed.

client A system connected to a network.

cluster A logical grouping of software packages. The Solaris 8 software is divided into *software groups*, which are each composed of clusters and *packages*.

Core A software group that contains the minimum software required to boot and run the Solaris operating environment on a system. It includes some networking software and the drivers required to run the Common Desktop Environment (CDE) or OpenWindows desktop. It does not include the CDE or OpenWindows software.

custom JumpStart A type of installation in which the Solaris 8 software is automatically installed on a system based on a user-defined profile. You can create customized profiles for different types of users and systems. A custom JumpStart installation is a JumpStart installation you create.

custom probes file A file, which must be located in the same JumpStart directory as the `rules` file, is a Bourne shell script that contains two types of functions: probe and comparison. Probe functions gather the information you want or does the actual work and sets a corresponding SI_ environment variable you define. Probe functions become probe keywords. Comparison functions call a corresponding probe function, compare the output of the probe function, and

return 0 if the keyword matches or 1 if the keyword doesn't match. Comparison functions become rule keywords. See also *rules file*.

derived profile — A profile that is dynamically created by a begin script during a custom JumpStart installation.

Developer System Support — A software group that contains the End User System Support software group plus the libraries, include files, man pages, and programming tools for developing software.

DHCP — DHCP, or Dynamic Host Configuration Protocol, is an application-layer protocol that enables individual computers, or clients, on a TCP/IP network to extract an IP address and other network configuration information from a designated and centrally maintained DHCP server or servers. This facility reduces the overhead of maintaining and administering a large IP network.

disk configuration file — A file that represents a structure of a disk (for example, bytes/sector, flags, slices). Disk configuration files enable you to use `pfinstall` from a single system to test profiles on different sized disks.

diskless client — A networked system that does not have its own disk, so it relies completely on an OS server for software and file storage. Diskless clients do not have to use the Solaris 8 Interactive Installation Program because they use the software that is already installed on an OS server.

domain — A part of the Internet naming hierarchy. It represents a group of systems on a local network that share administrative files.

domain name — The identification of a group of systems on a local network. A domain name consists of a sequence of component names separated by periods (for example: `tundra.mpk.ca.us`). As you read a domain name from left to right, the component names identify more general (and usually remote) areas of administrative authority.

End User System Support — A software group that contains the Core software group plus the recommended software for an end user, including OpenWindows or the Common Desktop Environment (CDE) and DeskSet software.

Entire Distribution — A software group that contains the entire Solaris 8 release.

Entire Distribution Plus OEM Support — A software group that contains the entire Solaris 8 release, plus additional hardware support for OEMs. This software group is recommended when installing Solaris software on SPARC based servers.

`/etc` — A directory that contains critical system configuration files and maintenance commands.

`/export` — A file system on an OS server that is shared with other systems on a network. For example, the `/export` file system can contain the root file system and swap space for diskless clients and the home directories for users on the network. Diskless clients rely on the `/export` file system on an OS server to boot and run.

`fdisk` **partition** — A logical partition of a disk drive dedicated to a particular operating system on IA based systems. When using the Solaris 8 Interactive Installation Program, you must set up at least one Solaris 8 `fdisk` partition on an IA based system. IA based systems are designed to support up to four different operating systems on each drive; each operating system must be located on a unique `fdisk` partition.

file server — A server that provides the software and file storage for systems on a network.

file system — A collection of files and directories that, when set into a logical hierarchy, make up an organized, structured set of information. File systems can be mounted from your local system or a remote system.

finish script — A user-defined Bourne shell script, specified within the `rules` file, that performs tasks after the Solaris software is installed on the system, but before the system reboots. You can use finish scripts only with custom JumpStart.

host name — The name by which a system is known to other systems on a network. This name must be unique among all the systems within a given domain (usually, this means within any single organization). A host name can be any combination of letters, numbers, and minus signs (-), but it cannot begin or end with a minus sign.

initial installation option — An option presented by the Solaris 8 Interactive Installation Program that overwrites the disk(s) with a new version of Solaris. The initial installation option is presented for systems that can be upgraded. However, the disk(s) that contain the old version of Solaris software (including the local modifications) are overwritten if you choose the initial installation option.

install server — A server that provides the Solaris 8 CD images from which other systems on a network can install Solaris (also known as a *media server*). You can create an install server by copying the Solaris 8 CD images to the server's hard disk.

interactive installation

A type of installation where you have full, hands-on interaction with the installation program that installs the Solaris 8 software on a system.

IP address

Internet protocol address. A unique number that identifies a networked system so it can communicate via Internet protocols. It consists of four numbers separated by periods (192.9.9.1, for example). Most often, each part of the IP address is a number between 0 and 225; however, the first number must be less than 224 and the last number cannot be 0.

IP addresses are logically divided into two parts: the network (similar to a telephone area code), and the local system on the network (similar to a phone number). The numbers in a Class A IP address, for example, represent "network.local.local.local" and the numbers in a Class C IP address represent "network.network.network.local".

Class	**Range (*xxx* is a number 0 to 255)**	**Number of Available IP Addresses**
Class A	1.*xxx*.*xxx*.*xxx* - 126.*xxx*.*xxx*.*xxx*	Over 16 million
Class B	128.0.*xxx*.*xxx* - 191.255.*xxx*.*xxx*	Over 65,000
Class C	192.0.0.*xxx* - 223.255.255.*xxx*	256

IPv6

IPv6 is a new version (version 6) of Internet Protocol (IP) designed to be an evolutionary step from the current version, IPv4 (version 4). It is an increment to IPv4. Deploying IPv6, using defined transition mechanisms, does not disrupt current operations. In addition, IPv6 provides a platform for new Internet functionality.

IPv6 is described in more detail in “Overview of IPv6” in *System Administration Guide, Volume 3*.

ISA

Industry Standard Architecture. A type of bus found in IA based systems. ISA bus systems are “dumb” and provide no mechanism the system can use to detect and configure devices automatically.

JumpStart directory

When using a profile diskette for custom JumpStart installations, the JumpStart directory is the root directory on the diskette that contains all the essential custom JumpStart files. When using a profile server for custom JumpStart installations, the JumpStart

directory is a directory on the server that contains all the essential custom JumpStart files.

JumpStart installation — A type of installation in which the Solaris 8 software is automatically installed on a system by using the factory-installed JumpStart software.

Kerberos — A network authentication protocol that uses strong, secret-key cryptography to enable a client and server to identify themselves to each other over an insecure network connection.

locale — A specific language associated with a region or territory.

media server — See *install server*.

miniroot — The smallest possible bootable Solaris `root` file system. A miniroot contains a kernel and just enough software to install the Solaris environment on a hard disk. The miniroot is the file system that is copied to a machine in the initial installation.

mount — The process of making a remote or local file system accessible by executing the `mount`(1M) command. To mount a file system, you need a mount point on the local system and the name of the file system to be mounted (for example, `/usr`).

mount point — A directory on a system where you can mount a file system that exists on the local or a remote system.

name server — A server that provides a name service to systems on a network.

name service — A distributed network database that contains key system information about all the systems on a network, so the systems can communicate with each other. With a name service, the system information can be maintained, managed, and accessed on a network-wide basis. Sun supports the following name services: NIS and NIS+. Without a name service, each system has to maintain its own copy of the system information (in the local `/etc` files).

network installation — A way to install software over the network. Network installations require a *name server* and an *install server*.

networked systems — A group of systems (called hosts) connected through hardware and software, so they can communicate and share information; referred to as a local area network (LAN). One or more servers are usually needed when systems are networked.

NIS Network Information Service. A type of name service that is standard on SunOS 3.x, 4.x, and Solaris 1.x systems.

NIS+ Network Information Service, Plus. The replacement for NIS that provides automatic information updating and adds security features such as authorization and authentication. NIS+ is the standard on Solaris 2.x, Solaris 7, and Solaris 8 systems.

non-networked systems Systems that are not connected to a network or do not rely on other systems.

`/opt` A file system that contains the mount points for third-party and unbundled software.

OS server A system that provides services to systems on a network. To serve diskless clients, an OS server must have disk space set aside for each diskless client's root file system and swap space (`/export/root`, `/export/swap`).

package A functional grouping of files and directories that form a software application. The Solaris 8 software is divided into *software groups*, which are each composed of *clusters* and packages.

patch analyzer A script you run manually or as part of the Solaris 8 Interactive Installation Program that performs an analysis on your system to determine which (if any) patches will be removed by upgrading to a Solaris 8 Update.

platform group A vendor-defined grouping of hardware platforms for the purpose of distributing specific software. Examples of valid platform groups are i86pc and sun4u.

platform name The output of the `uname -i` command. For example, the platform name for the Ultra 60 is SUNW,Ultra-60.

Power Management Software that automatically saves the state of a system and turns it off after it is idle for 30 minutes. When you install the Solaris software on a system that complies with Version 2 of the U.S. Environmental Protection Agency's Energy Star guidelines—a sun4u SPARC system, for example—the Power Management software is installed by default, and you are prompted after subsequently rebooting to enable or disable the Power Management software.

Energy Star guidelines require that systems or monitors automatically enter a "sleep state" (consume 30 watts or less) after the system or monitor becomes inactive.

probe keyword — A syntactical element that extracts attribute information about a system without your having to set up a matching condition and run a profile as you would for a rule. See also *rule*.

profile — A text file that defines how to install the Solaris software (for example, which software group to install). Every rule specifies a profile that defines how a system is to be installed when the rule is matched. You usually create a different profile for every rule; however, the same profile can be used in more than one rule. See also *rules file*.

profile diskette — A diskette that contains all the essential custom JumpStart files in its root directory (JumpStart directory).

profile server — A server that contains all the essential custom JumpStart files in a JumpStart directory.

/ (root) — The file system at the top of the hierarchical file tree on a system. The root directory contains the directories and files critical for system operation, such as the kernel, device drivers, and the programs used to start (boot) a system.

rule — A series of values that assigns one or more system attributes to a profile.

`rules` file — A text file that contains a rule for each group of systems (or single systems) that you want to install automatically. Each rule distinguishes a group of systems based on one or more system attributes, and it links each group to a profile, which is a text file that defines how the Solaris 8 software is to be installed on each system in the group. See also *profile*.

`rules.ok` file — A generated version of the `rules` file. It is required by the custom JumpStart installation software to match a system to a profile. You *must* use the `check` script to create the `rules.ok` file.

server — See *OS server*.

slice — An area on a disk composed of a single range of contiguous blocks. A slice is a physical subset of a disk. Before you can create a file system on a disk, you must format it into slices.

software group — A logical grouping of the Solaris software (clusters and packages). During a Solaris installation, you can install one of the following software groups: Core, End User System Support, Developer System

Support, or Entire Distribution, and for SPARC systems only, Entire Distribution Plus OEM Support.

Solaris 8 CD images — The Solaris 8 software that is installed on a system, which you can access on the Solaris 8 CDs or an install server's hard disk to which you have copied the Solaris 8 CD images.

Solaris 8 Interactive Installation Program — A graphical user interface (GUI) or character user interface (CUI) based, menu-driven, interactive script that enables you to set up a system and install the Solaris 8 software on it.

standalone — A system that has its own root (/) file system, swap space, and /usr file system, which are located on its local disk(s); it does not require boot or software services from an OS server. A standalone system can be connected to a network.

subnet — A working scheme that divides a single logical network into smaller physical networks to simplify routing.

subnet mask — A bit mask, which is 32 bits long, used to determine important network or system information from an IP address.

swap space — Disk space used for virtual memory storage when the system does not have enough system memory to handle current processes.

`sysidcfg` **file** — A file in which you specify a set of special system configuration keywords that preconfigure a system.

system types — The different ways a system can be set up to run the Solaris 8 software. Valid system types are: standalone, diskless client, and OS server. However, the only system types that are covered in this document are standalone and OS server because these are the only system types that can be installed using the Solaris 8 Interactive Installation Program.

time zone — Any of the 24 longitudinal divisions of the earth's surface for which a standard time is kept.

upgrade option — An option presented by the Solaris 8 Interactive Installation Program. The upgrade procedure merges the new version of Solaris with existing files on your disk(s), and it saves as many local modifications as possible since the last time Solaris was installed.

`/usr` — A file system on a standalone system or server that contains many of the standard UNIX programs. Sharing the large `/usr` file system

with a server rather than maintaining a local copy minimizes the overall disk space required to install and run the Solaris 8 software on a system.

`/var` — A file system or directory (on standalone systems) containing system files that are likely to change or grow over the life of the system. These include system logs, `vi` files, mail files, and uucp files.

Volume Manager — A program that provides a mechanism to administer and obtain access to the data on CD-ROMs and diskettes.

Index

Special Characters

A

B

C

D

E

F

G

H

L

M

N

O

P

R

S

T

U

V

W