Solaris 8 Installation Supplement

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Contents

Preface

The *Solaris 8 Installation Supplement* provides instructions on how to install or upgrade to Solaris™ 8 Update releases and how to use new installation features in Solaris 8 Update releases.

Note - The Solaris operating environment runs on two types of hardware, or platforms - SPARC™ and IA (Intel Architecture). The Solaris operating environment also runs on both 64–bit and 32–bit address spaces. The information in this document pertains to both platforms and address spaces unless called out in a special chapter, section, note, bullet, figure, table, example, or code example.

Related Books

This document describes new or changed functionality in Solaris Update releases. The information here supplements or supersedes information in the previous releases of Solaris 8 documentation sets. Solaris documentation is available on the Solaris 8 Documentation CD included with this release.

You might need to refer to the following documents when you install Solaris software:

- *Solaris 8 Start Here* (printed document)

- *Solaris 8 (SPARC Platform Edition) Installation Guide* (on the Solaris 8 Documentation CD)

- *Solaris 8 (Intel Platform Edition) Installation Guide* (on the Solaris 8 Documentation CD)

- *Solaris 8 Advanced Installation Guide* (on the Solaris 8 Documentation CD)

- *Installation Release Notes* (printed document)
- *Release Notes* (on the Solaris 8 Documentation CD)
- *Release Notes Update* (on `http://docs.sun.com`)

For some hardware configurations, you might need supplemental hardware-specific instructions for installing the Solaris operating environment. If your system requires hardware-specific actions at certain points, the manufacturer of your hardware has provided supplemental Solaris installation documentation. Refer to those materials for hardware-specific installation instructions.

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℠ 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`.

Typographic Conventions

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

TABLE P–1 Typographic Conventions

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

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–2 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	`#`

What's New at a Glance

This chapter highlights new features in the Solaris 8 Update releases.

TABLE 1–1   Solaris 8 Features

Description	First Released
Installing	
The Web Start Flash installation feature enables you to create a single reference installation of the Solaris operating environment on a machine and then replicate that installation on several machines.	4/01
The system identification utilities automatically attempt to determine the default router during installation.	4/01
During system identification, the system identification utilities can configure systems to be LDAP clients. Prior Solaris releases allowed the configuration of a machine only as a NIS, NIS+, or DNS client.	1/01
The Solaris™ Web Start 3.0 installation method was updated to allow you to modify the selected Solaris Software Group by adding or removing software packages.	1/01
Upgrading	
The Patch Analyzer is now available when you upgrade with the Solaris Web Start 3.0 installation method on the Solaris 8 Installation CD. The Patch Analyzer performs an analysis on your system to determine which (if any) patches will be removed or downgraded by upgrading from the Solaris 8 release to a Solaris 8 Update release.	6/00
Administering and Uninstalling Software	

TABLE 1–1   Solaris 8 Features   *(continued)*

Description	First Released
A new version of the Solaris Product Registry tool has been released. The Solaris Product Registry 3.0 includes these new features: ■ Ability to uninstall individual system packages. ■ All of the Solaris system products that you installed in their localized version appear in the System Software Localizations folder. ■ Registry is compatible with more installation wizards.	1/01
Early Access	
This release includes an Early Access (EA) directory with EA software. For more information, see the README on the Solaris 8 Software 2 of 2 CD.	6/00

Installing a Solaris 8 Update Release

This chapter provides additional information about installing a Solaris 8 Update release. For complete installation instructions, refer to *Solaris 8 (SPARC Platform Edition) Installation Guide*, *Solaris 8 (Intel Platform Edition) Installation Guide*, or *Solaris 8 Advanced Installation Guide*.

Default Router Specification During System Identification

The system identification utilities were updated in the Solaris 8 4/01 software release to automatically attempt to determine the default router during installation.

The system identification utilities automatically attempt to determine the default router by checking for a `sysidcfg` file. If the utilities cannot find the needed information in the `sysidcfg` file, the utilities query route broadcasts. If the default router information is not available from route broadcasts, the system identification utilities attempt to get the information from the Dynamic Host Configuration Protocol (DHCP) server, if the system is being configured with DHCP.

If you are installing by using the Solaris Web Start 3.0 installation method and the installation software cannot detect a default router, you are prompted to specify the default router.

If you are installing by using the Interactive Installation Program on the Solaris 8 1 of 2 CD, the default router must be detectable or you must specify it in the `sysidcfg` file. The Interactive Installation Program does not prompt you to specify a default router.

Preconfiguring the Default Router With the `sysidcfg` File

This section supplements "Guidelines for Preconfiguring With the sysidcfg File" in *Solaris 8 Advanced Installation Guide*.

The `sysidcfg` file preconfigures system identification information through a set of keywords that specify information you want to preconfigure. The `default_route` parameter for the `network_interface` keyword allows the specification of a default router during the Solaris installation. The new parameter is described in Table 2–1.

TABLE 2–1 `network_interface` Keyword

Configuration Information	Platform	Keywords	Where to Find Values/Example
Network interface, host name, default router, 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* default_route=*ip_address* ip_address=*ip_address* netmask=*netmask* protocol_ipv6=*yes_or_no*}	`network_interface=le0` `{hostname=feron` `default_route=129.146.88.1` `ip_address=129.146.88.210` `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, you do not need to specify `protocol_ipv6` and `default_route`. If the software cannot autodetect a default router, the Web Start 3.0 installation software prompts you to specify one.

Using the Solaris Web Start 3.0 Installation Method to Install or Upgrade From a Remote CD-ROM

If you want to install the Solaris operating environment on a machine or domain that does not have a directly attached CD-ROM drive, you can use a CD-ROM drive attached to another machine. Both machines must be connected to the same subnet.

Note - If you are installing or upgrading the Solaris operating environment on a multi–domain server, refer to the system controller or system service processor documentation before beginning the installation process.

▼ How to Install or Upgrade From a Remote CD-ROM

1. **Identify a machine that is running the Solaris operating environment and has a CD-ROM drive.**

2. **On the machine with the CD-ROM drive, insert the Solaris 8 Installation CD in the CD-ROM drive.**

   The volume manager mounts the CD.

3. **Export the Solaris 8 Installation CD.**

   ```
   host1# share -F nfs -o ro,anon=0 /cdrom/cdrom0/s0
   ```

   In this command line, *host1* is the name of the machine that has the CD-ROM drive.

4. **Change directories to the CD.**

   ```
   host1# cd /cdrom/en_icd_sol_release_platform/s0
   ```

   In this command line, *release* is the software release, for example 8_401 for the Solaris 8 4/01 release, and *platform* is **sparc** or **ia**.

5. **Add the machine that you want to install as a client of the machine that has the CD-ROM drive.**

```
host1# ./add_install_client -s host1:/cdrom/cdrom0/s0 host2 arch
```

In this command line, *host2* is the name of the machine you want to install and *arch* is the platform group of the machine you want to install, for example sun4u. On the system that you want to install, find the platform group by using the uname –m command.

6. **Boot the machine that you want to install.**

```
ok boot net
```

The Solaris Web Start 3.0 installation begins and prompts you to type system configuration information.

7. **Type system configuration information.**

The machine reboots and the Solaris installation program begins. After the Welcome panel, the Specify Media panel appears with Network File System selected.

8. **On the Specify Media panel, click Next.**

The Specify Network File System Path panel appears and the text field contains the installation path.

host1_ip_address:/cdrom/cdrom0/s0

9. **On the machine where the CD is mounted, change directories to root.**

```
host1# cd /
```

10. **Unshare the Solaris 8 Installation CD.**

```
host1# unshare /cdrom/en_icd_sol_release_platform/s0
host1# unshare /cdrom/en_icd_sol_release_platform/s1
```

In this command line, *release* is the software release, for example 8_401 for the Solaris 8 4/01 release and *platform* is **sparc** or **ia**.

11. Eject the Solaris 8 Installation CD.

```
host1# eject cdrom
```

12. Insert the Solaris 8 1 of 2 CD in the CD-ROM drive.

13. Export the Solaris 8 1 of 2 CD.

```
host1# share -F nfs -o ro,anon=0 /cdrom/cdrom0/s0
```

14. On the machine that you are installing, continue the Solaris installation by clicking Next.

15. If the Solaris Web Start 3.0 installation software prompts you to insert the Solaris 8 2 of 2 CD, repeat Step 10 on page 17 through Step 14 on page 18 to unshare the Solaris 8 1 of 2 CD and to export and install the Solaris 8 2 of 2 CD.

16. If the Solaris Web Start 3.0 installation software prompts you to insert the Solaris 8 Languages CD, repeat Step 10 on page 17 through Step 14 on page 18 to unshare the Solaris 8 2 of 2 CD and to export and install the Solaris 8 Languages CD.

When you export the Solaris 8 Languages CD, an installer window appears on the machine where the CD-ROM is mounted. Ignore the installer window while you install the Solaris 8 Languages CD. After you complete the installation of the Solaris 8 Languages CD, close the installer window.

IA: LBA Required When Using the Solaris Web Start 3.0 Installation Method

If you want to use the Solaris 8 Web Start 3.0 installation method on the Solaris 8 Installation CD to install or upgrade, the BIOS and SCSI driver for the default boot

disk must support Logical Block Addressing (LBA). LBA enables the machine to boot beyond the 1024 cylinder limit and across Solaris disk slices.

If the default boot disk BIOS and SCSI driver do not support LBA, use the Solaris 1 of 2 CD to install or upgrade to the Solaris 8 operating environment.

LDAP Configuration During System Identification

The system identification utilities were updated in the Solaris 8 1/01 software release.

Prior to the Solaris 8 1/01 software release, the system identification utilities were able to configure a system only as a Network Information Service (NIS) client, a NIS+ client, or a Domain Name Service (DNS) client. These utilities are now also able to configure a system as a Lightweight Directory Access Protocol (LDAP) client. You can specify that the system is to be an LDAP client interactively or through the `sysidcfg` file. Currently, you cannot specify LDAP through the `add_install_client` command.

The system identification utilities automatically attempt to determine configuration information by using data from a variety of sources. The utilities first check for a `sysidcfg` file. If they cannot find the needed information in the `sysidcfg` file, the utilities automatically attempt to detect the data by using the network. In name service configuration, the system identification utilities automatically attempt to locate a name service, unless the name service type and configuration are specified in the `sysidcfg` file. The utilities first attempt automatically to detect a NIS+ server. If a NIS+ server is not found, they check for a NIS server. If a NIS server is not found, the utilities interactively query for the configuration information. Currently, the utilities cannot automatically detect an LDAP or a DNS server.

Preconfiguring the Name Service With the `sysidcfg` File

This section supplements "Guidelines for Preconfiguring With the sysidcfg File" in *Solaris 8 Advanced Installation Guide*.

The `sysidcfg` file preconfigures system identification information through a set of keywords that specify the pieces of information you want to preconfigure. The `name_service` keyword has been augmented to allow the specification of LDAP as an available name service. This augmented keyword is described in Table 2–2.

TABLE 2–2 `name_service` Keyword

Configuration Information	Platform	Keywords	Where to Find Values/Example
Name service, domain name, name server	All	`name_service=NIS, NIS+, DNS, LDAP, 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 {}.
		Options for LDAP: {domain_name=*domain_name* profile=*profile_name* profile_server=*ip_address*}	`name_service=LDAP {domain_name=west.arp.com profile=default profile_server=129.221.2.1}`

Custom Package Selection With Solaris Web Start 3.0 Installation

This section supplements *Solaris 8 (SPARC Platform Edition) Installation Guide* and *Solaris 8 (Intel Platform Edition) Installation Guide*.

The Solaris Web Start 3.0 installation method was updated at the Solaris 8 1/01 release to include custom package selection during installation or upgrade.

In prior releases of the Solaris 8 operating environment, when using the Solaris Web Start 3.0 installation method to install or upgrade, you could not customize the Solaris Software Group that you selected to install. The Solaris Web Start 3.0 utility included with the Solaris 8 1/01 release enables you to modify the selected Solaris Software Group by adding or removing software packages. When selecting which packages to add or remove, you need to know about software dependencies and how Solaris software is packaged.

Note - Normally, you do not need to customize the Solaris installation by selecting to add or remove packages. Install the default packages for the Solaris Software Group.

Upgrading to a Solaris 8 Update Release

This chapter provides additional information about upgrading to a Solaris 8 Update release. For complete upgrade instructions, refer to *Solaris 8 (SPARC Platform Edition) Installation Guide*, *Solaris 8 (Intel Platform Edition) Installation Guide*, or *Solaris 8 Advanced Installation Guide*.

Upgrading the WBEM Repository to Prevent WBEM Data Loss

You must update any proprietary custom Managed Object Format (MOF) data to the new Reliable Log repository format that is used with Solaris WBEM Services 2.4. Before you upgrade to the Solaris 8 4/01 operating environment, you might need to save the JavaSpaces™ software. After you upgrade, you must convert or merge data, depending on the operating environment that was running on your systems prior to the upgrade.

Failure to convert or merge the data results in data loss.

Use the following table to determine whether to save the JavaSpaces software before you upgrade and whether to convert or merge the WBEM data after you upgrade.

TABLE 3–1   Covert or Merge WBEM Data

Operating Environment Before Upgrading to Solaris 8 4/01	Save JavaSpaces Software Before You Upgrade?	Convert or Merge?
Solaris 8 (Solaris WBEM Services 2.0) Solaris 8 6/00 (WBEM Services 2.1) Solaris 8 10/00 (WBEM Services 2.2)	Yes. For detailed instructions on how to save the JavaSpaces software, see *Solaris 8 4/01 Release Notes.*	Convert For detailed instructions, see "How to Convert WBEM Data" on page 24.
Solaris 8 1/01 (WBEM Services 2.3)	No.	Merge For detailed instructions, see "How to Merge WBEM Data" on page 26.

▼ How to Convert WBEM Data

After upgrading to the Solaris 8 4/01 operating environment, follow these steps to convert the WBEM data.

1. Change to superuser and stop the Common Information Model (CIM) Object Manager.

```
# /etc/init.d/init.wbem stop
```

⚠ **Caution -** Failure to stop the CIM Object Manager before running the wbemconfig convert command might corrupt your data.

2. Restore the JavaSpaces software that you saved before upgrading.

```
# mv /usr/sadm/lib/wbem/outrigger.jar /usr/sadm/lib/wbem/outrigger.jar.2
# mv /usr/sadm/lib/wbem/outrigger.jar.tmp /usr/sadm/lib/wbem/outrigger.jar
```

3. **In a separate location from the currently installed JDK™ software, install the JDK version that was installed on your machine before you install the Solaris 8 4/01 operating environment. You can download the JDK software from** `http:/ /java.sun.com/products/`.

4. **Change the symbolic link from** `/usr/java` **to the location of the JDK version that was installed on your machine before you install the Solaris 8 4/01 operating environment. For example, do the following if you installed Solaris_JDK_1.2.1_04c in** `/old_sdk`:

```
# rm /usr/java
# ln -s /old_sdk/Solaris_JDK_1.2.1_04c /usr/java
```

5. **Convert the JavaSpaces data to Reliable Log format.**

```
# /usr/sadm/lib/wbem/wbemconfig convert
```

6. **Restore the** `outrigger.jar` **file included in the Solaris 8 4/01 installation.**

```
# mv /usr/sadm/lib/wbem/outrigger.jar.2 /usr/sadm/lib/wbem/outrigger.jar
```

7. **Change the symbolic link from** `/usr/java` **to the location of the JDK software that ships with the Solaris 8 4/01 operating environment. For example:**

```
# rm /usr/java
# ln -s /usr/java1.2 /usr/java
```

8. **Stop the CIM Object Manager.**

```
# /etc/init.d/init.wbem stop
```

9. **Start the CIM Object Manager.**

```
# /etc/init.d/init.wbem start
```

▼ How to Merge WBEM Data

After you upgrade to the Solaris 8 4/01 operating environment, follow these steps to merge the WBEM data.

1. **Change to superuser and stop the Common Information Model (CIM) Object Manager.**

```
# /etc/init.d/init.wbem stop
```

⚠ **Caution -** Failure to stop the CIM Object Manager before you run the `wbemconfig convert` command might corrupt your data.

2. **Merge the Solaris 8 1/01 Reliable Log data into the Solaris 8 4/01 Reliable Log.**

```
# /usr/sadm/lib/wbem/wbemconfig convert
```

Upgrading From the Solaris 8 Operating Environment

If you are already running the Solaris 8 operating environment and have installed individual patches, upgrading to a Solaris 8 Update release causes the following:

■ Any patches supplied as part of the Solaris 8 Update release are reapplied to your system. You cannot back out these patches.

■ Any patches previously installed on your system that are not included in the Solaris 8 Update release are removed.

To see a list of patches that are removed, 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 the Solaris 8 Update release. The Patch Analyzer is available in the following formats.

- If you are using the Solaris Web Start 3.0 installation method on the Solaris 8 Installation CD to upgrade, refer to "Using the Patch Analyzer With a Solaris Web Start 3.0 Upgrade" on page 27.

- If you are using the Interactive Installation method to upgrade, select Analyze on the Patch Analysis dialog box to perform the analysis. For detailed instructions, see "Upgrading From Solaris 8 or a Solaris 8 Update: the Patch Analyzer" in *Solaris 8 Advanced Installation Guide*.

- If you are using a custom JumpStart™ installation to upgrade, run the analyze_patches script to perform the analysis. For detailed instructions, see "Upgrading From Solaris 8 or a Solaris 8 Update: the Patch Analyzer" in *Solaris 8 Advanced Installation Guide*.

Using the Patch Analyzer With a Solaris Web Start 3.0 Upgrade

This section supplements "Upgrading a System" in *Solaris 8 (SPARC Platform Edition) Installation Guide* and "Upgrading a System" in *Solaris 8 (Intel Platform Edition) Installation Guide*.

The Solaris Web Start 3.0 installation method gives you the option to use the Patch Analyzer to analyze the patches on your system. After you choose Upgrade, the Patch Analyzer dialog box appears.

1. **In the Patch Analyzer dialog box, choose Yes and click Next.**

   The Patch Analyzer reviews the system patches.

   The Patch Analyzer Summary dialog box displays the total number of patches that will be removed, downgraded, accumulated, or made obsolete by other patches.

2. **To see the specific patches that might be removed, downgraded, accumulated, or obsoleted by other patches, click the Details button(s).**

3. **Decide if the patch replacements and deletions are acceptable.**
   - If the patch replacements and deletions by the Solaris 8 Update release are acceptable, click Next to complete the upgrade.

- If the patch replacements and deletions by the Solaris 8 Update release are not acceptable, click Exit to terminate the upgrade. You can use the Solaris 8 Maintenance Update and the *Solaris 8 Maintenance Update Installation Guide* to install the patches on your Solaris 8 system.

Administering and Uninstalling Software

This chapter provides additional information about administering software with the Solaris Product Registry tool.

Solaris Product Registry 3.0

This section supplements "Adding and Removing Software With the Product Registry" in *Solaris 8 (SPARC Platform Edition) Installation Guide* and "Adding and Removing Software With the Product Registry" in *Solaris 8 (Intel Platform Edition) Installation Guide*.

A new version of the Solaris Product Registry tool has been released in the Solaris 8 1/01 release. You can access the Product Registry by using the command `/usr/bin/prodreg`. The Solaris Product Registry 3.0 includes these new features:

- Ability to uninstall individual system packages.

- All of the Solaris system products that you installed in their localized version appear in the System Software Localizations folder.

- Registry is compatible with more installation wizards.

Uninstalling Individual Packages

You can now use the Solaris Product Registry 3.0 graphical user interface to uninstall individual system packages or clusters of system packages.

> **Note -** When you select which packages to uninstall, you need to know about software dependencies and how Solaris software is packaged. If package dependency information is available, the Solaris Product Registry 3.0 tool displays a warning when you attempt to uninstall a package that is required by another package.

System Software Localizations Folder

In the Software installed in Solaris Registry list in the Solaris 8 System Software folder, you will find the new System Software Localizations folder. This folder contains a complete list of Solaris system software products that were installed in their localized version. You can uninstall these individual system packages or clusters of packages.

> **Note -** If your system has only the English locale installed, the Solaris Product Registry 3.0 does not display the System Software Localization folder.

More Installation Wizards

Software applications that use Solaris Web Start Wizards™ versions 3.0 and 2.0 application programing interfaces (APIs) for installation now display in the Software installed in Solaris Registry list. In the previous version of the Solaris Product Registry, only applications that used Solaris Web Start Wizards 2.0 APIs appeared in the list.

If you installed applications that used Solaris Web Start Wizards 3.0 APIs before you installed the Solaris 8 1/01 release, these applications now appear in the Software installed in Solaris Registry list.

Web Start Flash Installation Feature

This section provides instructions for creating Web Start Flash archives and using Web Start Flash archives to install the Solaris operating environment on multiple systems.

Chapter 6	Provides overview and planning information on creating and installing Web Start Flash archives.
Chapter 7	Provides step-by-step instructions for creating Web Start Flash archives.
Chapter 8	Provides step-by-step instructions for installing Web Start Flash archives.
Chapter 9	Describes syntax and options for the `flarcreate` and `flar` commands. Describes keywords for Web Start Flash archive information.

Web Start Flash Overview and Planning

This chapter provides an introduction to the Web Start Flash installation feature. Also included in the chapter is information necessary for planning a Web Start Flash installation in your environment.

- "Web Start Flash Introduction" on page 33
- "Planning Your Web Start Flash Installation" on page 34

Web Start Flash Introduction

The Web Start Flash installation feature enables you to create a single reference installation of the Solaris operating environment on a machine which is called the master machine. Then you can replicate that installation on a number of machines which are called clone machines. Installing clone machines with the Web Start Flash installation method is a three–part process.

1. Install the master machine. – You select a machine and use any of the Solaris installation methods to install the Solaris operating environment and any other software.

2. Create the Web Start Flash archive. – The Web Start Flash archive contains a copy of all of the files on the master machine.

3. Install the Web Start Flash archive on clone machines. – When you install the Web Start Flash archive onto a machine, all of the files in the archive are copied to that machine. The newly installed machine now has the exact same installation configuration as the original master machine, thus it is called a clone machine.

> **Note -** You cannot upgrade a system that is running the Solaris operating environment by using the Web Start Flash installation feature. You can only perform an initial installation.

Planning Your Web Start Flash Installation

Before you create and install a Web Start Flash archive, you must make some decisions about how you want to install the Solaris operating environment on your systems.

Designing the Installation of the Master Machine

The first task in the Web Start Flash installation process is to install a machine, the master machine, with the configuration that you want each of the clone machines to have. You can use any of the Solaris installation methods to install a subset or a complete installation of the Solaris operating environment onto the master machine. After you complete the installation, you can add or remove software or modify any configuration files.

The master machine and the clone machines must have the same kernel architectures. For example, you can use a Web Start Flash archive that was created from a master machine that has a `sun4u` architecture only to install other machines with a `sun4u` architecture.

You must install the master machine with the exact configuration that you want on each of the machines that you are installing with the Web Start Flash archive created from this master machine. The decisions you make when you design the installation of the master machine depend on:

- The software you want to install on the clone machines
- Peripheral devices that are connected to the master and the clone machines
- The architecture of the master and the clone machines

Customizing the Solaris Installation on the Master Machine

After you install the Solaris operating environment onto the master machine by using any of the Solaris installation methods, you can add or delete software and modify system configuration information as necessary.

- Delete software – You can remove software that you determine is not necessary to install on the clone machines. To see a list of software that is installed on the master machine, use the Product Registry. For detailed instructions, refer to "Adding and Removing Software With the Product Registry" in *Solaris 8 (Intel Platform Edition) Installation Guide* or *Solaris 8 (SPARC Platform Edition) Installation Guide*.

- Add software – You can install software that is included in the Solaris release and software that is not delivered as part of the Solaris operating environment. All of the software that you install on the master machine is included in the Web Start Flash archive and is installed on the clone machines.

- Modify configuration files – You can alter configuration files on the master machine. For example, you can modify the `/etc/inet/inetd.conf` file to restrict the daemons that the system runs. All of the modifications that you make are saved as part of the Web Start Flash archive and are installed on the clone machines.

Creating Archives for SPARC and IA Machines

If you want to use the Web Start Flash installation method to install the Solaris software on both SPARC and IA machines, you must create a separate Web Start Flash archive for each platform. Use the Web Start Flash archive that was created from the SPARC master machine to install SPARC machines. Use the Web Start Flash archive that was created from the IA machine to install IA machines.

Supporting Peripheral Devices Not Found on the Master Machine

You might be installing a master machine that has different peripherals than the clone machines. If you install the master system with the Core, End User, Developer, or Entire Software Group, the master system supports only the peripheral devices that are attached to the master machine at the time of installation.

For example, if you install the Entire Software Group on a master machine that has a cg6 frame buffer, the installation contains support for only the cg6 frame buffer. Consequently, you can only install the archive that you create from this system on clone systems that have either the cg6 frame buffer or no frame buffers. If you use the archive to install a clone system with an Elite 3D frame buffer, the Elite 3D will be unusable because the required drivers will not be installed.

You might have clone machines that have peripheral devices that the master machine does not have. You can install support for these peripheral devices on the master machine even though the master machine does not have the devices. The Web Start Flash archive you create from this master machine contains support for the peripheral devices on the clone machines.

If you plan to install clone machines that have different peripherals from the master machine, you can install support for those peripherals on the master machine in one of the following ways.

- **Install the Entire Plus OEM Software Group:** The Entire Plus OEM Software Group is the largest Software Group available and contains every package found in the Solaris operating environment. If you install the Entire Plus OEM Software group on the master machine, the master machine includes all of the drivers included with the Solaris release. A Web Start Flash archive created from a master machine that you install with the Entire plus OEM Software Group works on any clone system that has peripheral devices supported by the installed release of the Solaris operating environment.

  Installing master machines with the Entire Plus OEM Software Group guarantees compatibility with other peripheral configurations. However, the Entire Plus OEM Software Group requires over 1 gigabyte of disk space. The clone machines might not have the space required to install the Entire Plus OEM Software Group.

- **Install Selected Packages:** When you install the master machine, you can install only the packages that you need for the master machine and the clone machines. By selecting specific packages, you can install only support for the peripherals that you know exist on the master or clone machines.

Planning the Creation of a Web Start Flash Archive

After you install the master machine, the next task in the Web Start Flash installation process is to create a Web Start Flash archive. All of the files on the master machine are copied to a Web Start Flash archive along with various pieces of identification information. You can create a Web Start Flash archive while the master machine is running in multiuser mode or single-user mode. You can also create a Web Start Flash archive after you boot from the Solaris 8 Software 1 of 2 CD or from an image of the Solaris software CDs. Create the archive when the system is in as static a state as possible.

Archive Identification Information

A Web Start Flash archive contains archive identification information in addition to the actual files from the master machine that will be installed on the clone machines. You are required to specify a name for the Web Start Flash archive. Other information that you can specify about the archive includes:

- The author of the archive
- The date the archive was created
- The name of the master machine that you used to create the archive

For a complete list of the archive identification information that you can specify, refer to "Identification Section Keywords" on page 54.

Use the `flar` command to retrieve information about the archive. For detailed instructions, refer to "`flar`" on page 58.

Where to Store the Web Start Flash Archive

After you create the Web Start Flash archive, you can save the archive on the hard disk of the master machine or on a tape. After you save the archive, you can copy it to any file system or media that you choose.

- Network File System (NFS)
- HTTP server
- Tape
- CD
- Diskette
- Local drive of clone machine that you want to install

Compressing the Archive

When you create the Web Start Flash archive, you can specify that the archive be saved as a compressed file by using the `compress(1)`utility. An archive that is compressed requires smaller disk storage space and creates less congestion when you install the archive over a network.

Planning the Installation of Web Start Flash Archives

The final task in the Web Start Flash installation process is to install Web Start Flash archives on clone machines.

Deciding How to Install Web Start Flash Archives

You can use any of the Solaris installation methods to install Web Start Flash archives on clone machines.

The Solaris Web Start 3.0 installation method on the Solaris 8 Installation CD enables you to install Web Start Flash archives that are stored on the following:

- CD
- Network File System (NFS) server
- HTTP server

- Local tape

The `suninstall` installation program on the Solaris 8 1 of 2 CD enables you to install Web Start Flash archives that are stored on the following:

- HTTP server
- Network File System (NFS) server
- Local file
- Local tape
- Local device, including CD

The custom JumpStart installation program enables you to install Web Start Flash archives that are stored on the following:

- NFS server
- HTTP server
- Local tape
- Local device, including CD
- Local file

Installing Layered Web Start Flash Archives

The Web Start Flash installation feature provides the ability to layer Web Start Flash archives. You can create partial Web Start Flash archives to install in a variety of ways.

For example, you can create one archive that contains the Solaris operating environment files, a second archive that contains the files necessary to run a Web server, and a third archive that contains the files for an NFS server. You can install the first and second archives to one machine to create a Web server and the first and third archives to create an NFS server.

By using layered archives, you can increase the flexibility of the Web Start Flash installation while you reduce the disk space that is required to store Web Start Flash archives. When you install layered archives to a clone machine, one of the archives must contain the Solaris operating environment.

Note - If you use layered Web Start Flash archives to install additional software onto clone machines separately from the Solaris operating environment, the Solaris package database has no record of the additional software.

Creating Web Start Flash Archives

This chapter provides the procedures for creating a Web Start Flash archive.

- "Creating Web Start Flash Archives Task Map" on page 39
- "Creating Web Start Flash Archives Tasks" on page 40

Creating Web Start Flash Archives Task Map

TABLE 7–1   Creating a Web Start Flash Archive Task Map

Task	Description	For Instructions, Go To
Install your chosen configuration on the master machine.	Determine the configuration that meets your needs and use any of the Solaris installation methods to install the master machine.	*Solaris 8 Advanced Installation Guide*
Create the Web Start Flash archive.	Use the `flarcreate` command to create an archive.	"How to Create a Web Start Flash Archive" on page 40

Creating Web Start Flash Archives Tasks

This section provides the procedures for installing a master machine and then creating a Web Start Flash archive from that master machine.

▼ How to Install the Master Machine

You install the master machine with the configuration that you want other machines to have. Use any of the existing Solaris installation methods to install the Solaris operating environment onto the master machine.

1. **Identify the system configuration that you want to install.**

2. **With the use of the Solaris installation methods, install the Solaris operating environment on the master machine. For a discussion of the different installation methods, see** *Solaris 8 Advanced Installation Guide.*

3. **Customize your Solaris installation in any of the following ways:**
    - Delete software
    - Add software
    - Modify configuration files
    - Add support for peripheral devices on the clone machine

▼ How to Create a Web Start Flash Archive

After you install the master machine, create a Web Start Flash archive to use to install other machines.

1. **Boot the master machine and run it in as static a state as possible.**

    You can create a Web Start Flash archive while the master machine is running in multiuser mode, single-user mode, or while booted from the Solaris Software 1 of 2 CD or from a Solaris net image.

2. **To create the archive, use the** flarcreate **command.**

    ```
    # flarcreate -n name options path/filename
    ```

    In this command line:
    - *name* is the name that you give the archive. The *name* you specify is the value of the content_name keyword.

- *path* is the path to the directory in which you want to save the archive file. If you do not specify a path to save the archive, `flarcreate` saves the archive file in the current directory.
- *filename* is the name of the archive file.

For a list of command–line options, refer to "`flarcreate`" on page 56.

If the archive creation is successful, the `flarcreate` command returns an exit code of 0. If the archive creation fails, the `flarcreate` command returns a nonzero exit code.

Installing Web Start Flash Archives

This chapter provides the procedures for installing Web Start Flash archives onto clone machines. You can use any of the Solaris installation methods to install Web Start Flash archives.

- "Installing Web Start Flash Archives With the Solaris Web Start 3.0 Installation Method" on page 43
- "Installing Web Start Flash Archives With the Interactive Installation Program" on page 45
- "Installing Web Start Flash Archives With a Custom JumpStart Installation" on page 46

Installing Web Start Flash Archives With the Solaris Web Start 3.0 Installation Method

This section provides the procedure for using the Solaris Web Start 3.0 installation method on the Solaris 8 Installation CD to install Web Start Flash archives. This section supplements *Solaris 8 (SPARC Platform Edition) Installation Guide* and *Solaris 8 (Intel Platform Edition) Installation Guide*.

The Solaris Web Start 3.0 installation method on the Solaris 8 Installation CD enables you to install Web Start Flash archives stored on the following:

- CD
- Network File System (NFS) server
- HTTP server

- Local tape

▼ How to Install a Web Start Flash Archive With the Solaris Web Start 3.0 Installation Method

1. **Begin the Solaris Web Start 3.0 installation as described in** *Solaris 8 (SPARC Platform Edition) Installation Guide* **and** *Solaris 8 (Intel Platform Edition) Installation Guide.*

2. **On the Specify Media panel, select the location of the Web Start Flash archive.**

   The Solaris Web Start 3.0 installation prompts you to proceed, depending on the media you selected.

Media Selected	Prompt
CD	Insert the CD where the Web Start Flash archive is located.
Network File System	Specify the path to the network file system where the Web Start Flash archive is located.
HTTP	Specify the URL and proxy information needed to access the Web Start Flash archive.
Local tape	Specify the local tape device and the position on the tape where the Web Start Flash archive is located.

3. **On the Select Flash Archives panel, select one or more Web Start Flash archives to install.**

4. **On the Additional Flash Archives panel, you can select to install layered Web Start Flash archives by specifying the media where another archive is located. If you do not want to install additional archives, select None.**

5. **On the Flash Archives Summary panel, confirm the selected archives and click Next to complete the installation.**

Installing Web Start Flash Archives With the Interactive Installation Program

This section provides the procedure for using the Interactive Installation Program on the Solaris 8 1 of 2 CD to install Web Start Flash archives. You can only install Web Start Flash archives with the character-based version of the Interactive Installation Program. This section supplements *Solaris 8 Advanced Installation Guide*.

The character-based Interactive Installation program on the Solaris 8 1 of 2 CD enables you to install Web Start Flash archives that are stored on the following:

- HTTP server
- Network File System (NFS) server
- Local file
- Local tape
- Local device, including CD

How to Install a Web Start Flash Archive With the Interactive Installation Program

1. **Begin the character-based Solaris Interactive Installation by either booting from the Solaris 1 of 2 CD or from a Solaris 1 of 2 CD image on the network. Boot by using the – w argument to begin the character-based Interactive Installation Program.**

   - Boot from CD:

     ```
     ok boot cdrom - w
     ```

   - Boot from a Solaris 1 of 2 image:

     ```
     ok boot net - w
     ```

2. **On the Flash Archive Retrieval Method screen, select the location of the Web Start Flash archive.**

   The Solaris Web Start 3.0 installation prompts you to proceed, depending on the media you selected.

Media Selected	Prompt
HTTP	Specify the URL and proxy information needed to access the Web Start Flash archive.
Network File System	Specify the path to the network file system where the Web Start Flash archive is located.
Local file	Specify the path to the local file system where the Web Start Flash archive is located.
Local tape	Specify the local tape device and the position on the tape where the Web Start Flash archive is located.
Local device	Specify the local device, the path to the Web Start Flash archive, and the type of file system on which the Web Start Flash archive is located.

3. **On the Flash Archive Selection screen, you can select to install layered Web Start Flash archives by selecting New. If you do not want to install additional archives, select Continue to complete the installation.**

Installing Web Start Flash Archives With a Custom JumpStart Installation

This section provides the procedure for using the custom JumpStart installation method to install Web Start Flash archives. This section supplements *Solaris 8 Advanced Installation Guide*.

The custom JumpStart installation program allows you to install Web Start Flash archives stored on the following:

- NFS server
- HTTP server
- Local tape
- Local device, including CD
- Local file

▼ How to Install a Web Start Flash Archive With a Custom JumpStart Installation

1. **On the install server, create the custom JumpStart `rules` file.**

   For detailed instructions about creating custom JumpStart files, refer to "Preparing Custom JumpStart Installations" in *Solaris 8 Advanced Installation Guide*.

2. **On the install server, create the custom JumpStart `profile` file.**

   a. **Set the value of the keyword `install_type` as `flash_install`.**

   b. **Add the path to the Web Start Flash archive by using the new `archive_location` keyword.**

      For details about the `archive_location` keyword, refer to "`archive_location` Keyword" on page 48.

   c. **Specify the file system configuration.**

      The Web Start Flash archive extraction process does not support auto-layout of partitions.

   d. **(Optional) If you want to install layered Web Start Flash archives onto the clone machine, add one `archive_location` line for each archive that you want to install.**

   Note - From the existing list of custom JumpStart keywords in "Preparing Custom JumpStart Installations" in *Solaris 8 Advanced Installation Guide*, the only keywords valid when you install a Web Start Flash archive are:

   - `fdisk` (IA only)
   - `filesys` – You cannot set the `filesys` keyword to the value `auto`.
   - `install_type` (required)
   - `partitioning` – You can only set the `partitioning` keyword to the values `explicit` or `existing`.

   ---

3. **On the install server, add the clients that you are going to install with the Web Start Flash archive.**

   For detailed instructions, refer to "Preparing to Install Solaris Software Over the Network" in *Solaris 8 Advanced Installation Guide*.

4. **Perform the custom JumpStart installation on the clone machines.**

   For detailed instructions, refer to "Performing a Custom JumpStart Installation" in *Solaris 8 Advanced Installation Guide*.

`archive_location` Keyword

When you use the custom JumpStart installation method to install a Web Start Flash archive, you must include a new custom JumpStart keyword in the `profile` file. The new keyword is `archive_location` and the syntax for the keyword is:

`archive_location` *retrieval_type location*

The values of *retrieval_type* and *location* depend on where the Web Start Flash archive is stored.

- "NFS Server" on page 48
- "HTTP Server" on page 48
- "Local Tape" on page 50
- "Local Device" on page 50
- "Local File" on page 51

NFS Server

If the archive is stored on an NFS server, use the following syntax for the `archive_location` keyword.

```
archive_location nfs server_name:/path/filename
```

In this command line:

- *server_name* is the name of the server where you stored the archive.
- *path* is the location of the archive to be retrieved from the specified server. If the path contains $HOST, the Web Start Flash installation utilities replace $HOST with the name of the clone system that you are installing.
- *filename* is the name of the Web Start Flash archive file.

Examples:

```
archive_location nfs golden:/archives/usrarchive
```

Or

```
archive_location nfs://golden/archives/usrarchive
```

HTTP Server

If the archive is stored on an HTTP server, use the following syntax for the `archive_location` keyword.

```
archive_location http server_name:port path/filename optional_keywords
```

In this command line:

- *server_name* is the name of the server where you stored the archive. *server_name* can be a port number or the name of a TCP service that has a port number that is determined at runtime.

- *port* is an optional port. If you do not specify a port, the Web Start Flash installation utilities use the default HTTP port number, 80.

- *path* is the location of the archive to be retrieved from the specified server. If the path contains $HOST, the Web Start Flash installation utilities replace $HOST with the name of the clone system that you are installing.

- *filename* is the name of the Web Start Flash archive file.

When you are retrieving a Web Start Flash archive from an HTTP server, you can use several optional keywords.

TABLE 8–1 Optional Keywords to Use With *retrieval_type* HTTP

Keywords	Value Definitions
auth basic *username password*	If the archive is located on an HTTP server that is password protected, you must include the username and password that you need to access the HTTP server in the profile file.
	Note - The use of this authentication method in a profile that is intended for use with custom JumpStart is risky, as unauthorized users might have access to the profile file that contains the password.
timeout *min*	The timeout keyword enables you to specify, in minutes, the maximum length of time that is allowed to pass without receipt of data from the HTTP server before the connection is closed, reopened, and resumed from the point where the timeout occurred. If you specify a timeout value of 0 (zero), the connection is not reopened because of inactivity.
	If a time-out reconnection occurs, the Web Start Flash installation utilities attempt to resume at the last known position in the archive. If the Web Start Flash installation utilities cannot resume at the last known position, the retrieval restarts from the beginning of the archive and the data retrieved prior to the timeout is discarded.
proxy *host:port*	The proxy keyword allows you to specify a proxy host and proxy port. You can use a proxy host to retrieve a Web Start Flash archive from the other side of a firewall. You must supply a proxy port when you specify the proxy keyword.

Examples:

```
archive_location http silver /archives/usrarchive auth basic user1 secret timeout 5
```

Or:

```
archive_location http://user1:secret@silver/archives/usrarchive timeout 5
```

Local Tape

If the archive is stored on a tape, use the following syntax for the
`archive_location` keyword.

```
archive_location local_tape device   position
```

In this command line:

- *device* is the name of the tape drive where you stored the Web Start Flash archive.
  If the device name is a canonical path, the Web Start Flash installation utilities
  retrieve the archive from the path to the device node. If you supply a device name
  that is not a canonical path, the Web Start Flash installation utilities add `/dev/`
  `rmt/` to the path.

- *position* designates the place on the tape drive where you saved the archive. If you
  do not supply a position, the Web Start Flash installation utilities retrieve the
  archive from the current position on the tape drive. By specifying a *position*, you
  can place a begin script or a `sysidcfg` file on the tape drive before the archive.

Examples:

```
archive_location local_tape /dev/rmt/0n 5
```

Or:

```
archive_location local_tape 0n 5
```

Local Device

You can retrieve a Web Start Flash archive from a local device if you stored the Web
Start Flash archive on a file system-oriented, random-access device, such as a diskette
or a CD-ROM. Use the following syntax for the `archive_location` keyword.

Note - You can retrieve an archive from stream-oriented devices, such as tape, by
using the syntax for local tape.

```
archive_location local_device device path/filename file_system_type
```

In this command line:

- *device* is the name of the drive where you stored the Web Start Flash archive. If the
  device name is a canonical path, it is mounted directly. If you supply a device
  name that is not a canonical path, the Web Start Flash installation utilities add `/`
  `dev/dsk/` to the path

- *path* is the path to the Web Start Flash archive, relative to the root of the file system on the device you specified. If the path contains $HOST, the Web Start Flash installation utilities replace $HOST with the name of the clone system that you are installing.

- *filename* is the name of the Web Start Flash archive file.

- *file_system_type* specifies the type of file system on the device. If you do not supply a file system type, the Web Start Flash installation utilities attempt to mount a UFS file. If the UFS mount fails, the Web Start Flash installation utilities attempt to mount an HSFS file system.

Examples:

To retrieve an archive from a local hard drive that is formatted as a UFS file system:

```
archive_location local_device c0t0d0so /archives/$HOST
```

To retrieve an archive from a local CD-ROM that has an HSFS file system:

```
archive_location local_device c0t0d0so /archives/usrarchive
```

Local File

You can retrieve an archive that you stored in the miniroot from which you booted the clone system as a local file. When you perform a custom Jumpstart installation, you boot the system from a CD-ROM or NFS-based miniroot. The installation software is loaded and run from this miniroot. Therefore, a Web Start Flash archive that you stored in the CD-ROM or NFS-based miniroot is accessible as a local file. Use the following syntax for the archive_location keyword.

```
archive_location local_file path/filename
```

In this command line:

- *path* is the location of the archive. The path must be accessible to the system as a local file while the system is booted from the Solaris 8 Installation CD. The system cannot access /net when it is booted from the Solaris 8 Installation CD.

- *filename* is the name of the Web Start Flash archive file.

Examples:

```
archive_location local_file /archives/usrarchive
```

Or:

```
archive_location local_file:/archives/usrarchive
```

Web Start Flash Reference

The Web Start Flash installation feature provides tools for administering and managing Web Start Flash archives. After you create an archive, you can extract archive information, split an archive into sections, or combine archive sections.

- "Web Start Flash Archive Sections" on page 53
- "Web Start Flash Keywords" on page 54
- "Web Start Flash Commands" on page 56

Web Start Flash Archive Sections

Web Start Flash archives contain at least three sections. The sections are comprised of both archive identification information and the actual files that were copied from the master machine to be installed onto the Clone system.

1. **Archive Cookie Section** – The first section of a Web Start Flash archive contains a `cookie` that identifies the file as a Web Start Flash archive. The `cookie` must be present for an archive to be valid.

2. **Archive Identification Section** – The second section contains keywords with values that provide identification information about the archive.

3. **User–Defined Sections** – Following the Archive Identification Section you can define and insert sections. The Web Start Flash archive does not process any sections that you insert. User-defined sections must be line-oriented and terminated with newline (ASCII 0x0a) characters. The length of individual lines has no limit. If you include binary data in a user-defined section, you must encode it by using base64 or a similar algorithm.

The name for user-defined sections must begin with "X" and can contain any characters other than linefeeds, equal signs, null characters, and forward slashes (/). For example, X-department is a valid user-defined section name.

4. **Archive Files Section** – The Archive Files Section contains the files saved from the master system.

Web Start Flash Keywords

Keywords and values are separated by a single equal sign with only one pair per line. Individual lines can be any length. The keywords are case insensitive.

General Keywords

The beginning and ending of each Web Start Flash archive section is defined by the `section_begin` and `section_end` keywords. The values for the `section_begin` and `section_end` keywords are described in the following table.

TABLE 9–1   Values for `section_begin` and `section_end` Keywords

Archive Section	**Value for** `section_begin` **and** `section_end` **keywords**
Archive cookie	`cookie`
Archive identification	`identification`
User-defined sections	*section_name*
Archive files	`archive`

Identification Section Keywords

This section describes the keywords for use in the Archive Identification section and the values you can define for them.

The following table explains keywords that describe the archive.

TABLE 9–2 Identification Section Keywords

Keywords	Value Definitions
content_name (required)	The Web Start Flash archive deployment utilities use the value of the content_name keyword to identify the archive. The value can be no longer than 256 characters.
	You might want the value of the content_name keyword to describe the functionality and purpose of the archive because the content_name value might be presented to the user during the archive selection and extraction processes.
creation_date	The value of the creation_date keyword is a textual timestamp that represents the time that you created the archive. The value must be in the format YYYYMMDDhhmmss. For example, 20000131221409, represents January 31st, 2000 10:14:09p.m. If you do not specify a creation date, the default date is set in Greenwich Mean Time (GMT).
creation_master	The value of the creation_master keyword is the name of the master machine you used to create the archive. If you do not specify a value for creation_master, flarcreate uses the machine name reported by uname −n.
content_type	You define the value of the content_type keyword to specify a category for the archive. The Web Start Flash archive deployment utilities display the value of the content_type keyword during deployment.
content_description	You define the value of the content_description keyword to provide a description of the contents of the archive. The value of this keyword has no length limit.
content_author	You define the value of the content_author keyword to identify the creator of the archive. Suggested values include the full name of the creator and the creator's email address.
content_architectures	The value of the content_architectures keyword is a comma-delimited list of the kernel architectures that the archive supports. When you create a Web Start Flash archive, the archive generates the value of the content_architectures keyword.
	If the archive contains this keyword, the Web Start Flash archive deployment utilities validate the kernel architecture of the clone machine against the list of architectures that the archive supports. The deployment fails if the archive does not support the kernel architecture of the clone machine. If the keyword is not present, the deployment utilities do not validate the architecture of the clone machine.

In addition to the keywords that are defined by the Web Start Flash archive, you can define keywords. The Web Start Flash archive ignores user-defined keywords, but

you can provide scripts or programs that process the identification section and use user-defined keywords. The name of a user-defined keyword must begin with "X" and can contain any characters other than linefeeds, equal signs, and null characters. For example, X-department is a valid name for a user-defined keyword.

Web Start Flash Commands

Use the Web Start Flash commands to create and manage Web Start Flash archives.

flarcreate

Use the `flarcreate` command to create a Web Start Flash archive from a master machine. You can use this command when the master machine is running in multiuser or single-user mode. You can also use `flarcreate` when the master machine was booted from the Solaris 1 of 2 Software CD or from a Solaris net image. The master machine should be in as stable a state as possible when you create a Web Start Flash archive. The syntax of the command is:

flarcreate −n *name* [−R *root*] [−S] [−H] [−c] [−x *exclude*] [−t [−p *posn*][−b *blocksize*]] [−i *date*] [−m *master*] [−u *section* [−d *dir*]] [−U *key=val*] [−a *author*] [−e *descr*¦−E *descr_file*] [−T *type*] *path/filename*

In this command line, *path* is the directory in which you want the archive file to be saved and *filename* is the name of the archive file. If you do not specify a path, `flarcreate` saves the archive file in the current directory.

TABLE 9–3   Command-Line Options for `flarcreate`

Option	Description
Required Options	
−n *name*	The value of this flag is the name of the archive. The *name* you specify is the value of the `content_name` keyword.
Option for Compression	
−c	Compresses the archive by using `compress(1)`.
Options for Directories and Sizes	

TABLE 9–3   Command-Line Options for `flarcreate`   *(continued)*

Option	Description
−R *root*	Creates the archive from the file-system tree rooted at root. If you do not specify this option, `flarcreate` creates an archive from a file system rooted at `/`.
−S	Does not include sizing information in the archive.
−x *exclude*	Excludes the directory *exclude* from the archive.
−H	Does not generate the hash identifier.
Options Used With User-Defined Sections	
−u *section*	Includes a user-defined section. To include more than one user-defined section, *section* must be a space-separated list of section names.
−d *dir*	Retrieves the section file that is specified with −u from *dir*.
Options Used With Tape Archives	
−t	Creates an archive on a tape device. The *outfile* argument is the name of the tape device.
−p *posn*	Uses only with the -t option. Specifies the position on the tape device for `flarcreate` to store the archive. If you do not use this option, `flarcreate` places the archive in the current position of the tape.
−b *blocksize*	Specifies the block size `flarcreate` uses when creating the archive. If you do not specify a block size, `flarcreate` uses the default block size of **64k**.
Options for Archive Identification	
−U *key=val*	Includes user-defined keyword(s) and values in the Archive Identification section.
−i *date*	Uses *date* as the value for the `creation_date` keyword. If you do not specify a date, `flarcreate` uses the current system time and date.

TABLE 9–3 Command-Line Options for `flarcreate` *(continued)*

Option	Description
−m *master*	Uses *master* as the name of the master machine on which you created the archive for the `creation_master` keyword. If you do not specify a *master*, `flarcreate` uses the machine name that is reported by `uname -n`.
−e *descr*	Uses *descr* for the value of the `content_description` keyword. You cannot use this option when you use the −E option.
−E *descr_file*	Retrieves the value for the `content_description` keyword from the file *descr_file*. You cannot use this option when you use the −e option.
−a *author*	Uses *author* as the author name in the Archive Identification section. If you do not specify an author, `flarcreate` does not include an author in the Archive Identification section.
−T *type*	Uses *type* as the value for the `content_type` keyword. If you do not specify a type, `flarcreate` does not include the `content_type` keyword.

flar

The `flar` command allows you to administer archives. With the `flar` command you can accomplish the following tasks.

- Extract information from an archive
- Split an archive
- Combine archives

Extracting Information From an Archive

Use the `flar` command with the −i option to get information about archives you have already created. The syntax of the command is:

`flar −i [−l] [−k` *keyword*`] [−t [−p` *posn*`] [−b` *blocksize*`]]` *filename*

TABLE 9–4 Command-Line Options for `flar -i`

Option	Description
−k *keyword*	Returns only the value of the keyword *keyword*.
−l	Lists all the files in the archive section.

Splitting Archives

The `flar` command with the −s option splits a Web Start Flash archive into sections. The `flar` command copies each section into a separate file in the current or specified directory. The files are named after the sections, for example, the archive cookie is saved in a file named `cookie`. You can specify that the `flar` command only save one section. The syntax of the command is:

`flar −s` [−d *dir*] [−u *section*] [−f **archive**] [−S *section*] [−t [−p *posn*] [−b *blocksize*]] *filename*

TABLE 9–5 Command-Line Options for `flar -s`

Option	Description
−d *dir*	Retrieves the sections to copy from *dir*, rather than from the current directory.
−u *section*	If you do not use this option, `flar` copies all sections in the current directory. If you use this option, `flar` copies the Cookie, Identification, Archive, and *section* sections. You can specify a single section name or a space-separated list of section names.
−f **archive**	Extracts the Archive section into a directory called `archive`, rather than place it in a file with the name `archive`.
−S *section*	Only copy the section named *section* from the archive.

Combining Archives

The `flar` command with the `−c` option creates a Web Start Flash archive from individual sections. Each section is assumed to be in a separate file, the names of which are the section names. At a minimum, the Archive Cookie (`cookie`) , Archive Identification (`identification`), and Archive Files (`archive`) sections must be present. If `archive` is a directory, the `flar` command uses `cpio` to archive it before including it in the combined archive. If the Archive Identification section specifies to compress the archive, `flar` compresses the contents of the newly combined archive.

`flar −c [−d` *dir*`] [−u` *section*`] [−t [−p` *posn*`] [−b` *blocksize*`]]` *filename*

Note - No validation is performed on any of the sections. In particular, no fields in the Archive Identification section are validated or updated.

TABLE 9–6   Command-Line Options for `flar −c`

Option	Description
`−d` *dir*	Retrieves the sections to combine from *dir*, rather than from the current directory.
`−u` *section*	If you do not use this option, `flar` combines all sections in the current directory. If you use this option, `flar` combines only the Cookie, Identification, Archive, and *section* sections. You can specify a single section name or a space-separated list of section names.