Sun Patch Manager 2.0 Administration Guide for the Solaris 8 Operating System

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Preface

This administration guide describes the Sun™ Patch Manager software product, henceforth referred to as Patch Manager. Administrators can use this book to learn how Patch Manager works and how to manage patches on one or more systems that run the Solaris™ Operating System.

The Patch Manager application can analyze systems to determine the appropriate patches to apply, download the patches, apply them, and optionally remove them.

How This Book Is Organized

- Chapter 1 provides an overview of Solaris patches.
- Chapter 2 describes the new Patch Manager features.
- Chapter 3 describes Patch Manager concepts.
- Chapter 4 describes how to get started using Patch Manager in your patch management environment.
- Chapter 5 describes how to use the Patch Manager command-line interface (`smpatch`) to manage patches on your Solaris systems.
- Appendix A contains troubleshooting information.
- Glossary is a list of terms used in this book and their definitions.

Related Books

- *Sun Patch Manager 2.0 Release Notes for the Solaris 8 Operating System*

  Read this document for information about bugs and issues that pertain to the installation, configuration, and use of Sun Patch Manager.
- *System Administration Guide: Basic Administration*

  Read this book for information about using the `patchadd` command to apply patches to Solaris systems.

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`.

Ordering Sun Documentation

Sun Microsystems offers select product documentation in print form. For a list of documents and how to order them, see "Buy printed documentation" at `http://docs.sun.com`.

Typographic Conventions

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

TABLE P–1 Typographic Conventions

Typeface or Symbol	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen 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 terms, or terms 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	`#`

CHAPTER 1

Managing Solaris Patches (Overview)

Patch management involves *applying* Solaris™ patches to a system. Patch management might also involve removing unwanted or faulty patches. Removing patches is also called *backing out* patches.

The following overview information is in this chapter:

- "Types of Patches" on page 11
- "Accessing Solaris Patches" on page 12
- "Tools for Managing Solaris Patches" on page 13

For information about applying patches to diskless client systems, see "Patching Diskless Client OS Services" in *System Administration Guide: Basic Administration*.

For information about recommended strategies and practices for using Solaris patches, go to `http://docs.sun.com/doc/817-0574/`.

Types of Patches

A *patch* is a collection of files and directories that replaces or updates existing files and directories that are preventing proper execution of the existing software. The existing software is derived from a specified *package* format, which conforms to the Application Binary Interface (ABI).

You can manage patches on your Solaris system by using the Patch Manager software or by using the `patchadd` command.

Signed and Unsigned Patches

A *signed patch* is one that has a *digital signature* applied to it. A patch that has its digital signature verified has not been modified since the signature was applied. The digital signature of a signed patch is verified after the patch is *downloaded* to your system.

Patches for the Solaris 2.6, Solaris 7, and Solaris 8 releases are available as signed patches and as *unsigned patches*. Unsigned patches do not have a digital signature.

Signed patches are stored in Java™ archive format (JAR) files and are available from the SunSolve Online℠ web site. Unsigned patches are stored in directory format and are also available from the SunSolve Online web site as `.zip` files.

For information about applying patches to your system by using Patch Manager, see "Managing Patches (Task Map)" on page 40.

For information about applying patches by using the `patchadd` command, see Chapter 25, "Managing Solaris Patches (Tasks)," in *System Administration Guide: Basic Administration*.

Accessing Solaris Patches

Sun customers can access patches from the SunSolve Online web site whether or not they are in the SunSpectrum℠ program. These patches are updated nightly.

- **If you are in the SunSpectrum program –** You have access to the entire SunSolve℠ database of patches and all patch information.
- **If you are *not* in the SunSpectrum program –** You have access to the entire SunSolve database of patches and all patch information except for patches that have third-party contract restrictions.

You can obtain Solaris patches in the following ways:

- From the `https://updateserver.sun.com/solaris/` web site
- From the `http://sunsolve.sun.com` web site

  To access patches from the Patch Portal of the SunSolve Online site, your system must be connected to the Internet and be capable of running a web browser, such as the Netscape™ software.
- By using anonymous `ftp` to download the patches to your system

  To obtain patches by using the anonymous `ftp` command, your system must be connected to the Internet and be capable of running the `ftp` command.

You can access individual patches or a set of patches from a patch cluster, or refer to patch reports. You can also use Sun Patch Manager to *analyze* your system to determine the appropriate patches. Patch Manager also can download and apply the patches to your system.

Each patch is associated with a README file that has information about the patch.

Solaris Patch Numbering

Patches are identified by unique *patch IDs*. A patch ID is an alphanumeric string that is a patch base code and a number that represents the patch revision number joined with a hyphen. For example, patch 108528-10 is the patch ID for the SunOS™ 5.8 kernel update patch.

Tools for Managing Solaris Patches

The following table summarizes the availability of the Solaris patch management tools.

You can now use the `smpatch` command to apply patches to Solaris 8 systems.

If you need to apply a patch to a diskless client system, see "Patching Diskless Client OS Services" in *System Administration Guide: Basic Administration*.

Tool Availability	**`patchadd`/`patchrm` Commands**	**Solaris 2.6 and Solaris 7 Patch Management Tools**	**Sun Patch Manager 2.0 `smpatch` Command**	**PatchPro Interactive or PatchPro Expert**
How do I get this tool?	Included with the Solaris release	Download the tool from the Sun Download Center web site[1]	Download the Solaris 8 version of the tool from the Sun Download Center web site[1]	Run tool from the PatchPro web site[2]
Solaris release availability	Solaris 2.6, Solaris 7, and Solaris 8 releases	Solaris 2.6 and Solaris 7 releases	Solaris 8 release	Solaris 2.6, Solaris 7, and Solaris 8 releases

[1] The Sun Download Center web site is `http://wwws.sun.com/software/download`.

[2] The PatchPro web site is `http://www.sun.com/PatchPro`.

Tool Availability	`patchadd`/`patchrm` Commands	Solaris 2.6 and Solaris 7 Patch Management Tools	Sun Patch Manager 2.0 `smpatch` Command	PatchPro Interactive or PatchPro Expert
Applies signed patches?	No	Yes, and automatically verifies the signed patch when it is downloaded	Yes, and automatically verifies the signed patch when it is downloaded	No, these tools do not apply patches
Applies unsigned patches?	Yes	No	Yes, but the patches must be unzipped first	No
GUI available?	No	No	No	Yes, these tools can only be run from the PatchPro web site[2]
Analyzes system to determine the appropriate patches and downloads signed or unsigned patches	No	Yes, signed patches only	Yes, signed patches only	Yes, unsigned patches only
Local system patch support	Local	Local	Local	No
RBAC support?	Yes	No	Yes	No

[2] The PatchPro web site is `http://www.sun.com/PatchPro`.

Managing Solaris Patches

When you apply a patch, the patch tools call the `pkgadd` command to apply the patch packages from the patch directory to a local system's disk.

Caution – Do *not* run the `pkgadd` command directly to apply patches.

More specifically, the patch tools do the following:

- Determine the Solaris version number of the managing host and the target host
- Update the patch package's `pkginfo` file with this information:
  - Patches that have been *obsoleted* by the patch being applied

- Other patches that are required by this patch
- Patches that are *incompatible* with this patch

While you apply patches, the `patchadd` command logs information in the `/var/sadm/patch/`*patch-id*`/log` file.

The `patchadd` command cannot apply a patch under the following conditions:

- The package is not fully installed on the system.
- The patch package's architecture differs from the system's architecture.
- The patch package's version does not match the installed package's version.
- A patch with the same base code and a higher revision number has already been applied.
- A patch that obsoletes this patch has already been applied.
- The patch is incompatible with a patch that has already been applied to the system. Each patch that has been applied keeps this information in its `pkginfo` file.
- The patch being applied depends on another patch that has not yet been applied.

Selecting the Best Method for Applying Patches

You can use several different methods to download or apply one or more patches to your system. Use the following table to determine which method is best for your needs.

Command or Tool	Description	For More Information
`smpatch update`	**Solaris 8 release –** Use this command to analyze your system to determine the appropriate patches, and to automatically download and apply the patches. Note that this command will not apply a patch that has the `interactive` property set. Only the local mode `smpatch` is available.	"How to Update Your System With Patches" on page 42 `smpatch`(1M) man page

Command or Tool	Description	For More Information
`smpatch analyze` and `smpatch update`	**Solaris 8 release –** First, use `smpatch analyze` to analyze your system to determine the appropriate patches. Then, use `smpatch update` to download and apply one or more of the patches to your system. Only the local mode `smpatch` is available.	"How to Analyze Your System to Obtain the List of Patches to Apply" on page 41 "How to Update Your System With Patches" on page 42 `smpatch`(1M) man page
`smpatch analyze`, `smpatch download`, and `smpatch add`	**Solaris 8 release –** First, use `smpatch analyze` to analyze your system to determine the appropriate patches. Then, use `smpatch download` to download them. This command also downloads any prerequisite patches. Then, use `smpatch add` to apply one or more of the patches to your system while the system is in single-user or multiuser mode. Only the local mode `smpatch` is available.	"Managing Patches (Task Map)" on page 40 `smpatch`(1M) man page
`patchadd`	**Solaris 2.6, Solaris 7, and Solaris 8 releases –** Apply unsigned patches to your system.	`patchadd`(1M) man page

Managing Patches in the Solaris Operating System (Road Map)

Use this road map to identify all the tasks for managing Solaris patches. Each task points to a series of additional tasks such as managing signed or unsigned patches.

Task	Description	For Instructions
Determine whether to apply signed or unsigned patches.	Determine whether applying signed or unsigned patches is best for your environment.	"Determining Whether to Apply Signed or Unsigned Patches to Your System" on page 17

Task	Description	For Instructions
Apply a patch to your system.	You can apply patches in the following ways: ■ Use the `smpatch` command on Solaris 8 systems to apply signed or unsigned patches. ■ Use the `patchadd` command on Solaris 2.6, Solaris 7, or Solaris 8 systems to apply unsigned Solaris patches.	■ "Managing Solaris Patches by Using Sun Patch Manager (Task Map)" on page 33 ■ `smpatch`(1M) man page

Determining Whether to Apply Signed or Unsigned Patches to Your System

The key factor when determining whether to apply signed or unsigned patches to your system is whether you trust of the source of patches.

If you trust the source of patches, for example, a patch CD from a known distributor or an HTTPS connection to a trusted web site, you can use unsigned patches. However, if you do not trust the source, use signed patches.

If you are unsure about whether to trust the source of patches, use signed patches.

CHAPTER 2

New Patch Manager Features (Overview)

This chapter describes the following new features in the Sun Patch Manager tool (Patch Manager):

- "PatchPro Analysis Engine" on page 19
- "Local-Mode Command-Line Interface" on page 20
- "Patch List Operations" on page 21
- "Local Patch Server" on page 22

To use the Patch Manager tool, you must install at least the End User Solaris Software Group of Solaris 8 software. You must also obtain the Patch Manager software from the Sun Download Center at `http://wwws.sun.com/software/download`.

Note – As of June 2004, all Sun patches are not available through Sun Patch Manager. Such patches include those that do not conform to *PatchPro* standards, and those that have third-party contract restrictions.

PatchPro Analysis Engine

Sun Patch Manager 2.0 incorporates PatchPro functionality. PatchPro performs patch analyses on systems, then downloads and applies the resulting patches. This automation functionality was previously available for Solaris 2.6, Solaris 7, and Solaris 8 as a separate PatchPro product, and is now part of Sun Patch Manager 2.0.

PatchPro uses signed patches, which improves the security of Solaris patches by ensuring that they have not been modified.

Note – The `pprosetup` and `pprosvc` commands are included with Sun Patch Manager 2.0 for transition purposes. It is best *not* to use these commands and to use the `smpatch` command instead.

Local-Mode Command-Line Interface

Note – You can only run `smpatch` in local mode. Remote mode `smpatch` commands and options are not supported in Solaris 8. See the `smpatch`(1M) man page.

Local mode, the default mode, can only be run on the local system. This mode can be run while the system is in single-user or multiuser mode. Local mode can be used by users or roles that have the appropriate authorizations.

Single-User Mode Operations in Local Mode

You can use the `smpatch add` command in local mode to apply patches while the system is in single-user mode. Apply patches in this way when the patches are associated with the `singleuser` patch property, or when you want to apply any patches to a quiet system.

Use only the `smpatch add`, `smpatch order`, and `smpatch remove` commands to manage patches when your system is running in single-user mode.

You can configure your patch management environment while the system is running in single-user mode by using the `smpatch get`, `smpatch set`, and `smpatch unset` commands.

Do not use the `smpatch analyze`, `smpatch download`, and `smpatch update` commands while the system is running in single-user mode. These commands depend on network services that are not available while the system is in single-user mode.

If you previously used the `smpatch update` command to update your system with patches, some of the patches might not have been applied. Such patches cannot be applied if they do not meet the policy for applying patches, and must be applied manually in single-user mode.

To apply the patches while the system is in single-user mode, use the `smpatch add` command with the `-x idlist=` option to specify the list of patches to apply.

You can use the `disallowed_patch_list` file as input to the `smpatch add` command to apply the `singleuser` patches. This file, stored in the *download directory*, lists any patch that could not be applied by `smpatch update` while the system was in multiuser mode. For example:

```
# smpatch add -x idlist=/var/sadm/spool/disallowed_patch_list
```

Patch List Operations

Patch Manager can create an *ordered* list of patches that you can save to a text file and use to perform patch operations.

You might use a patch list to apply the same set of patches to systems that have the same hardware and software configurations. Or, you might create a patch list file that contains all pertinent security patches and use the patch list to apply those security patches to one or more systems.

You can create a file that contains an ordered *patch list* by using the `smpatch` command in any of these ways:

- **Perform an analysis of a system –** Use the `smpatch analyze` command to analyze a system to generate an ordered list of patches and write it to a file. You can edit this file to remove unneeded patches.
- **Supply a specific list of patches –** Use the `smpatch analyze` command to generate an ordered list of patches based on a set of patches that you specify for a particular system. The patch list is *resolved* by augmenting the list with patches on which they depend.
- **Point to a collection of patches stored on a system –** Use the `smpatch order` command to produce an ordered list of patches based on a collection of patches stored on a system.

If you modify a patch list and the patches are available on your system, use the `smpatch order` command to put the list in an order suitable for applying patches. Otherwise, use the `smpatch analyze` command, which also produces an ordered list of patches.

You can use patch lists as input to the `smpatch add`, `smpatch analyze`, `smpatch download`, `smpatch order`, and `smpatch update` commands.

Caution – The `smpatch add` command attempts to apply all of the patches in the patch list, regardless of the policy for applying patches and *patch dependencies*.

Local Patch Server

Starting with Solaris 8, *client systems* can use Patch Manager to access patches and patch data to perform patch analysis and maintenance. This patch data is provided by a patch source. The patch source can be a *patch server*, such as the Sun patch server or a local patch server, or a local collection of patches.

If you use a *local patch server* on your intranet, you can serve patches to your local systems and minimize the Internet traffic between your systems and the Sun patch server. Such a local patch server *caches* any patches that are downloaded from its patch source.

Using a local patch server addresses security concerns as well as system analysis and patch download performance issues.

Note – The local patch server is an optional Sun Patch Manager 2.0 feature that you can obtain at no charge if you are a contract customer in the SunSpectrum program.

For information about becoming a contract customer or obtaining the local patch server distribution, go to `http://sunsolve.sun.com` and click Patch Portal.

Note – The system you choose to act as the local patch server must be running at least Solaris 9 and have at least the Entire Solaris Software Group installed. This system must also have the Sun Patch Manager 2.0 software installed.

For information about configuring a Solaris 9 system to act as local patch server on your intranet, see ''Configuring Your Local Patch Server by Using the Command-Line Interface'' in the *Sun Patch Manager 2.0 Administration Guide for the Solaris 9 Operating System*.

CHAPTER 3

Sun Patch Manager Concepts (Overview)

To make good use of the Sun Patch Manager product, you need to be familiar with these Patch Manager concepts:

- "Sun Patch Manager Tool" on page 23
- "Patch Management Process" on page 24
- "Specifying the Source of Patches" on page 26
- "Customizing the Policy for Applying Patches" on page 28
- "Setting Patch Manager Configuration Parameters" on page 29

Sun Patch Manager Tool

Sun Patch Manager is the standard tool for managing patches on Solaris systems.

Patch Manager primarily operates on signed patches, which include a digital signature from Sun Microsystems. A signed patch offers greater security than an unsigned patch, which does not have a digital signature. The digital signature of the patch is verified before the patch is applied to your system. A valid digital signature ensures that the signed patch that you apply has not been modified since the signature was applied. You can use the `smpatch add` command to apply unsigned patches.

You can access Patch Manager by using the `smpatch` command-line interface.

Patch Management Process

Patch Manager enables you to manually or automatically perform the *patch management process*, which includes the following tasks:

- Updating your system with some or all of the appropriate patches, which automatically analyzes the system to determine the appropriate patches, downloads the patches, and applies the patches to the system
- Analyzing the system to obtain a list of appropriate patches
- Downloading the appropriate patches to your system
- Applying the appropriate patches to your system
- Configuring the patch management environment for your system
- Tuning the patch management environment for your system
- Removing patches from your system

For information about recommended strategies and practices for using Solaris patches, go to `http://docs.sun.com/doc/817-0574/`.

Automatically Updating Your System With Patches

Patch Manager can automatically apply the set of appropriate patches to your system. An update performs these steps in the patch management process:

- Analyzes your system to determine which patches are appropriate
- Downloads those patches to your system
- Applies only the patches that meet the policy for applying patches

After a patch has been successfully applied, the downloaded patch is removed from the download directory.

Patches are applied to your system depending on the specified policy and the patch properties associated with the patches that are downloaded.

If a patch does not meet the *policy for applying patches*, the patch is not applied. Instead, a patch entry for that patch is written to the `disallowed_patch_list` file in the download directory. Sun Patch Manager continues trying to apply the other patches. Later, you can go to the download directory and use the `smpatch add` command to manually apply any disallowed patches that are listed in this file. For any of the patches that have the `interactive` property set, follow the instructions in the patch's README file to apply them.

For example, you can bring your system to single-user mode and apply the patches listed in the `disallowed_patch_list` file by typing the following:

```
# smpatch add -x idlist=/var/sadm/spool/disallowed_patch_list
```

Instead of performing an *update*, you can perform the analyze, download, and apply tasks manually by using the `smpatch` command. These tasks are described in the following sections.

Analyzing Your System

Before you can apply patches to your system, you can determine which patches are needed. You can use Patch Manager to perform a *patch analysis* of your system to obtain a list of appropriate patches.

Patch Manager uses analysis modules and a list of available patches from the source of patches, which is the SunSolve Online web site by default, to perform the analysis of your Solaris system. For information about the source of patches, see "Specifying the Source of Patches" on page 26.

Based on the result of the analysis, the patches can be downloaded and applied to your system.

Sometimes a patch depends on another patch, that is, the first patch cannot be applied to the system until the other patch is applied. The first patch is said to have a *dependency* on the second patch. When Patch Manager analyzes your system, it checks for patch dependencies and automatically includes all patches in the resulting list. If you request a system analysis based on particular patches, Patch Manager adds any patches to the list that are needed to resolve patch dependencies.

Note – The list of patches that is generated by the analysis is based on all of the available patches from the Sun patch server. No explicit information about your host system or its network configuration is transmitted to Sun. Only a request for the Sun patch set is transmitted. The patch set is scanned for patches that are appropriate for this host system, the results are displayed, and those patches are optionally downloaded.

Downloading Patches to Your System

Before you apply patches to your system, you must download the patches that you want from the Sun patch server to that system.

You can download patches from the Sun patch server based on an analysis of the system, or you can specify particular patches to download.

Applying Patches to Your System

Patch Manager can apply patches to your system.

If you use the `smpatch add` command to apply particular patches, it attempts to apply only those patches that you specified. The `smpatch add` command does not attempt to resolve patch dependencies. If you want to apply a patch that has a missing dependency, the patch is not applied. You can use the `smpatch analyze` command or the `smpatch update` command to resolve patch dependencies.

Removing Patches From Your System

You might want to remove (or back out) a patch that you previously applied to your system. Patch Manager enables you to remove patches.

When you remove a patch, the Solaris patch tools restore all of the files that have been modified by that patch, unless any of the following are true:

- The patch was applied by the `patchadd -d` command, which instructs `patchadd` *not* to save copies of files being updated or replaced.
- The patch was applied by the `patchadd` command without using the `-d` option and the backout files that were generated have since been removed.
- The patch has been obsoleted by a later patch.
- The patch is required by another patch.

The Solaris patch tools call the `pkgadd` command to restore packages that were saved when the patch was initially applied.

During the patch removal process, the `patchrm` command logs the backout process in the `/tmp/backoutlog.`*process-id* file. This log file is automatically removed if the patch is successfully removed.

Note – If you attempt to remove a patch on which other patches depend, it is not removed. If you remove all of the patches that depend upon this patch, then you can remove it.

Specifying the Source of Patches

When you use Patch Manager, your client systems must have access to Solaris patches and patch data. Client systems can obtain patches from these sources:

- **Patch server –** The Sun patch server, which provides access to Solaris patches and patch data.
- **Local collection of patches –** A collection of patches and patch data that is stored in a directory available to the local system. Such a directory might be a local directory, a shared network directory, or a CD mounted on your local system.

The default source of patches for client systems is the Sun patch server. As a result, any client system that obtains patches from the Sun patch server must be connected, either directly or through a *web proxy*, to the Internet.

Note – *If you use a Solaris 9 local patch server,* clients can also access patches and patch data from the following sources:

- **Local patch server obtains patches from the Sun patch server –** Your client systems obtain patches from a local patch server on your intranet. The local patch server obtains patches from the Sun patch server.

  This configuration requires that only the local patch server be connected, directly or through a web proxy, to the Internet.
- **Local patch server obtains patches from a local collection of patches –** Your client systems are connected to a local patch server, which obtains patches and patch data from a collection of patches on the local patch server.

  This configuration does not require that the client systems and local patch server be connected to the Internet.

For instructions on specifying the source of patches for your local patch server, see "How to Change Configuration Settings for Your Local Patch Server (Command Line)" in the *Sun Patch Manager 2.0 Administration Guide for the Solaris 9 Operating System*.

Note – The local patch server is an optional Sun Patch Manager 2.0 feature that you can obtain at no charge if you are a contract customer in the SunSpectrum program.

For information about becoming a contract customer or obtaining the local patch server distribution, go to `http://sunsolve.sun.com` and click Patch Portal.

For instructions on specifying the source of patches for your client system, see "How to Specify the Source of Patches" on page 38.

Customizing the Policy for Applying Patches

Patch Manager enables you to customize a policy for applying patches to use when updating your system. The policy determines the types of patches that can be applied during an update operation.

Solaris patches are classified as being standard or nonstandard. A *standard patch* can be applied to your Solaris system when running in multiuser mode. A reboot is not required. Such a patch is associated with the `standard` patch property.

A *nonstandard patch* has one of the following characteristics:

- The patch is associated with one or more of the `rebootafter`, `rebootimmediate`, `reconfigafter`, `reconfigimmediate`, and `singleuser` properties. Such a nonstandard patch can be applied during an update operation if permitted by the policy.
- The patch is associated with the `interactive` property. Such a patch cannot be applied by using the `smpatch update` command. You can use the `smpatch add` command or the `patchadd` command to apply such a patch.

Note – As of June 2004, all Sun patches are not available through Sun Patch Manager. Such patches include those that do not conform to PatchPro standards, and those that have third-party contract restrictions.

You can specify the types of patches that Patch Manager can apply during an update. Such patches might include those that require a reboot or those that must be applied while the system is in single-user mode.

For descriptions of the following patch properties, see the `smpatch`(1M) man page.

- `interactive`
- `rebootafter`
- `reconfigafter`
- `rebootimmediate`
- `reconfigimmediate`
- `singleuser`
- `standard`

Setting Patch Manager Configuration Parameters

You can use the `smpatch` command to set the following Patch Manager parameters.

`patchpro.patchset`
: Name of the patch set to use. The default name is `patchdb`.

`patchpro.download.directory`
: Path of the directory where downloaded patches are stored and from which patches are applied. The default location is `/var/sadm/spool`.

`patchpro.backout.directory`
: Path of the directory where patch *backout data* is saved. When a patch is removed, the data is retrieved from this directory as well. By default, backout data is saved in the package directories.

`patchpro.patch.source`
: URL that points to the collection of patches. The default URL is that of the Sun patch server, `https://updateserver.sun.com/solaris/`.

`patchpro.sun.user`
: The Sun user name that you use to obtain patches. You obtain this user name by registering at `http://sunsolve.sun.com`. By default, you are not permitted to access contract patches.

`patchpro.sun.passwd`
: Password used with your Sun user name. No default password is set. If you specify your Sun user name, you must also specify your password.

`patchpro.proxy.host`
: Host name of your web proxy. By default, no web proxy is specified, and a direct connection to the Internet is assumed.

`patchpro.proxy.port`
: Port number used by your web proxy. By default, no web proxy is specified, and a direct connection to the Internet is assumed. The default port is `8080`.

`patchpro.proxy.user`
: Your user name used by your web proxy for authentication.

`patchpro.proxy.passwd`
: Password used by your web proxy for authentication.

`patchpro.install.types`
: Your policy for applying patches. The value is a list of zero or more colon-separated patch properties that are permitted to be applied by an update operation (`smpatch update`).

By default, patches that have the `standard`, `rebootafter`, and `reconfigafter` properties can be applied. See “Customizing the Policy for Applying Patches” on page 28.

CHAPTER 4

Getting Started With Sun Patch Manager (Overview)

This chapter covers the following topics:

- "Patch Manager Installation Requirements" on page 31
- "Working Within Your Patch Management Environment" on page 31

Patch Manager Installation Requirements

To use the Patch Manager tool, you must install at least the End User Solaris Software Group of Solaris 8 software. You must also obtain the Patch Manager software from the Sun Download Center at `http://wwws.sun.com/software/download`.

Note – As of June 2004, all Sun patches are not available through Sun Patch Manager. Such patches include those that do not conform to PatchPro standards, and those that have third-party contract restrictions.

Working Within Your Patch Management Environment

To determine which method is best for downloading and applying patches to your system, see "Selecting the Best Method for Applying Patches" on page 15.

To get started using Patch Manager, find the situation that best describes your patch management environment.

- Your client system is directly connected to the Internet.

  You are ready to manage patches by using the Patch Manager `smpatch` command-line interface. See "Accessing the Sun Patch Manager Command-Line Interface" on page 34.

- Your client system is connected to the Internet by means of a web proxy.

  You must first specify the host name and port of the web proxy. If required, also specify the user name and password associated with the web proxy. See "How to Specify Your Web Proxy" on page 37.

  After you change your configuration, see "Accessing the Sun Patch Manager Command-Line Interface" on page 34.

- You need a user name and a password to access patches from the Sun patch server.

  If you need to obtain a user name and password, register at `http://sunsolve.sun.com`.

  Then, specify the user name and password for each client system on which you run Patch Manager. See "How to Specify a User Name and Password With Which to Obtain Patches" on page 37.

  After you change your configuration, see "Accessing the Sun Patch Manager Command-Line Interface" on page 34.

- (Optional) If you want to have several client systems obtain patches from a local patch server on your intranet, you must first configure a system to act as your local patch server. Since a local patch server must run at least Solaris 9, see ''Configuring Your Local Patch Server by Using the Command-Line Interface'' in the *Sun Patch Manager 2.0 Administration Guide for the Solaris 9 Operating System*.

Note – The local patch server is an optional Sun Patch Manager 2.0 feature that you can obtain at no charge if you are a contract customer in the SunSpectrum program.

For information about becoming a contract customer or obtaining the local patch server distribution, go to `http://sunsolve.sun.com` and click Patch Portal.

Next, configure each client system to obtain patches from the local patch server by specifying the local patch server as the source of patches. See "How to Specify the Source of Patches" on page 38.

Finally, after you configure a local patch server and change the configuration of your client systems, see "Accessing the Sun Patch Manager Command-Line Interface" on page 34.

CHAPTER 5

Managing Solaris Patches by Using Sun Patch Manager (Tasks)

This chapter describes how to use the Patch Manager command-line interface to manage patches on your Solaris 8 systems.

The following task-related information is in this chapter:

- "Managing Solaris Patches by Using Sun Patch Manager (Task Map)" on page 33
- "Accessing the Sun Patch Manager Command-Line Interface" on page 34
- "Configuring Your Patch Management Environment (Task Map)" on page 35
- "Managing Patches (Task Map)" on page 40
- "Tuning Your Patch Management Environment (Task Map)" on page 49

Managing Solaris Patches by Using Sun Patch Manager (Task Map)

The following table identifies the tasks that you might perform when you use the Sun Patch Manager command-line interface.

Task	Description	For Instructions
Access the command-line interface.	To perform patch management tasks, use the `smpatch` command.	"Accessing the Sun Patch Manager Command-Line Interface" on page 34

Task	Description	For Instructions
Configure the patch management environment for your system.	By default, your system is assumed to be connected directly to the Internet and configured to obtain patches from the Sun patch server. If this is not true for your system, change the configuration settings to match your environment.	"Configuring Your Patch Management Environment (Task Map)" on page 35
Manage patches on your system.	You can perform an analysis of your system, apply one or more patches, find patch dependencies, order patch lists, and remove patches.	"Managing Patches (Task Map)" on page 40
(Optional) Tune the patch management environment for your system.	Change some optional configuration settings, such as the policy for applying patches.	"Tuning Your Patch Management Environment (Task Map)" on page 49

Accessing the Sun Patch Manager Command-Line Interface

Caution – Do *not* run simultaneous Patch Manager operations on your system because it might become unstable. Do not interrupt a patch operation once it has started. If a patch operation is running, you must wait for that operation to complete before starting another operation.

You can run the `smpatch` command as a user with the appropriate authorizations, such as superuser, or by assuming a role that includes the appropriate profiles.

A user must have the `solaris.admin.patchmgr.*` authorization to run the `smpatch` command.

The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

Note – The `pprosetup` and `pprosvc` commands are included with Sun Patch Manager 2.0 for transition purposes. It is best *not* to use these commands and to use the `smpatch` command instead.

For more information about `smpatch` command-line options, see the `smpatch`(1M) man page.

▼ How to Access the Sun Patch Manager Command-Line Interface

Steps

1. **Log in to a system as a user with appropriate authorizations or assume a role with the appropriate authorizations.**

   Note that you must be an appropriately authorized user to assume an appropriate role. See "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Run the `smpatch` command you want.**

   For example:

   ```
   $ smpatch analyze
   ```

More Information

What to Do Next

You can use the `smpatch` command to configure the patch management environment for your system and manage patches. See the following:

- "Configuring Your Patch Management Environment (Task Map)" on page 35
- "Managing Patches (Task Map)" on page 40
- "Tuning Your Patch Management Environment (Task Map)" on page 49

Configuring Your Patch Management Environment (Task Map)

Use the `smpatch` command to perform the configuration tasks in this section. For the list of configuration parameters you can set, see "Setting Patch Manager Configuration Parameters" on page 29 and the `smpatch`(1M) man page.

By default, the patch management environment is configured to obtain patches directly from the Sun patch server. Therefore, you must customize your environment if your system does one or more of the following:

- Connects to the Internet by means of a web proxy
- Requires a user name and password to obtain patches
- Obtains patches from a patch source other than the Sun patch server

The following table identifies the tasks that you might perform when you configure the patch management environment for your system.

Task	Description	For Instructions
(Optional) Specify the web proxy to use.	If your system is connected to the Internet through a web proxy, you must specify the web proxy that is used to access the Sun patch server. By default, no web proxy is specified.	"How to Specify Your Web Proxy" on page 37
(Optional) Specify the user and password needed to provide authentication for the web proxy.	If your web proxy requires authentication, you must specify the web proxy user that is needed for authentication. By default, no web proxy user is specified.	"How to Specify Your Web Proxy" on page 37
(Optional) Specify the user and password needed to obtain patches from the Sun patch server.	If you needed a user and password to obtain patches, you must specify the user name and password.	"How to Specify a User Name and Password With Which to Obtain Patches" on page 37
(Optional) Specify the source of patches for your system.	Your system can obtain patches from one of the following sources: ■ Sun patch server ■ Patch server on your intranet ■ Local collection of patches The default source of patches for your system is the Sun patch server.	"How to Specify the Source of Patches" on page 38

Note – The following procedures and examples show how to run the local mode `smpatch` command. Remote mode `smpatch` commands and options are not supported in Solaris 8. See the `smpatch`(1M) man page.

▼ How to Specify Your Web Proxy

If your system connects to the Internet through a web proxy, you must provide information about the web proxy to Patch Manager.

Steps

1. **Obtain the host name and the port of the web proxy from your network administrator.**

2. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

3. **Specify the web proxy.**

   ```
   # smpatch set patchpro.proxy.host=web-proxy-server \
   patchpro.proxy.port=port
   ```

4. **(Optional) If the web proxy requires authentication, supply the user name and password.**

   Obtain this information from your network administrator.

   a. **Specify the user name to be used for authentication.**

      ```
      # smpatch set patchpro.proxy.user=web-proxy-user
      ```

   b. **Specify the proxy user's password by having `smpatch` prompt you for the password.**

      ```
      # smpatch set patchpro.proxy.passwd
      Web Proxy User Password: web-proxy-password
      ```

      Setting the password in this way ensures that the password you type does not appear as clear text in the following:

      - Standard output
      - Output of the `ps` command
      - Your shell history file

▼ How to Specify a User Name and Password With Which to Obtain Patches

If you needed a user name and password to obtain patches from the Sun patch server, you must specify them for Patch Manager.

If you do not have an account on SunSolve, register for one at `http://sunsolve.sun.com`.

As of June 2004, a user name and password are not required to obtain patches from the Sun patch server.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Specify your user name.**

   ```
   # smpatch set patchpro.sun.user=user-name
   ```

3. **Specify the password for your user by having `smpatch` prompt you for the password.**

   ```
   # smpatch set patchpro.sun.passwd
   Sun User Password: password
   ```

   Setting the password in this way ensures that the password you type does not appear as clear text in the following:

   - Standard output
   - Output of the `ps` command
   - Your shell history file

▼ How to Specify the Source of Patches

Your system can obtain patches from the following sources:

- Sun patch server
- Local patch collection
- Local patch server on your intranet

By default, your system obtains patches from the Sun patch server.

Note – The local patch server is an optional Sun Patch Manager 2.0 feature that you can obtain at no charge if you are a contract customer in the SunSpectrum program.

For information about becoming a contract customer or obtaining the local patch server distribution, go to `http://sunsolve.sun.com` and click Patch Portal.

Note – If you want your system to obtain patches from a local patch server, you must first configure one. Since a local patch server must be running at least Solaris 9, see ''Configuring Your Local Patch Server (Task Map)'' in the *Sun Patch Manager 2.0 Administration Guide for the Solaris 9 Operating System*.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Specify the URL of the patch source.**

   - For the Sun patch server, type:

     ```
     # smpatch unset patchpro.patch.source
     ```

   - For a collection of patches in a directory, use this URL format:

     ```
     # smpatch set patchpro.patch.source=file:/directory-name
     ```

     Note that *directory-name* can be a local file system or a remotely mounted file system.

     See Example 5–1 for examples of using the `file:/` URL format.

   - (Optional) If you are using a Solaris 9 local patch server, use this URL format:

     ```
     # smpatch set patchpro.patch.source=http://server-name:3816/solaris/
     ```

Example 5–1 Specifying the Source of Patches

The following example shows how to configure a system to obtain patches from the `/export/patches` directory on the local system.

```
# smpatch set patchpro.patch.source=file:/export/patches
```

The following example shows how to configure a system to obtain patches from the `/export/patches` directory on the remote system called `jupiter`.

```
# smpatch set patchpro.patch.source=file:/net/jupiter/export/patches
```

The following example shows how to configure a system to obtain patches from a CD mounted from the first CD-ROM drive of the local system.

```
# smpatch set patchpro.patch.source=file:/cdrom/cdrom0
```

More Information

What to Do Next

After you specify a patch source, your client system is ready to manage patches. See "Managing Patches (Task Map)" on page 40.

Managing Patches (Task Map)

Use the `smpatch` command to perform most of the common patch management tasks described in the following table. See the `smpatch`(1M) man page.

Task	Description	For Instructions
Analyze your system to determine the list of patches.	You want to analyze your system to obtain the list of appropriate patches. Based on the analysis, you can update your system with one or more patches in the list.	"How to Analyze Your System to Obtain the List of Patches to Apply" on page 41
Automatically update your system with one or more patches in a single procedure.	You want to automatically download and apply the patches that are appropriate for your system. The list of patches is determined by having Patch Manager analyze your system.	"How to Update Your System With Patches" on page 42
Apply patches to your system.	■ After you have determined the patches to apply and have downloaded them to your system, you can apply them. ■ Some patches should be applied while the system is in single-user mode because they might cause the system to become unstable. Such patches are associated with the `singleuser` patch property. In single-user mode, you must use the `smpatch add` command to apply patches. ■ Some patches are nonstandard and must be applied manually. ■ (Optional) Determine whether the patches you want to apply depend on others being applied first.	■ "How to Apply Patches to Your System" on page 44 ■ "How to Apply Patches to Your System" on page 44 ■ "How to Apply a Nonstandard Patch" on page 45 ■ "How to Resolve a List of Patches" on page 46

Task	Description	For Instructions
Remove patches from your system.	You want to remove, or back out, patches that you applied to your system.	"How to Remove Patches From Your System" on page 48
(Optional) View patch management tool log entries.	View Patch Manager log entries in the system log file to identify problems with installing patch management tools or applying patches.	"How to View Patch Manager Log Entries" on page 49
Apply patches to an inactive boot environment on your system by using `luupgrade`.	You want to use Solaris Live Upgrade to apply patches to a system that has more than one boot environment.	"How to Use `luupgrade` to Apply a List of Patches to an Inactive Boot Environment" on page 47

Note – The following procedures and examples show how to run the local mode `smpatch` command. Remote mode `smpatch` commands and options are not supported in Solaris 8. See the `smpatch`(1M) man page.

▼ How to Analyze Your System to Obtain the List of Patches to Apply

You can perform an analysis of your system to determine the list of appropriate patches. This list is in an order that can be used to apply patches. You can also supply a list of one or more patches as input to restrict the analysis to just those patches. In addition to performing the analysis, you can save the patch list for modification or later use.

The system analysis writes the list of patches to standard output, so you can save the contents of the patch list to a file by redirecting standard output to a file.

Each line in a patch list has two columns. The first column is the patch ID, and the second column is a synopsis of that patch.

If you supply a list of one or more patches to the `smpatch analyze` command, the list of patches is augmented with any patches that are required as dependencies.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Perform a patch analysis of your system and optionally save the list of patches in a file.**

   - To create a list of all the appropriate patches for your system, type:

     # **smpatch analyze**

   - To create a list of particular patches for your system based on a patch list, type:

     # **smpatch analyze -x idlist=***patch-list-file*

   - To create a list of particular patches for your system, type:

     # **smpatch analyze -i** *patch-id*...

Example 5–2 Analyzing Your System to Obtain the List of Patches to Apply

The following example shows how to analyze a system to create a list of all appropriate patches. The list is written to the `/tmp/patch.all` file.

```
# smpatch analyze > /tmp/patch.all
```

The following example shows how to create a list of patches, `plist`, modify it, and resolve the patch dependencies. The list is written to the `/tmp/patch.plist` file.

```
# smpatch analyze > plist
# vi plist
.
.
.
# smpatch analyze -x idlist=plist > /tmp/patch.plist
```

The following example shows how to resolve patch dependencies for patch 112785-28 and write the resulting patch list to a file called `/tmp/patch.out`. Patch 112785-28 depends on patch 113096-03. After running the `smpatch analyze` command, the `patch.out` file contains this ordered list: 113096-03 and 112785-28.

```
# smpatch analyze -i 112785-28 > /tmp/patch.out
```

▼ How to Update Your System With Patches

An update of a system performs the entire patch management process in one step. First, the analysis determines the appropriate patches for your system. Next, those patches are downloaded to your system. Finally, the patches are applied to your system.

All standard patches are applied by an update. You can configure your system to apply some nonstandard patches by changing the default policy for applying patches. To change the policy for your system, see "How to Change the Policy for Applying Patches" on page 52.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Update the system with patches in one of the following ways:**

   - To update your system with all appropriate patches, type:

     ```
     # smpatch update
     ```

   - To update your system with all patches listed in a file, first create a patch list (see "How to Analyze Your System to Obtain the List of Patches to Apply" on page 41), then type:

     ```
     # smpatch update -x idlist=patch-list-file
     ```

   - To update your system with particular patches, type:

     ```
     # smpatch update -i patch-id -i patch-id ...
     ```

   If you specify particular patches by using the `-i` or `-x idlist=` options, the list is augmented with patches on which they depend before the update occurs.

Note – Any patches that cannot be applied to the system are listed in a patch list file called `disallowed_patch_list`, which is located in the download directory. You can use this file as input to the `smpatch add` command.

For example, you might bring your system to single-user mode and apply the patches listed in the `disallowed_patch_list` file by typing the following:

```
# init S
# smpatch add -x idlist=/var/sadm/spool/disallowed_patch_list
```

See "How to Apply Patches to Your System" on page 44 for more information.

Example 5–3 Updating Your System With Patches

The following example shows how to update a system with patch 112622-12 and 112771-17.

```
# smpatch update -i 112622-12 -i 112771-17
```

The following example shows how to update a system by using a list of patches, named `plist`, as input. It then shows how to create a patch list and modify it to contain only the patches that you want to apply to your system. Then, use the `smpatch update` command to apply the patches and update the system.

1. Create a list of patches by performing an analysis.
2. Edit the patch list to include only patches that you want to apply.

3. Run the `smpatch update` command to apply the patches.

   For example:

```
# smpatch analyze > plist
.
.
.
# vi plist
.
.
.
# smpatch update -x idlist=plist
.
.
.
```

▼ How to Apply Patches to Your System

You can use the `smpatch add` command to apply one or more downloaded patches to your system.

You can use the local mode version of the `smpatch` command to apply one or more downloaded patches while your system is in single-user mode or in multiuser mode.

Caution – The `smpatch add` command ignores the policy for applying patches and does not resolve dependencies when applying patches.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Apply the downloaded patches to your system.**

   - To apply all patches listed in a file, type:

     # **smpatch add -x idlist=***patch-list-file*

   - To apply particular patches, type:

     # **smpatch add -i** *patch-id* **-i** *patch-id* **...**

   - To apply particular patches that have the `singleuser` property, you must first bring the system to single-user mode. Type:

     # **init S**
     # **smpatch add -i** *patch-id* **-i** *patch-id* **...**

- To apply the list of patches that could not be applied by the `smpatch update` command, you must first bring the system to single-user mode. Type:

```
# init S
# smpatch add -x idlist=/var/sadm/spool/disallowed_patch_list
```

Example 5–4 Applying Patches to Your System

- The following example shows how to apply the patches listed in the file `plist` while the system is in single-user mode.

```
INIT: SINGLE USER MODE

Type control-d to proceed with normal startup,
(or give root password for system maintenance): root-password
single-user privilege assigned to /dev/console.
Entering System Maintenance Mode

Jan  7 13:17:44 su: 'su root' succeeded for root on /dev/console
Sun Microsystems Inc    SunOS 5.8       Generic May 2000
# smpatch add -x idlist=plist
```

- The following example shows how to apply patch 112662-12 while the system is in single-user mode.

```
INIT: SINGLE USER MODE

Type control-d to proceed with normal startup,
(or give root password for system maintenance): root-password
single-user privilege assigned to /dev/console.
Entering System Maintenance Mode

Jan  7 13:17:44 su: 'su root' succeeded for root on /dev/console
Sun Microsystems Inc    SunOS 5.8       Generic May 2000
# smpatch add -i 112662-12
```

▼ How to Apply a Nonstandard Patch

You cannot use `smpatch` to apply nonstandard patches that have the `interactive` property set. To apply the patch, review the information in the Special Installation Instructions section of the patch's README file.

Steps

1. **Become superuser.**
2. **In the download directory, find the nonstandard patch that you want to apply.**

```
# cd /var/sadm/spool; ls
```

3. **To access the patch README file, do one of the following:**
   - View the patch README file from the Sun patch server at `http://sunsolve.sun.com`.

- To extract the patch README file from the JAR archive, do the following:

  a. Identify the name of the README file, for example:

  ```
  # /usr/j2se/bin/jar tvf 107058-01.jar | grep README
  1440 Sat Apr 06 08:50:08 MST 2002 107058-01/README.107058-01
  ```

  b. Extract the README file.

  ```
  # /usr/j2se/bin/jar xvf 107058-01.jar 107058-01/README.107058-01
  extracted: 107058-01/README.107058-01
  ```

  c. View the README file.

  ```
  # more 107058-01/README.107058-01
  ```

4. **Follow the instructions in the Special Installation Instructions section of the README file to apply the patch.**

▼ How to Resolve a List of Patches

Sometimes a patch depends on another patch, that is, the first patch cannot be applied to the system until the other patch is applied. The first patch is said to have a dependency on the second patch.

If you specify a list of patches to apply, you can resolve the list for patch dependencies. The resulting list might include additional patches that you must apply before applying the patches you specified.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Resolve the list of patches.**

   - Resolve a list of patches specified one at a time on the command line.

     ```
     # smpatch analyze -i patch-id -i patch-id ...
     ```

   - Resolve a list of patches specified in a file.

     ```
     # smpatch analyze -x idlist=patch-list-file
     ```

Example 5–5 Resolving a List of Patches

The following example shows how to resolve patch dependencies for patch 112785-28 and write the resulting patch list to a file called `/tmp/patch.out`. Patch 112785-28 depends on patch 113096-03. After running the `smpatch analyze` command, the `patch.out` file contains this ordered list: 113096-03 and 112785-28.

```
# smpatch analyze -i 112785-28 > /tmp/patch.out
```

The following example shows how to take a modified list of patches, `plist`, and resolve the patch dependencies. The list is written to the `/tmp/patch.plist` file.

```
# smpatch analyze -x idlist=plist > /tmp/patch.plist
```

▼ How to Use `luupgrade` to Apply a List of Patches to an Inactive Boot Environment

A patch list that is created by the `smpatch` command can be used by `luupgrade` to apply patches to an inactive boot environment. You can also use the `luupgrade` command to remove patches from an inactive boot environment based on `showrev` information. See the `luupgrade`(1M) and `showrev`(1M) man pages.

Note – This procedure assumes that you have created a second boot environment that is a duplicate of the active boot environment. See the `lumake`(1M) man page for information about creating boot environments.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Perform a patch analysis on the active boot environment to obtain the list of appropriate patches to apply to the inactive boot environment, and remove the synopsis for each patch entry.**

   ```
   # smpatch analyze | sed 's/ .*//' > patch-list-file
   ```

   The modified file will be a list of patches, one *patch ID* per line.

3. **Download the patches from a patch list to your system.**

   ```
   # smpatch download -x idlist=patch-list-file
   ```

4. **Apply patches from a patch list to the inactive boot environment.**

   ```
   # luupgrade -t -n BE-name -s dir-name `cat patch-list-file`
   ```

   You must specify the name of the inactive boot environment to update, *BE-name*, and the directory where the patches are stored, *dir-name*.

5. **(Optional) To remove a patch from the inactive boot environment, use the following command:**

   ```
   # luupgrade -T -n BE-name patch-id
   ```

You must specify the name of the inactive boot environment to update, *BE-name*, and the patch to be removed, *patch-id*.

Example 5–6 Using `luupgrade` to Apply a List of Patches to an Inactive Boot Environment

- The following example shows how to use Patch Manager and Solaris Live Upgrade commands to apply a list of patches to an inactive boot environment. For this example, a duplicate boot environment, `be2`, of the active boot environment has been created.

  First, use the `smpatch analyze` and `sed` commands to analyze the active boot environment and create a patch list, `plist`, that includes one patch ID per line. The `sed` command removes the synopsis from each patch entry. Use the `smpatch download` command to download the patches in the list. Then, use the `luupgrade` command to apply the list of patches to the inactive boot environment of the system. The inactive boot environment is called `be2`, and the directory where the patches reside is `/var/sadm/spool` on the active boot environment.

```
# smpatch analyze | sed 's/ .*//' > plist
.
.
.
# smpatch download -x idlist=plist
.
.
.
# luupgrade -t -n be2 -s /var/sadm/spool `cat plist`
.
.
.
```

- The following example shows how to use Patch Manager and the Solaris Live Upgrade commands to remove a patch from an inactive boot environment. For this example, a duplicate boot environment, `be2`, of the active boot environment has been created.

  Use the `luupgrade` command to remove patch 107058-01 from the inactive boot environment of the system, `be2`.

```
# luupgrade -T -n be2 107058-01
.
.
.
```

▼ How to Remove Patches From Your System

You can remove only one patch at a time.

If your system has more than one boot environment, you can use the `luupgrade` command to remove a list of patches from an inactive boot environment. See "How to Use `luupgrade` to Apply a List of Patches to an Inactive Boot Environment" on page 47.

Steps

1. **Identify the patch that you want to remove.**
2. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.
3. **Remove the patch from your system.**

   # **`smpatch remove -i`** *patch-id*

▼ How to View Patch Manager Log Entries

Patch Manager writes to the system log file `/var/adm/messages`.

Step

- **View the `/var/adm/messages` file.**

  This file identifies problems that are found when using Patch Manager to apply a patch to a system.

Tuning Your Patch Management Environment (Task Map)

The following table identifies the optional tasks that you might perform when you tune the patch management environment for your system.

Use the `smpatch` command to tune your patch management environment. For the list of configuration parameters you can set, see "Setting Patch Manager Configuration Parameters" on page 29 and the `smpatch`(1M) man page.

Task	Description	For Instructions
(Optional) Obtain configuration information about your patch management environment.	View the configuration of your patch management environment, which might help you diagnose problems.	"How to View the Configuration Settings for Your Patch Management Environment" on page 51
(Optional) Change the policy for applying patches for your system.	Patch Manager can update your system with standard patches automatically. If you want to update your system with some types of nonstandard patches, you must change your policy for applying patches. By default, only patches that are associated with the `standard`, `rebootafter`, or `reconfigafter` properties are applied by an update operation.	"How to Change the Policy for Applying Patches" on page 52
(Optional) Change the patch set to use for system analysis.	Patch Manager bases analyses on all available Sun patches. If you want to apply only patches from a different patch set, such as the Recommended Patch Cluster, you must change the patch set.	"How to Change the Patch Set" on page 53
(Optional) Set different directory locations.	You might want to specify a different location for the download directory or the backout directory if the default locations are not large enough.	"How to Change Directory Locations" on page 53
(Optional) Reset configuration parameters to the default values.	You might want to reset configuration parameters to the default values. Note that some configuration parameters have an empty default value.	"How to Reset Configuration Parameters to the Default Values" on page 54

Note – The following procedures and examples show how to run the local mode `smpatch` command. Remote mode `smpatch` commands and options are not supported in Solaris 8. See the `smpatch`(1M) man page.

▼ How to View the Configuration Settings for Your Patch Management Environment

You can check the configuration settings of your patch management environment to help diagnose problems or to understand your system's patch-related settings.

The configuration settings output shows an entry for all configuration parameters. Each entry appears on a line by itself.

When you list all settings, each entry includes three fields: the parameter name, the value you have assigned, and its default value. The fields are separated by one or more tab characters.

The following values have special meaning:

- `-` means that no value is set
- `""` means that the value is the null string
- `\-` means that the value is `-`
- `\""` means that the value is `""` (two double quotes)

In addition to these special values, these special characters might appear in the output:

- `\t` for a tab
- `\n` for a newline
- `\\` for a backslash

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **List the configuration settings for your patch management environment.**

   - To list all settings, type:

     ```
     # smpatch get
     ```

   - To list the values for one or more parameters, type:

     ```
     # smpatch get parameter-name...
     ```

Example 5–7 Viewing Configuration Settings for Your Patch Management Environment

The following example shows how to list all the configuration settings for your patch management environment.

```
# smpatch get
patchpro.backout.directory  -       ""
```

```
patchpro.download.directory -      /var/sadm/spool
patchpro.install.types      -      rebootafter:reconfigafter:standard
patchpro.patch.source       -      https://updateserver.sun.com/solaris/
patchpro.patchset           -      patchdb
patchpro.proxy.host         -      ""
patchpro.proxy.passwd       ****   ****
patchpro.proxy.port         -      8080
patchpro.proxy.user         -      ""
patchpro.sun.passwd         ****   ****
patchpro.sun.user           -      ""
```

The following example shows how to list the configuration settings for the `patchpro.download.directory` and `patchpro.patchset` parameters.

```
# smpatch get patchpro.download.directory patchpro.patchset
/var/sadm/spool
patchdb
```

▼ How to Change the Policy for Applying Patches

If you want to configure your system to apply some nonstandard patches during an update operation, you must change the policy for applying patches.

By default, only patches that are associated with the `standard`, `rebootafter`, or `reconfigafter` properties can be applied by an update operation.

Caution – If you change your policy from the default, Sun makes no guarantees that the patches apply correctly to your system or that your system will function properly.

For more information about the policy for applying patches, see "Customizing the Policy for Applying Patches" on page 28.

Steps

1. **Determine the types of nonstandard patch properties that you want to apply during an update.**

2. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

3. **Specify the new policy.**

   # **smpatch set patchpro.install.types=***patch-property*

   patch-property is a list of patch properties each separated by a colon (`:`). For the list of valid patch properties, see "Customizing the Policy for Applying Patches"

on page 28.

Example 5–8 Changing the Policy for Applying Patches

This example shows how to set the policy for a system. The new policy also includes patches that require that the system be rebooted immediately for the patch to take effect.

```
# smpatch set \
patchpro.install.types=standard:rebootafter:reconfigafter:rebootimmediate
```

▼ How to Change the Patch Set

You can choose to analyze your system based on different sets of Sun patches, such as the Recommended Patch Cluster. By default, you use the patch set All Available Patches.

As of June 2004, the only patch sets available from Sun are All Available Patches and Recommended Patch Cluster.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.

2. **Specify the patch set to use.**

   - To base your analysis on all patches, type:

     ```
     # smpatch set patchpro.patchset=patchdb
     ```

   - To base your analysis on recommended patches, type:

     ```
     # smpatch set patchpro.patchset=recommended
     ```

   - To base your analysis on another patch set, type:

     ```
     # smpatch set patchpro.patchset=patch-set
     ```

▼ How to Change Directory Locations

Patch Manager is configured to use these default locations for storing patch-related data:

- **Download directory –** Directory in which patches are stored when they are downloaded from the patch source. This is also the directory from which patches are applied. Patches remain in this directory until they are successfully applied. The default location is `/var/sadm/spool`.

- **Backout data directory –** Directory in which data that enables a patch to be backed out is stored. By default, backout data is stored in the default locations used by `patchadd`. This is the `save` directory of each package that was modified by the patch. For example, if a patch modifies the `SUNWcsr` package, the backout data for that package is stored in the `/var/sadm/pkg/SUNWcsr/save` directory.

If you run out of available disk space in the default locations, specify different locations for these directories.

Note – If you specify a different directory, you must manually create that directory before performing any patch operations.

Steps

1. **Determine the new locations for the directories.**
2. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System Administration Guide: Security Services*.
3. **Specify a new directory, *dir-name*, for any of the patch-related directories.**
   - To specify a different download directory, type:

     ```
     # smpatch set patchpro.download.directory=dir-name
     ```

     where *dir-name* is `/export/patches`, for example.
   - To specify a different *backout directory*, type:

     ```
     # smpatch set patchpro.backout.directory=dir-name
     ```

     where *dir-name* is `/export/patches/backout`, for example.

▼ How to Reset Configuration Parameters to the Default Values

You must reset parameter values explicitly. You cannot use the `smpatch` command to reset all parameter values at once.

Steps

1. **Become an appropriately authorized user or assume a role that includes the Software Installation profile or the `solaris.admin.patchmgr.*` authorization.**

   The System Administrator profile includes the appropriate profiles. To create the role and assign the role to a user, see "Configuring RBAC (Task Map)" in *System*

Administration Guide: Security Services.

2. **Reset a configuration parameter for your patch management environment to its default value.**

   # **smpatch unset** *parameter-name...*

Example 5–9 Resetting Configuration Parameters to the Default Values

The following example shows how to configure a system to obtain patches from the Sun patch server instead of from a different patch source.

```
# smpatch unset patchpro.patch.source
```

The following example shows how to reset the patch download directory and the backout directory locations to the default values.

```
# smpatch unset patchpro.download.directory patchpro.backout.directory
```

APPENDIX **A**

Troubleshooting (Reference)

This appendix describes common problems that you might encounter when using Patch Manager to analyze systems to determine the list of appropriate patches, download the patches to the system, and apply the patches.

Additional troubleshooting information about Sun Patch Manager 2.0 might appear in the *Sun Patch Manager 2.0 Release Notes for the Solaris 8 Operating System*.

Cannot Update Patches Due to Network or Server Failures

Description: When running the `smpatch update` command, any of the following errors appear:

```
Cannot connect to retrieve patchdb: Connection refused
```

Or:

```
Cannot connect to retrieve patchdb: Connection timed out
```

Or:

`Unknown host (`*host-name*`) connecting to http://`*host-name*`/`

Cause: This problem might be caused by a network failure between the client and the patch server, or the patch server is down.

Workaround: Ensure that `patchpro.patch.source` points to a valid patch source.

Check the condition of the network.

- If your patch management environment includes a local patch server, ensure that it is up and running.
- If the problem is between your system and Sun, wait for the issue to be resolved.

Glossary

The following terms are used throughout this book.

analyze — To check a system to determine the list of patches that are appropriate for this system.

Patch Manager uses analysis modules and a list of available patches from the Sun patch server to generate a list of patches for your Solaris system.

apply — To install a patch on a system.

back out — To remove a patch from a system.

backout data — Data that is created when a patch is applied to enable the system to return to its previous state if the patch is removed (backed out).

backout directory — Directory in which backout data is stored. By default, this is the `save` directory of each package that was installed by the patch.

caching — The ability of a server in a chain of patch servers to store a patch that has been downloaded to it from another server.

dependency — See **patch dependency**.

digital signature — An electronic signature that can be used to ensure that a document has not been modified since the signature was applied.

download — To copy one or more patches from a source of patches, such as a the Sun patch server, to the system where the patches are to be applied.

download directory — Directory in which patches are stored when they are downloaded from the patch source. This is also the directory from which patches are applied. The default location is `/var/sadm/spool`.

local mode — A mode available for the `smpatch` command, which can only be run on the local system. This mode can be used to apply patches while the system is either in single-user mode or in multiuser mode.

local patch server	A system on your intranet that provides access to patch data in lieu of the Sun patch server. The server caches patches downloaded from its patch source. The local patch server must run at least Solaris 9.
nonstandard patch	A patch that is associated with the `interactive` property, with one or more of the `rebootafter`, `rebootimmediate`, `reconfigafter`, `reconfigimmediate`, and `singleuser` properties, or a patch that cannot be applied by running the usual patch management tools.
order	To sort a set of patches in an order suitable for applying patches.
package	The form in which software products are delivered for installation on a system. The package contains a collection of files and directories in a defined format.
patch	An update to software that corrects an existing problem or that introduces a feature.
patch analysis	A method of checking a system to determine which patches are appropriate for the system.
patch dependency	An instance where a patch depends on the existence of another patch on a system. A patch that depends on one or more patches can only be applied to a system when those other patches have already been applied.
patch ID	A unique alphanumeric string, with the patch base code first, a hyphen, and a number that represents the patch revision number.
patch incompatibility	A rare situation where two patches cannot be on the same system. Each patch in the relationship is incompatible with the other. If you want to apply a patch that is incompatible with a patch already on the system, you must first remove the patch that is already on the system. Then, you can apply the new patch.
patch list	A file that contains a list of patches, one patch ID per line. Such a list can be used to perform patch operations. The list can be generated based on the analysis of a system or on user input. Each line in a patch list has two columns. The first column is the patch ID, and the second column is a synopsis of that patch.
patch management process	A process that involves analyzing a system to determine the appropriate patches, downloading the patches to that system, and applying the patches. Another part of the patch management process is the optional removal of patches.
patch obsolescence	An instance where a patch replaces another patch, even if it has not already been applied to a system. A patch that obsoletes one or more patches replaces those patches entirely and does not require that the obsolete patches be applied before the replacement patch is applied.

PatchPro	A product developed by Sun Network Storage to provide automated patch management technology, which is used by Sun Patch Manager.
patch server	A source of Solaris patches that can be used by your systems to perform patch analyses and from which to obtain the appropriate patches. The patch server can be the Sun patch server, or a server on your intranet, called the *local patch server*.
policy for applying patches	A user-configurable policy that specifies the types of patches that can be applied during an update of your system.
resolve	To determine the patch dependencies required for a list of patches. Each patch in the list is checked to determine whether any other patches must be added to the list. If any patches are required, they are added to the ordered patch list.
signed patch	A patch that is signed with a valid digital signature. A signed patch offers greater security than an unsigned patch. The digital signature of the patch can be verified before the patch is applied to your system. A valid digital signature ensures that the signed patch has not been modified since the signature was applied. Signed patches are stored in Java Archive (JAR) format files.
standard patch	A patch that can be applied to a Solaris system that is running in multiuser mode without having to reboot. Such a patch is associated with the `standard` patch property.
SunSolve Online	The Sun Microsystems web site that provides access to patch data. Patch Manager uses the data to perform patch analyses of your systems. See `http://sunsolve.sun.com`.
unsigned patch	A patch that is not signed with a digital signature.
update	To perform the steps necessary to apply patches to a system. The system is analyzed, and the patches are downloaded and then applied.
web proxy	A system that is used to connect your system to the Internet. Your system cannot connect directly to the Internet, but must use the web proxy to establish the connection.

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