

# **Sun Patch Manager 2.0 Administration Guide for the Solaris 9 Operating System**



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# Preface

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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.
- [Chapter 6](#) describes how to use the Patch Manager browser interface to manage patches on your Solaris systems.
- [Chapter 7](#) describes how to configure and use a local patch server on your intranet.
- [Appendix A](#) lists problems, warning messages, and error messages that you might see when using Patch Manager, and provides solutions for these problems.
- [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 9 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<sup>SM</sup> 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>.

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## 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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code>
<b>AaBbCc123</b>	What you type, contrasted with onscreen computer output	<code>machine_name% su</code> Password:
<i>AaBbCc123</i>	Command-line placeholder: replace with a real name or value	To delete a file, type <code>rm filename</code> .
<i>AaBbCc123</i>	Book titles, new terms, or terms to be emphasized	Read Chapter 6 in <i>User's Guide</i> . These are called <i>class</i> options. You must be <i>root</i> 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	#



# Managing Solaris Patches (Overview)

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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, see *Solaris Patch Management: Recommended Strategies* on docs.sun.com.

## 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, Solaris 8, and Solaris 9 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 by Using the Command-Line Interface (Task Map)” on page 44 or “Managing Patches by Using the Browser Interface (Task Map)” on page 70.

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 <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.
- By using the Sun Patch Manager tools that are described in this book.

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

You can use the following tools to apply patches to Solaris systems:

- Sun Patch Manager command-line interface (`smpatch`)
- Sun Patch Manager browser interface
- `patchadd`
- Solaris Management Console Patches tool (GUI, starting with Solaris 9)

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

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**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

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

Tool Availability	<code>patchadd/patchrm</code> Commands	Solaris 2.6 and Solaris 7 Patch Management Tools	Sun Patch Manager 2.0	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 <sup>1</sup>	Download the Solaris 8 or Solaris 9 version of the tool from the Sun Download Center web site <sup>1</sup>	Run tool from the PatchPro web site <sup>2</sup>
Solaris release availability	Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 releases	Solaris 2.6 and Solaris 7 releases	Solaris 8 and Solaris 9 releases	Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 releases
Applies signed patches?	<b>Starting with the Solaris 9 12/03 release</b> – Yes, and automatically verifies the signed patch when it is downloaded	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

<sup>1</sup> The Sun Download Center web site is <http://www.sun.com/software/download>.

<sup>2</sup> 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	PatchPro Interactive or PatchPro Expert
GUI available?	No	No	Yes, for Solaris 9 systems only	Yes, these tools can only be run from the PatchPro web site <sup>2</sup>
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 and remote system patch support	Local	Local	Local and remote <b>For Solaris 8 systems – Local</b>	No
RBAC support?	Yes	No	Yes	No

<sup>2</sup> The PatchPro web site is <http://www.sun.com/PatchPro>.

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**Note – Starting with the Solaris 9 release** – A graphical user interface (GUI), the Patches tool in the Solaris Management Console (smc), is also available. The Patches tool enables you to [analyze](#) systems to determine the appropriate patches, view patch properties, download patches, apply patches to systems, and remove patches.

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## 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.




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**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
<code>smpatch update</code>	<p><b>Starting with the Solaris 8 release</b> – 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 <code>interactive</code> property set.</p> <p><b>Note</b> – For Solaris 8 systems, only the local mode <code>smpatch</code> is available.</p>	<p><a href="#">“How to Update Your System With Patches (Command Line)” on page 47</a></p> <p><code>smpatch(1M)</code> man page</p>
<code>smpatch analyze</code> and <code>smpatch update</code>	<p><b>Starting with the Solaris 8 release</b> – First, use <code>smpatch analyze</code> to analyze your system to determine the appropriate patches. Then, use <code>smpatch update</code> to download and apply one or more of the patches to your system.</p> <p><b>Note</b> – For Solaris 8 systems, only the local mode <code>smpatch</code> is available.</p>	<p><a href="#">“How to Analyze Your System to Obtain the List of Patches to Apply (Command Line)” on page 46</a></p> <p><a href="#">“How to Update Your System With Patches (Command Line)” on page 47</a></p> <p><code>smpatch(1M)</code> man page</p>

Command or Tool	Description	For More Information
<p>smpatch analyze, smpatch download, and smpatch add</p>	<p><b>Starting with the Solaris 8 release</b> – 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.</p> <p><b>Note</b> – For Solaris 8 systems, only the local mode smpatch is available.</p>	<p>“Managing Patches by Using the Command-Line Interface (Task Map)” on page 44</p> <p>smpatch(1M) man page</p>
<p>Patch Manager browser interface</p>	<p><b>Starting with the Solaris 9 release</b> – Use this tool when you want the convenience of a web browser tool to manage patches.</p> <p>The browser interface enables you to do the following:</p> <ul style="list-style-type: none"> <li>■ Analyze your system to determine the appropriate patches</li> <li>■ Update the system with one or more patches</li> <li>■ Remove patches</li> <li>■ View the list of applied patches</li> <li>■ View the patch management tool logs</li> <li>■ Configure your patch management environment</li> </ul>	<p>“Managing Solaris Patches by Using the Sun Patch Manager Browser Interface (Task Map)” on page 61</p>
<p>patchadd</p>	<p><b>Starting with the Solaris 2.6 release</b> – Apply unsigned patches to your system.</p> <p><b>Starting with the Solaris 9 12/03 release</b> – Use this command to apply either signed or unsigned patches to your system. To apply signed patches, you must first set up your package <i>keystore</i>.</p>	<p>patchadd(1M) man page</p>
<p>Solaris Management Console Patches tool</p>	<p><b>Starting with the Solaris 9 release</b> – Use this tool when you want the convenience of a GUI tool to manage signed patches.</p>	<p>Solaris Management Console online help</p>

If you choose to use the smpatch command-line interface or the Patch manager browser interface, see [Chapter 4](#) for additional information that might affect which method you select to apply patches.

# 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
Apply a patch to your system.	<p>You can apply patches in the following ways:</p> <ul style="list-style-type: none"> <li>■ Use the <code>smpatch</code> command on Solaris 8 or Solaris 9 systems to apply signed or unsigned patches.</li> <li>■ Use the Sun Patch Manager browser interface on Solaris 9 systems.</li> <li>■ Use the <code>patchadd</code> command on Solaris 2.6, Solaris 7, Solaris 8, or Solaris 9 systems to apply unsigned Solaris patches.</li> </ul> <p><b>Starting with the Solaris 9 12/03 release</b> – Use the <code>patchadd</code> command to apply either signed or unsigned patches.</p>	<ul style="list-style-type: none"> <li>■ “Managing Solaris Patches by Using the Sun Patch Manager Command-Line Interface (Task Map)” on page 37</li> <li>■ “Managing Solaris Patches by Using the Sun Patch Manager Browser Interface (Task Map)” on page 61</li> <li>■ <code>patchadd(1M)</code> man page</li> </ul>

## 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.



## New Patch Manager Features (Overview)

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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
- “Sun Web Console Browser Interface” on page 21
- “Local Patch Server” on page 22

To use the Patch Manager tool, you must install at least the Developer Solaris Software Group of Solaris 9 software. You must also obtain the Patch Manager software from the Sun Download Center at <http://www.sun.com/software/download>.

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

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### 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, Solaris 8, and Solaris 9 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.

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**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.

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# Local-Mode Command-Line Interface

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**Note** – On Solaris 8 systems, you can only run `smpatch` in local mode.

---

Starting with Solaris 9, the `smpatch` command is available in two modes: local mode and remote mode. *Local mode* can only be run on the local system. This mode can be run while the system is in single-user or multiuser mode. *Remote mode* can be used to perform tasks on remote systems. Both local mode and remote mode can be used by users or roles that have the appropriate authorizations.

By default, local mode is run. In local mode, the Solaris WBEM services are not used, and none of the authentication options or those options referring to remote systems are available. The `smpatch` command in local mode runs faster than in remote mode.

If you specify any of the remote or authentication options (except for `-L`), remote mode is used.

## 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 or the browser interface 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*.

---

## Sun Web Console Browser Interface

Starting with Solaris 9, Patch Manager offers a browser interface for updating systems with patches. You can use the browser interface to analyze a system, update a system with patches, remove patches, and configure your patch management environment.

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**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

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## Local Patch Server

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**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.

---

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.

By using 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.

For information about configuring a local patch server on your intranet, see “[Configuring Your Local Patch Server by Using the Command-Line Interface](#)” on page 91.

The local patch server obtains patches from its source of patches on a per-request basis, so you do not need to stock your patch server with patches before you can use it.

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

## Benefits of Using a Local Patch Server

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

For instance, instead of patches and metadata being downloaded from the Sun patch server to each of your systems, the patch is downloaded only once to your local patch server. After the patch data is stored on this server, patch data is transferred to your system for analysis over your intranet instead of over the Internet.

You can configure a chain of patch servers on your intranet. The last link in the chain of local servers can point to the Sun patch server or to a local collection of patches. By using this chain of servers, a patch download request from your system to its primary patch server can be forwarded to other servers in the chain in an attempt to fulfill the request. If your system’s primary server cannot locate a patch, the server makes the same request of the next server in the chain to see if the patch is stored there. If the patch is found, it is downloaded to the system. If the patch is not found, the request continues along the chain until the patch is found or the last server in the chain is reached.

For example, your company has a patch server that obtains patches directly from the Sun patch server. Each office in your company has its own patch server that obtains patches from the company patch server.

Each local patch server in the chain stores the patches found on another server in the chain based on the download request. So, a patch that is not initially found on your local server will be downloaded to your local server and stored before being downloaded to the client system. Each system in a chain of local patch servers might increase the amount of time it takes to download patches to your client system.



## Sun Patch Manager Concepts (Overview)

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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 25
- “Patch Management Process” on page 26
- “Specifying the Source of Patches” on page 29
- “Customizing the Policy for Applying Patches” on page 30
- “Setting Patch Manager Configuration Parameters” on page 31

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**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

---

### 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 or by using a browser 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, see *Solaris Patch Management: Recommended Strategies* on docs.sun.com.

## 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 29.

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.

You cannot use the Patch Manager browser interface to just download patches. When you select patches from the list of patches and click Apply or Apply All, the patches you specified are both downloaded and applied. To just download patches, use the `smpatch download` command.

## 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.

When you use the browser interface to apply patches that you selected from the list of patches, each patch is downloaded (if necessary) before it is applied.

## 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.



---

**Caution** – Do *not* remove the Sun Patch Manager 2.0 WBEM patch (117680-01 for x86 and 117679-01 for SPARC®) from a system, or Patch Manager will not work properly.

---

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/backout.log.process-id` file. This log file is automatically removed if the patch is successfully removed.

You can use the browser interface to remove one or more patches by selecting them from the list of applied patches. However, you can only remove *one* patch at a time when you use the `smpatch remove` command.

---

**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 and any local patch servers must have access to Solaris patches and patch data.

Both client systems and local patch servers can obtain patches from these sources:

- **Patch server** – A server that provides access to Solaris patches and patch data. A patch server can be a local patch server on your intranet or 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.

- 
- **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 and local patch servers is the Sun patch server. As a result, any client system or local patch server that obtains patches from the Sun patch server must be connected, either directly or through a *web proxy*, to the Internet.

You can use a combination of local patch servers and different patch sources to configure these patch management environments.

Clients access patches and patch data from the following sources:

- **Sun patch server** – Your client systems obtain patches from the Sun patch server.  
This configuration requires that your client systems are connected, directly or through a web proxy, to the Internet.
- **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 collection of patches** – Your client systems obtain patches and patch data from a collection of patches on your local system.  
This configuration does not require that the client systems be connected 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 client system, see “[How to Specify the Source of Patches \(Web Browser\)](#)” on page 68 or “[How to Specify the Source of Patches \(Command Line\)](#)” on page 43.

For instructions on specifying the source of patches for your local patch server, see “[How to Change Configuration Settings for Your Local Patch Server \(Command Line\)](#)” on page 95.

## 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 2005, not all Sun patches are 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 modify configuration settings from the Administration page of the browser interface, as well. Note that the label names that appear on the Administration page represent the following set of configuration 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 30.



# Getting Started With Sun Patch Manager (Overview)

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Sun Patch Manager has two user interfaces: the `smpatch` command-line interface and the Patch Manager browser interface.

This chapter covers the following topics:

- “Patch Manager Installation Requirements” on page 33
- “Working Within Your Patch Management Environment” on page 33
- “Comparison of Sun Patch Manager User Interfaces” on page 34

## Patch Manager Installation Requirements

To use the Patch Manager tool, you must install at least the Developer Solaris Software Group of Solaris 9 software. You must also obtain the Patch Manager software from the Sun Download Center at <http://www.sun.com/software/download>.

---

**Note** – As of June 2005, not all Sun patches are 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 `smpatch` command-line interface or the Patch Manager browser interface. See “[Accessing the Sun Patch Manager Command-Line Interface](#)” on page 38 or “[Accessing the Sun Patch Manager Browser Interface](#)” on page 62.

- 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 (Command Line)” on page 41 or “How to Specify Your Web Proxy (Web Browser)” on page 66.  
After you change your configuration, see “Accessing the Sun Patch Manager Command-Line Interface” on page 38 or “Accessing the Sun Patch Manager Browser Interface” on page 62.
- 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. See “Configuring Your Local Patch Server (Task Map)” on page 89.

---

**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.

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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 (Command Line)” on page 43 or “How to Specify the Source of Patches (Web Browser)” on page 68.

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 38 or “Accessing the Sun Patch Manager Browser Interface” on page 62.

- 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 or local patch server on which you run Patch Manager. See “How to Specify a User Name and Password With Which to Obtain Patches (Command Line)” on page 42 or “How to Specify a User Name and Password With Which to Obtain Patches (Web Browser)” on page 67.  
After you change your configuration, see “Accessing the Sun Patch Manager Command-Line Interface” on page 38 or “Accessing the Sun Patch Manager Browser Interface” on page 62.

## Comparison of Sun Patch Manager User Interfaces

The following table summarizes the Sun Patch Manager 2.0 features and tasks that are supported by the command-line interface (`smpatch`) and the browser interface.

While you can use the browser interface to perform the basic patch management tasks, you can use the `smpatch` command to perform those tasks and many others.

**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

Feature/Task	Command-Line Interface	Browser Interface
Can perform patch management operations on a remote system?	Yes, in remote mode <code>smpatch</code> only. Local mode <code>smpatch</code> can only be run on the local system.	No
Supports RBAC?	Yes	Yes
Can analyze a system for patches?	Yes	Yes
Can perform scheduled patch analyses?	Yes, use <code>cron</code> to run the <code>smpatch analyze</code> command.	Yes
Can download individual patches?	Yes	No, individual patches are downloaded only when they are applied.
Can resolve patch dependencies?	Sometimes. If you run <code>smpatch add</code> , patch dependencies are <i>not</i> resolved. However, if you run <code>smpatch update</code> or <code>smpatch analyze -i patch-id</code> , patch dependencies are resolved.	Yes
Can remove more than one patch at a time?	No, <code>smpatch remove</code> can remove just one patch at a time.	Yes
Can update a system with patches?	Yes	Yes
Can be run while the system is in single-user mode?	Yes, limited operations of local mode <code>smpatch</code> only.	No
Can access patches from a local patch server?	Yes	Yes
Can operate on patch lists?	Yes	No
Can configure the patch management environment for your system?	Yes	Yes



# Managing Solaris Patches by Using the Sun Patch Manager Command-Line Interface (Tasks)

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This chapter describes how to use the Patch Manager command-line interface to manage patches on your Solaris 9 systems.

The following task-related information is in this chapter:

- “Managing Solaris Patches by Using the Sun Patch Manager Command-Line Interface (Task Map)” on page 37
- “Accessing the Sun Patch Manager Command-Line Interface” on page 38
- “Configuring Your Patch Management Environment by Using the Command-Line Interface (Task Map)” on page 40
- “Managing Patches by Using the Command-Line Interface (Task Map)” on page 44
- “Tuning Your Patch Management Environment by Using the Command-Line Interface (Task Map)” on page 54

## Managing Solaris Patches by Using the Sun Patch Manager Command-Line Interface (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.	If you want to perform patch management tasks on the command-line, use the <code>smpatch</code> command.	“Accessing the Sun Patch Manager Command-Line Interface” on page 38

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 by Using the Command-Line Interface (Task Map)” on page 40
Manage patches on your system.	You can use the command-line interface to perform an analysis of your system, apply one or more patches, find patch dependencies, order patch lists, and remove patches.	“Managing Patches by Using the Command-Line Interface (Task Map)” on page 44
(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 by Using the Command-Line Interface (Task Map)” on page 54

## 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.

This behavior pertains to operations initiated by both the `smpatch` command and by the browser interface.

You can run either the local mode or remote mode `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 (Command Line)

By default, the `smpatch` command runs in local mode.

### 1 Decide whether to manage patches on the local system or on a remote system.

- If you want to manage patches on the local system only, go to Step 2.
- If you want to manage patches on a remote system, go to Step 4.  
The Solaris WBEM services must be running on the remote system.

### 2 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*.

### 3 Run the `smpatch` command you want.

For example:

```
$ smpatch analyze
```

### 4 Log in to a system as a user who is appropriately authorized or is permitted to assume a role that is appropriately authorized.

### 5 Run the `smpatch` command with the `-n` option to specify the name of the system on which to operate.

For example:

```
$ smpatch analyze -n system-name
```

To perform the operation with an assumed role, type:

```
$ smpatch analyze -r role-name -n system-name
```

#### Example 5–1 Accessing the Sun Patch Manager Command-Line Interface

The following examples use the `smpatch get` command, which lists the configuration settings for your patch management environment.

This example shows how to run the `smpatch` command on the local system.

```
# smpatch get
```

This example shows how an authorized user can run the `smpatch` command on the remote system called `jupiter`.

```
# smpatch get -n jupiter
```

This example shows how you can run the `smpatch` command on the remote system called `jupiter` as the role `patcher`.

```
# smpatch get -r patcher -n jupiter
```

**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 by Using the Command-Line Interface \(Task Map\)](#)” on page 40
- “[Managing Patches by Using the Command-Line Interface \(Task Map\)](#)” on page 44
- “[Tuning Your Patch Management Environment by Using the Command-Line Interface \(Task Map\)](#)” on page 54

## Configuring Your Patch Management Environment by Using the Command-Line Interface (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 31 and the `smpatch(1M)` man page.

If you want to use the browser interface to configure your patch management environment, see “[Configuring Your Patch Management Environment by Using the Browser Interface \(Task Map\)](#)” on page 65.

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.	<a href="#">“How to Specify Your Web Proxy (Command Line)” on page 41</a>
(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.	<a href="#">“How to Specify Your Web Proxy (Command Line)” on page 41</a>
(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.	<a href="#">“How to Specify a User Name and Password With Which to Obtain Patches (Command Line)” on page 42</a>
(Optional) Specify the source of patches for your system.	Your system can obtain patches from one of the following sources: <ul style="list-style-type: none"> <li>■ Sun patch server</li> <li>■ Patch server on your intranet</li> <li>■ Local collection of patches</li> </ul> The default source of patches for your system is the Sun patch server.	<a href="#">“How to Specify the Source of Patches (Command Line)” on page 43</a>

---

**Note** – The following procedures and examples show how to run the local mode `smatch` command, which is run by default. To run the remote mode version, use any of the authentication options (except for `-L`) or the remote options. See the `smatch(1M)` man page.

---

## ▼ How to Specify Your Web Proxy (Command Line)

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

- 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 (Command Line)

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 2005, a user name and password are not required to obtain patches from the Sun patch server.

**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 (Command Line)

Your system can obtain patches from the following sources:

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

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. See “[Configuring Your Local Patch Server \(Task Map\)](#)” on page 89.

---

### 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 local patch server, use this URL format:

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

- 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 5–2](#) for examples of using the `file:/` URL format.

### Example 5–2 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 by Using the Command-Line Interface \(Task Map\)”](#) on page 44.

## Managing Patches by Using the Command-Line Interface (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.	<a href="#">“How to Analyze Your System to Obtain the List of Patches to Apply (Command Line)”</a> on page 46
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.	<a href="#">“How to Update Your System With Patches (Command Line)”</a> on page 47

Task	Description	For Instructions
Apply patches to your system.	<ul style="list-style-type: none"> <li>■ After you have determined the patches to apply and have downloaded them to your system, you can apply them.</li> <li>■ 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 <code>singleuser</code> patch property. In single-user mode, you must use the <code>smpatch add</code> command to apply patches.</li> <li>■ Some patches are nonstandard and must be applied manually.</li> <li>■ (Optional) Determine whether the patches you want to apply depend on others being applied first.</li> </ul>	<ul style="list-style-type: none"> <li>■ <a href="#">“How to Apply Patches to Your System (Command Line)”</a> on page 48</li> <li>■ <a href="#">“How to Apply Patches to Your System (Command Line)”</a> on page 48</li> <li>■ <a href="#">“How to Apply a Nonstandard Patch (Command Line)”</a> on page 50</li> <li>■ <a href="#">“How to Resolve a List of Patches (Command Line)”</a> on page 51</li> </ul>
Remove patches from your system.	You want to remove, or back out, patches that you applied to your system.	<a href="#">“How to Remove Patches From Your System (Command Line)”</a> on page 53
(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.	<a href="#">“How to View Patch Manager Log Entries (Command Line)”</a> on page 54
Apply patches to an inactive boot environment on your system by using <code>luupgrade</code> .	You want to use Solaris Live Upgrade to apply patches to a system that has more than one boot environment.	<a href="#">“How to Use <code>luupgrade</code> to Apply a List of Patches to an Inactive Boot Environment (Command Line)”</a> on page 52

**Note** – The following procedures and examples show how to run the local mode `smpatch` command, which is run by default. To run the remote mode version, use any of the authentication options (except for `-L`) or the remote options. See the `smpatch(1M)` man page.

## ▼ How to Analyze Your System to Obtain the List of Patches to Apply (Command Line)

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 for use at a later time.

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.

### 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 5–3 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, `p1ist`, modify it, and resolve the patch dependencies. The list is written to the `/tmp/patch.p1ist` 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 (Command Line)

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 \(Command Line\)”](#) on page 57.

### 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 \(Command Line\)”](#) on page 46), 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 \(Command Line\)”](#) on page 48 for more information.

---

### Example 5–4 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, you 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 the 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 (Command Line)

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.

**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 5–5 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 5.9      Generic May 2002
# 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 5.9      Generic May 2002
# smpatch add -i 112662-12
```

## ▼ How to Apply a Nonstandard Patch (Command Line)

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.

### 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:

- 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
```

- Extract the README file.

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

- 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 (Command Line)

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.

- 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 5–6 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, `p1ist`, and resolve the patch dependencies. The list is written to the `/tmp/patch.p1ist` file.

```
# smpatch analyze -x idlist=p1ist > /tmp/patch.p1ist
```

## ▼ How to Use `luupgrade` to Apply a List of Patches to an Inactive Boot Environment (Command Line)

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.

---

### 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 5–7 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 (Command Line)

You can remove only one patch at a time.

If you want to remove more than one patch, use the browser interface. See [“How to Remove Patches From Your System \(Web Browser\)”](#) on page 75.

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 \(Command Line\)”](#) on page 52.



---

**Caution** – Do *not* remove the Sun Patch Manager 2.0 WBEM patch (117680-01 for x86 and 117679-01 for SPARC) from a system, or Patch Manager will not work properly.

---

**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 (Command Line)

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

**1 Choose which method to use to see information about a failed installation of a patch.**

- `/var/adm/messages` – Identifies problems that are found when applying a patch to a system by using Patch Manager.
- **Solaris WBEM log** – To view this log from the command line, use the `smlog view` command. See the `smlog(1M)` man page.

**2 View log entries from the appropriate log file.**

## Tuning Your Patch Management Environment by Using the Command-Line Interface (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 31](#) and the `smpatch(1M)` man page.

If you want to use the browser interface to tune your patch management environment, see “[Tuning Your Patch Management Environment by Using the Browser Interface \(Task Map\)](#)” on [page 79](#).

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 (Command Line)” on page 55
(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 <code>standard</code> , <code>rebootafter</code> , or <code>reconfigafter</code> properties are applied by an update operation.	“How to Change the Policy for Applying Patches (Command Line)” on page 57
(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 (Command Line)” on page 58
(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 (Command Line)” on page 58
(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 (Command Line)” on page 59

---

**Note** – The following procedures and examples show how to run the local mode `smpatch` command, which is run by default. To run the remote mode version, use any of the authentication options (except for `-L`) or the remote options. See the `smpatch(1M)` man page.

---

## ▼ How to View the Configuration Settings for Your Patch Management Environment (Command Line)

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

## 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 5–8 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 (Command Line)

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 30.

- 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 30.

### Example 5–9 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 (Command Line)

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 2005, the only patch sets available from Sun are All Available Patches and Recommended Patch Cluster.

### 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 (Command Line)

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.

---

**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
```

For example, *dir-name* is `/export/patches`.

- To specify a different *backout directory*, type:

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

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

## ▼ How to Reset Configuration Parameters to the Default Values (Command Line)

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

**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 5–10** 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
```

## Managing Solaris Patches by Using the Sun Patch Manager Browser Interface (Tasks)

---

This chapter describes how to use the Patch Manager browser interface to manage patches on your Solaris 9 systems.

The following task-related information is in this chapter:

- “Managing Solaris Patches by Using the Sun Patch Manager Browser Interface (Task Map)” on page 61
- “Accessing the Sun Patch Manager Browser Interface” on page 62
- “Configuring Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 65
- “Managing Patches by Using the Browser Interface (Task Map)” on page 70
- “Tuning Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 79

---

**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

---

## Managing Solaris Patches by Using the Sun Patch Manager Browser Interface (Task Map)

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

Task	Description	For Instructions
Access the browser interface.	If you want the convenience of a web application to manage patches, use the Sun Patch Manager 2.0 browser interface.	<a href="#">“Accessing the Sun Patch Manager Browser Interface” on page 62</a>
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.	<a href="#">“Configuring Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 65</a>
Manage patches on your system.	You can use the browser interface to perform an analysis of your system, apply one or more patches, find patch dependencies, and remove patches.	<a href="#">“Managing Patches by Using the Browser Interface (Task Map)” on page 70</a>
(Optional) Tune the patch management environment for your system.	Change some optional configuration settings, such as the policy for applying patches.	<a href="#">“Tuning Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 79</a>

## Accessing the Sun Patch Manager Browser 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.

This behavior pertains to operations initiated by both the browser interface and by the `smpatch` command.

The browser interface for Patch Manager supports the following web browsers:

- Netscape Communicator, at least Version 4.7
- Microsoft Internet Explorer, at least Version 5
- Mozilla™, at least Version 1.2

The Patch Manager URL follows this form:

`https://system-name.domain:6789/patchmgr`

You can obtain help while you use the Patch Manager browser interface by clicking Help at the top of each page of the application.

## ▼ How to Access the Sun Patch Manager Browser Interface (Web Browser)

**1** Become superuser.

**2** Ensure that the Sun Web Console is enabled in one of these ways:

- To start the Sun™ Web Console manually, type:

```
# /usr/sbin/smcwebserver start
```

- To enable boot-time startup of the Sun Web Console, type:

```
# /usr/sbin/smcwebserver enable
```

Each time the system boots, the Sun Web Console is started.

- To enable boot-time startup of the Sun Web Console and to start it now, type:

```
# /usr/sbin/smcwebserver enable
```

```
# /usr/sbin/smcwebserver start
```

**3** Access the Patch Manager browser interface for your system by typing the URL in your web browser.

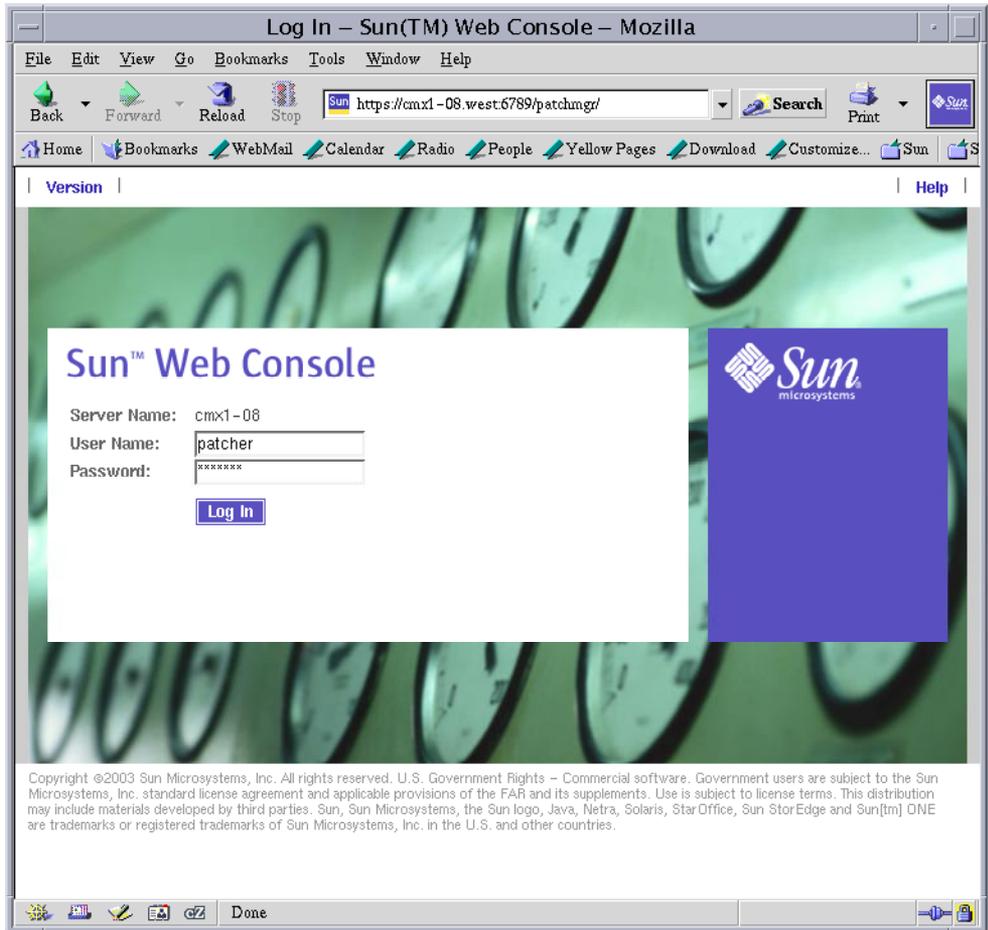
For example, if your system is called mars, the URL is as follows:

```
https://mars:6789/patchmgr
```

**4** When you are asked to accept a certificate for the new site, accept it.

Follow the instructions in the dialog boxes.

The Sun Web Console login page appears.



**5 To log in to the Patch Manager application, type one of the following in the User Name field, followed by the password for that user:**

- Name of a user who has the Cron Management, Maintenance and Repair, and Software Installation profiles or the `solaris.admin.patchmgr.*`, `solaris.jobs.admin`, and `solaris.compsys.write` authorizations
- Name of a user who has permission to assume a role that includes the Cron Management, Maintenance and Repair, and Software Installation profiles or the `solaris.admin.patchmgr.*`, `solaris.jobs.admin`, and `solaris.compsys.write` authorizations

When the Role Name drop-down menu appears, choose the role to use. Then, type the password for the role in the Password field.

The System Administrator profile includes these profiles. For information about how to create the role and assign the role to a user, see “Configuring RBAC (Task Map)” in *System Administration Guide: Security Services*.

- 6 Click **Log In** to open the Patch Manager browser interface.
- 7 (Optional) Click **Sun Patch Manager 2.0** to access the Patches to Apply page.

### More Information

#### What to Do Next

After you access the browser interface, you can configure the patch management environment for your system and manage patches.

See the following sections:

- “Configuring Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 65
- “Managing Patches by Using the Browser Interface (Task Map)” on page 70
- “Tuning Your Patch Management Environment by Using the Browser Interface (Task Map)” on page 79

## Configuring Your Patch Management Environment by Using the Browser Interface (Task Map)

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 browser-based tasks that you might perform when you configure the patch management environment for your system.

If you want to use the `smpatch` command to configure your patch management environment, see “Configuring Your Patch Management Environment by Using the Command-Line Interface (Task Map)” on page 40.

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.	<a href="#">“How to Specify Your Web Proxy (Web Browser)” on page 66</a>
(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.	<a href="#">“How to Specify Your Web Proxy (Web Browser)” on page 66</a>
(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.	<a href="#">“How to Specify a User Name and Password With Which to Obtain Patches (Web Browser)” on page 67</a>
(Optional) Specify the source of patches for your system.	Your system can obtain patches from one of the following sources: <ul style="list-style-type: none"> <li>■ Sun patch server</li> <li>■ Patch server on your intranet</li> <li>■ Local collection of patches</li> </ul> <p>The default source of patches for your system is the Sun patch server.</p>	<a href="#">“How to Specify the Source of Patches (Web Browser)” on page 68</a>

## ▼ How to Specify Your Web Proxy (Web Browser)

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

### 1 Access the Patch Manager browser interface.

See [“How to Access the Sun Patch Manager Browser Interface \(Web Browser\)” on page 63](#).

### 2 Obtain the host name and the port of the web proxy from your network administrator.

For example, the web proxy might be called `my-webproxy` and the port `2010`.

### 3 Click the Administration tab to access the Patch Management Configuration page.

### 4 Go to the Web Proxy section.

### 5 Specify the host name of your web proxy in the Web Proxy Host Name field.

### 6 Specify the port number used by your web proxy in the Web Proxy Port Number field.

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

Obtain this information from your network administrator.

- a. Go to the **Web Proxy** section.
- b. Specify the user name in the **Web Proxy User Name** field.
- c. Specify the password in the **Web Proxy User Password** field.

The password appears as asterisks in the field.

To clear the password, select the **Clear** checkbox next to the **Web Proxy User Password** field.

**8 Click Save.****Example 6–1 Specifying Your Web Proxy**

This example shows how to specify the web proxy used by a system. The web proxy is called `my-webproxy` and it uses port `2010`. This example also shows how to specify the name of the user who authenticates to the web proxy. The user name is `proxyusr`. Also specify the password for the `proxyusr` user. Note that the user and password are optional.

**Web Proxy**

<b>Web Proxy Host Name</b>	<input type="text" value="my-webproxy"/>
<b>Web Proxy Port Number</b>	<input type="text" value="2010"/>
<b>Web Proxy User Name</b>	<input type="text" value="proxyusr"/>
<b>Web Proxy User Password</b>	<input type="password" value="*****"/> <input type="checkbox"/> Clear

Type a password to set it. To unset it, click **Clear**.

## ▼ How to Specify a User Name and Password With Which to Obtain Patches (Web Browser)

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

As of June 2005, a user name and password are not required to obtain patches from the Sun patch server.

- 1 Access the Patch Manager browser interface.**  
See [“How to Access the Sun Patch Manager Browser Interface \(Web Browser\)”](#) on page 63.
- 2 Click the Administration tab to access the Patch Management Configuration page.**

**3 Go to the Patch Source section.**

**4 Specify your Sun user name and password.**

If you do not have an account, register for one at <http://sunsolve.sun.com>.

**a. Specify your user name in the Sun User Name field.**

**b. Specify the password for your user in the Sun User Password field.**

The password appears as asterisks in the field.

To clear the password, select the Clear checkbox next to the Sun User Password field.

**5 Click Save.**

## ▼ How to Specify the Source of Patches (Web Browser)

Your system can obtain patches from the following sources:

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

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. See “[Configuring Your Local Patch Server \(Task Map\)](#)” on page 89.

---

**1 Access the Patch Manager browser interface.**

See “[How to Access the Sun Patch Manager Browser Interface \(Web Browser\)](#)” on page 63.

**2 Click the Administration tab to access the Patch Management Configuration page.**

**3 Go to the Patch Source section.**

**4 In the Patch Source field, specify the URL that points to the source of patches.**

- For the Sun patch server, select the SunSolve radio button.
- For a local patch server, select the Other radio button and use this URL format:

`http://server-name:3816/solaris/`

- For a collection of patches in a directory, select the Other radio button and use this URL format:

`file:/directory-name`

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

If you use a CD-ROM as a patch source, ensure that it is mounted before Patch Manager tries to access it.

See [Example 6–2](#) for examples of using the `file:/` URL format.

## 5 Click Save.

### Example 6–2 Specifying the Source of Patches

This example shows how to configure a system to obtain patches from the `/export/patches` directory on the local system. Specify `file:/export/patches` in the Other field.

Patch Source

Patch Source  SunSolve  Other

This example shows how to configure a system to obtain patches from the `/export/patches` directory on the remote system called `jupiter`. Specify `file:/net/jupiter/export/patches` in the Other field.

Patch Source

Patch Source  SunSolve  Other

This example shows how to configure a system to obtain patches from a CD mounted from the first CD-ROM drive of the local system. Specify `file:/cdrom/cdrom0` in the Other field.

Patch Source

Patch Source  SunSolve  Other

### More Information

## What to Do Next

After you specify a patch source, your client system is ready to manage patches. See [“Managing Patches by Using the Browser Interface \(Task Map\)” on page 70](#).

# Managing Patches by Using the Browser Interface (Task Map)

You can use the Patch Manager browser interface to perform the following tasks:

- Analyze your system to determine the list of appropriate patches
- Update your system with patches automatically
- Remove a patch from your system

Perform these tasks and more by using the command-line interface. See [“Managing Patches by Using the Command-Line Interface \(Task Map\)”](#) on page 44.

The following table identifies the common patch management tasks.

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.  Note that the browser interface lists the appropriate patches. If you request another analysis, the list of patches is changed to reflect any new patches that are needed.	<a href="#">“How to Analyze Your System to Obtain the List of Patches to Apply (Web Browser)”</a> on page 70
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.	<a href="#">“How to Update Your System With Patches (Web Browser)”</a> on page 71
(Optional) Resolve patch dependencies.	Determine whether the patches you want to apply depend on other patches being applied first.	<a href="#">“How to Resolve a List of Patches (Web Browser)”</a> on page 75
Remove patches from your system.	You want to remove, or back out, patches that you applied to your system.	<a href="#">“How to Remove Patches From Your System (Web Browser)”</a> on page 75
(Optional) View the Patch Manager log.	View the logs to identify problems with managing patches.	<a href="#">“How to View Patch Manager Log Entries (Web Browser)”</a> on page 77

## ▼ How to Analyze Your System to Obtain the List of Patches to Apply (Web Browser)

Patch Manager can analyze your system to determine the list of patches that are appropriate for your system.

To schedule a periodic patch analysis of your system, see [“How to Schedule a Regular Analysis of Patches \(Web Browser\)”](#) on page 85.

- 1 **Access the Patch Manager browser interface.**  
See [“How to Access the Sun Patch Manager Browser Interface \(Web Browser\)”](#) on page 63.
- 2 **Click the Patches to Apply tab to access the Patches to Apply page.**
- 3 **Click Update Patch List to analyze your system for the list of appropriate patches.**
- 4 **When the job completes, click Back to Patches to Apply to view the list of patches to apply.**
- 5 **(Optional) Click View README in the SunSolve Actions column to see detailed information about a patch.**

A new browser window opens to show the contents of the patch’s README file.

#### More Information

#### What to Do Next

After you have a list of patches to apply, you can update your system with patches. See [“How to Update Your System With Patches \(Web Browser\)”](#) on page 71.

## ▼ How to Update Your System With Patches (Web Browser)

You can update your system by downloading and applying all of the patches that are listed on the Patches to Apply page. Or, you can select one or more of the patches to download and apply.

The Patches to Apply page lists patches that you can apply to your system.

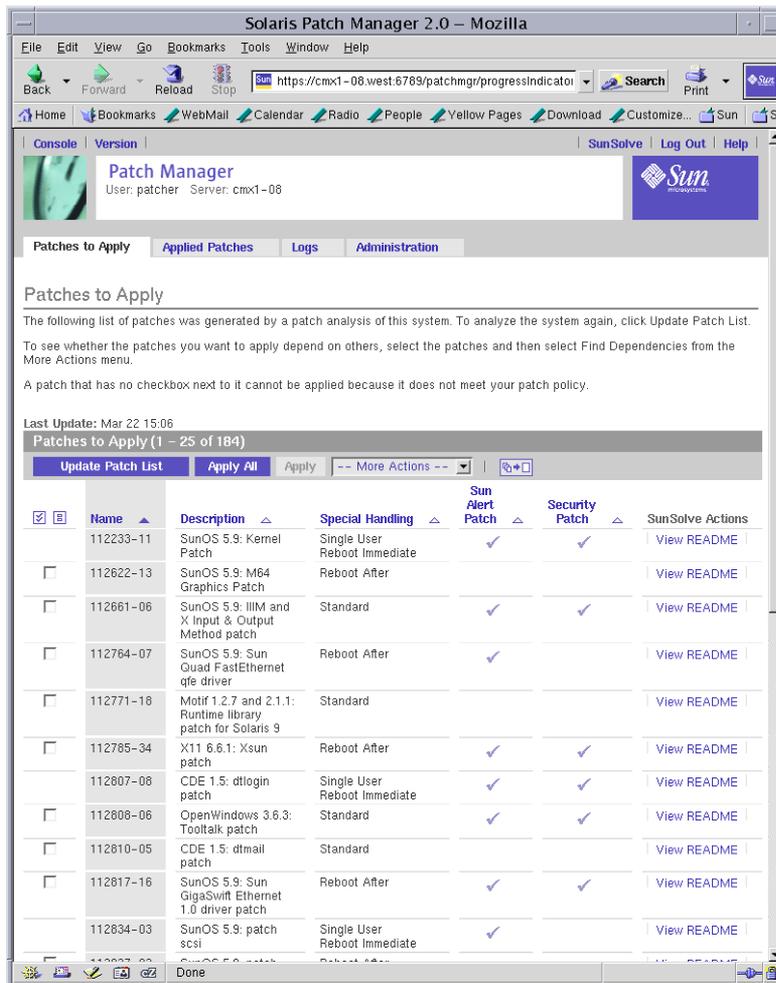
Each patch entry includes the following information:

- **Name** – Identification number for the patch, which is its [patch ID](#).
- **Description** – Synopsis of the patch.
- **Special Handling** – The patch properties listed in this column describe the special handling measures that are required to apply the patch. To apply the special-handling patches by clicking Apply or Apply All, the policy for applying patches must include the appropriate patch properties. See [“How to Change the Policy for Applying Patches \(Web Browser\)”](#) on page 82.
- **Sun Alert Patch** – A checkmark in this column means that the patch is part of the Recommended Patch Cluster, which is associated with [Sun Alert](#) notifications.
- **Security Patch** – A checkmark in this column means that the patch fixes a security problem.
- **SunSolve Actions** – Link to the patch’s README file. Click View README to open a browser window that displays the patch’s README file.

By default, only standard patches and those patches with the `rebootafter` or `reconfigafter` patch properties are applied when you click `Apply` or `Apply All`.

Any patches in the list that do not have a checkbox cannot be applied because they do not meet the current policy for applying patches. To apply such patches, you must change the policy for applying patches.

If all patches are not applied, you can use the `smpatch` command to apply them. For more information, see “How to Apply Patches to Your System (Command Line)” on page 48 and “How to Apply a Nonstandard Patch (Command Line)” on page 50. Also, see the `smpatch(1M)` man page.



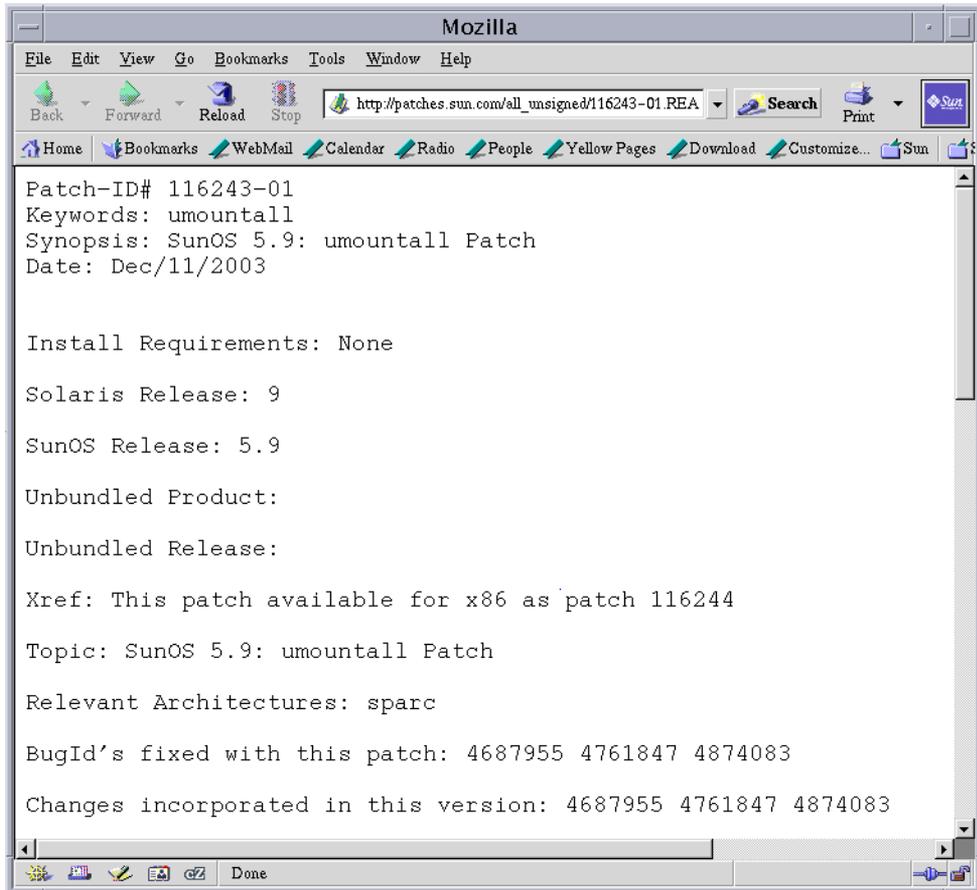
**1 Access the Patch Manager browser interface.**

See “How to Access the Sun Patch Manager Browser Interface (Web Browser)” on page 63.

- 2 Click the Patches to Apply tab to access the Patches to Apply page.**
- 3 Determine whether to perform a patch analysis to obtain the most up-to-date list of patches.**
  - If you are logging in to the browser interface for the first time, the list of patches to apply is empty. You must first analyze the system to determine the list of appropriate patches.

To schedule a periodic patch analysis of your system, see [“How to Schedule a Regular Analysis of Patches \(Web Browser\)”](#) on page 85.
  - If the list of patches appears, check the date of the last analysis to determine whether you want to perform the analysis again to get the most up-to-date list of patches.
- 4 (Optional) Click Update Patch List to perform an analysis.**
- 5 (Optional) When the job in Step 4 completes, click Back to Patches to Apply to view the list of patches to apply.**
- 6 (Optional) Click View README in the SunSolve Actions column to see detailed information about a patch.**

A new browser window opens to show the contents of the patch’s README file.



**7 From the Patches to Apply page, apply the appropriate patches.**

- To apply all of the patches in the list that meet the current policy for applying patches, click Apply All.
- To apply specific patches that meet the current policy for applying patches, select the patches to apply and click Apply.  
 If the patches that you select depend on other patches being applied to the system first, those other patches are added to your selection.

The patches are downloaded and then applied. The progress is indicated on the page.

When the job completes, the following information appears:

- Patches that you selected
- Patches that are added to the selection due to dependencies
- Patches that are successfully downloaded and applied

- Errors that occurred while applying patches

8 Click **Back to Patches to Apply** to return to the **Patches to Apply** page.

## ▼ How to Resolve a List of Patches (Web Browser)

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.

1 Access the **Patch Manager browser interface**.

See [“How to Access the Sun Patch Manager Browser Interface \(Web Browser\)”](#) on page 63.

2 Click the **Patches to Apply** tab to access the **Patches to Apply** page.

3 Select the patches that you want to apply.

4 Choose **Find Dependencies** from the **More Actions** menu to resolve the list of specified patches.

The progress is indicated on the page.

5 When the job completes, click **Back to Patches to Apply** to view the list of patches to apply.

Any patch dependencies are listed in an alert at the top of the page. In addition, those patches are added to the patch selection.

6 Click **Apply** to apply the patches you selected.

### More Information

#### What to Do Next

After the list of patches is resolved, you can update your system with patches. See [“How to Update Your System With Patches \(Web Browser\)”](#) on page 71.

## ▼ How to Remove Patches From Your System (Web Browser)

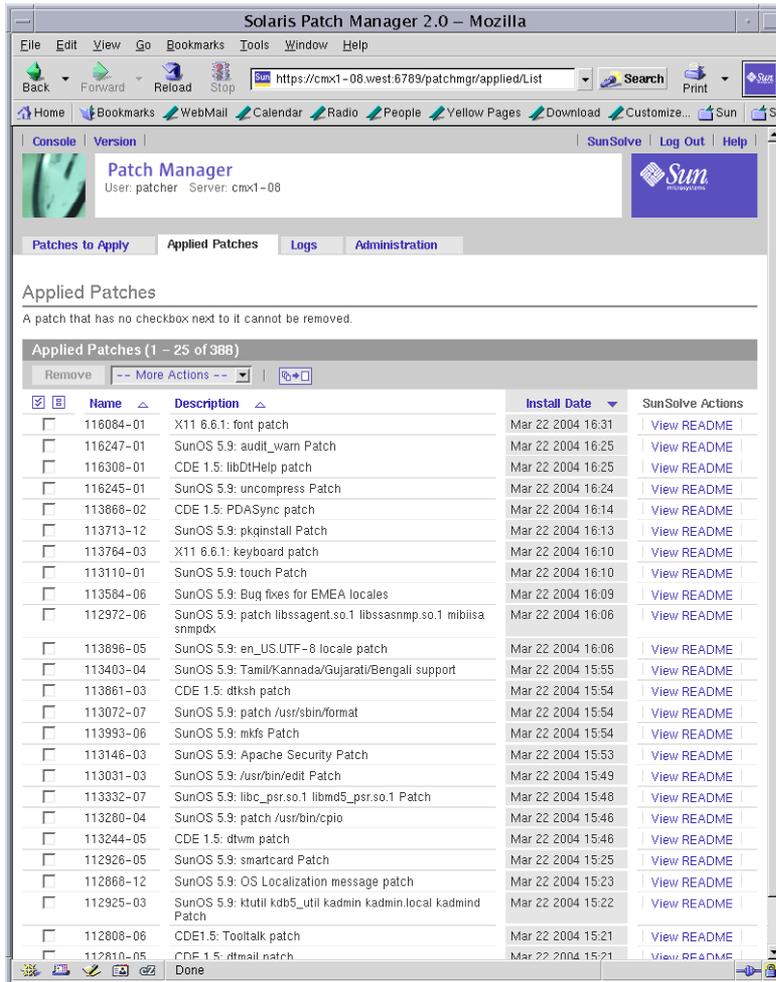


**Caution** – Do *not* remove the Sun Patch Manager 2.0 WBEM patch (117680-01 for x86 and 117679-01 for SPARC) from a system, or Patch Manager will not work properly.

1 Access the **Patch Manager browser interface**.

See [“How to Access the Sun Patch Manager Browser Interface \(Web Browser\)”](#) on page 63.

**2 Click the Applied Patches tab to access the Applied Patches page.**



**3 (Optional) Click the icon next to the More Actions drop-down menu to show all applied patches on a single page.**

**4 Select the checkbox next to the patches that you want to remove.**

Note that some patches cannot be removed by Patch Manager because they were applied as a part of a Solaris release or because they were applied without preserving backout information. If the patch entry does not have a checkbox next to it, you cannot use Patch Manager to remove the patch.

**5 Click Remove to remove the patches you selected.**

The patches are removed. The progress is indicated on the page.

When the job completes, the following information appears:

- Patches that you selected
- Patches that are also removed due to dependencies
- Patches that are successfully removed
- Errors that occurred while removing patches

**6 Click Back to Applied Patches to view the list of applied patches.**

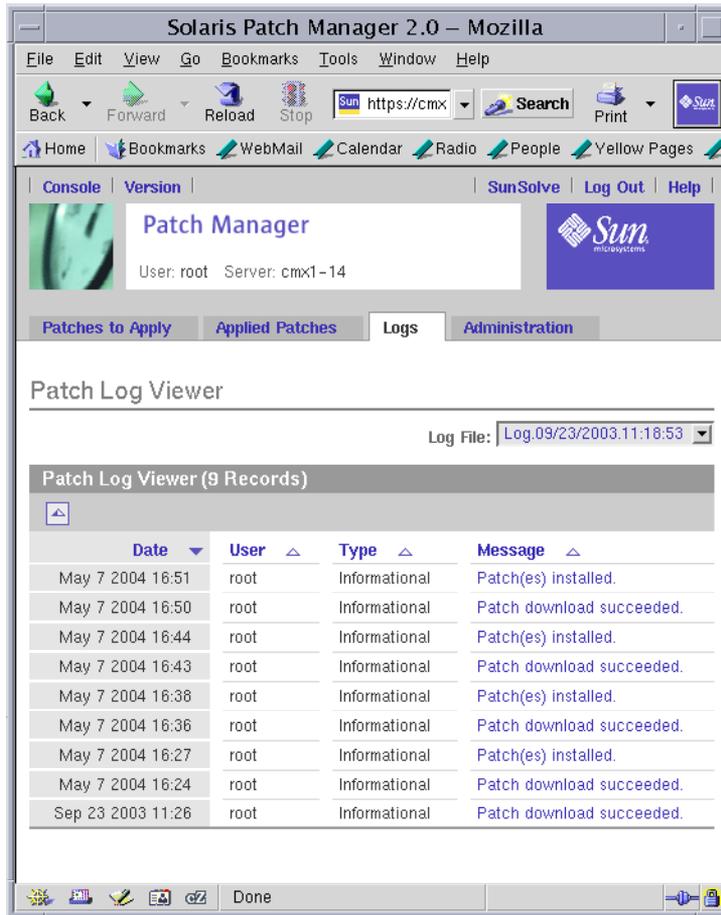
## ▼ How to View Patch Manager Log Entries (Web Browser)

The Patch Manager log entries can help you identify problems with managing patches.

Each log entry contains the following information:

- **Date** – Date and time of the log entry
- **User** – User who performed the operation
- **Type** – Log entry type: Error, Warning, Informational, or Invalid
- **Message** – Text of the log message

Log entries appear in chronological order. The most recent entries are added to the top of the log. To see older entries, scroll down the page or go to subsequent pages of the log.



- 1 **Access the Patch Manager browser interface.**  
See “How to Access the Sun Patch Manager Browser Interface (Web Browser)” on page 63.
- 2 **Click the Logs tab to access the Patch Log Viewer page.**
- 3 **Choose the log file you want to view from the Log File drop-down menu.**
- 4 **Click the link in the Message column to view the log entry details.**

## Tuning Your Patch Management Environment by Using the Browser Interface (Task Map)

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

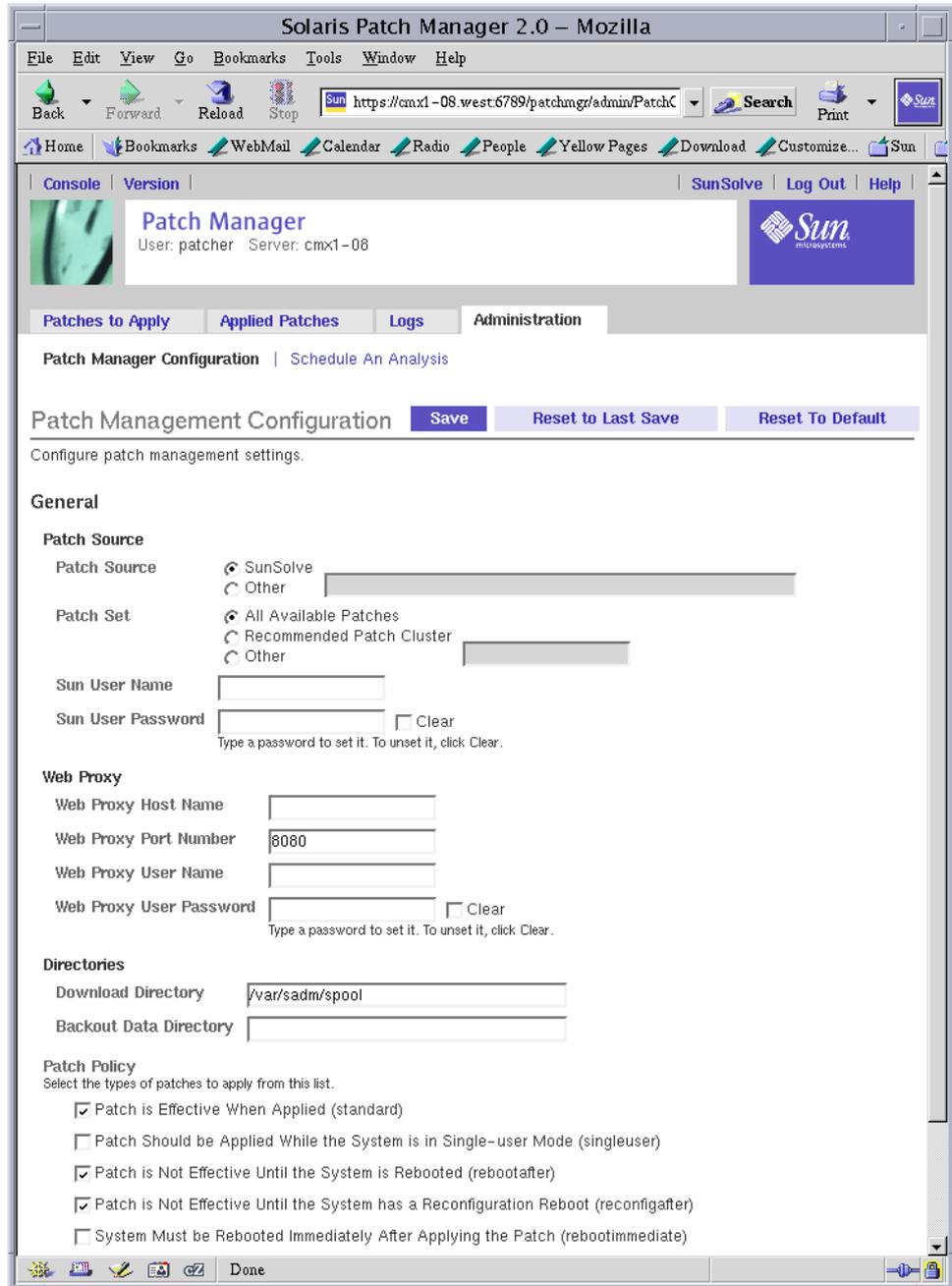
If you want to use the `smpatch` command to tune your patch management environment, see “[Tuning Your Patch Management Environment by Using the Command-Line Interface \(Task Map\)](#)” on page 54.

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.	<a href="#">“How to View the Configuration Settings for Your Patch Management Environment (Web Browser)”</a> on page 80
(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 <code>standard</code> , <code>rebootafter</code> , or <code>reconfigafter</code> properties are applied by an update operation.	<a href="#">“How to Change the Policy for Applying Patches (Web Browser)”</a> on page 82
(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.	<a href="#">“How to Change the Patch Set (Web Browser)”</a> on page 83
(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.	<a href="#">“How to Change Directory Locations (Web Browser)”</a> on page 83
(Optional) Schedule a regular patch analysis to determine the list of appropriate patches.	You might want to analyze your system on a regular basis to determine the list of appropriate patches.  By default, no analysis is scheduled.	<a href="#">“How to Schedule a Regular Analysis of Patches (Web Browser)”</a> on page 85

Task	Description	For Instructions
(Optional) Reset configuration parameters to the default values.	<p>You might want to reset configuration parameters to the default values.</p> <p>Note that some configuration parameters have an empty default value.</p>	<p><a href="#">“How to Reset Configuration Parameter Values (Web Browser)” on page 86</a></p>

## ▼ How to View the Configuration Settings for Your Patch Management Environment (Web Browser)

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



**1 Access the Patch Manager browser interface.**

See “[How to Access the Sun Patch Manager Browser Interface \(Web Browser\)](#)” on page 63.

- 2 **Click the Administration tab to access the Patch Management Configuration page.**  
The current configuration settings appear in the fields of that page.
- 3 **Click the Schedule An Analysis subtab to view those settings.**

## ▼ **How to Change the Policy for Applying Patches (Web Browser)**

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 30.

- 1 **Access the Patch Manager browser interface.**  
See “[How to Access the Sun Patch Manager Browser Interface \(Web Browser\)](#)” on page 63.
- 2 **Click the Administration tab to access the Patch Management Configuration page.**
- 3 **Go to the Patch Policy section.**

### Patch Policy

Select the types of patches to apply from this list.

- Patch is Effective When Applied (standard)
- Patch Should be Applied While the System is in Single-user Mode (singleuser)
- Patch is Not Effective Until the System is Rebooted (rebootafter)
- Patch is Not Effective Until the System has a Reconfiguration Reboot (reconfigafter)
- System Must be Rebooted Immediately After Applying the Patch (rebootimmediate)
- System Must Have a Reconfiguration Reboot Immediately After Applying the Patch (reconfigimmediate)

- 4 **Select the checkbox next to the patch property types that you want to add to the policy.**
- 5 **Click Save.**

## ▼ How to Change the Patch Set (Web Browser)

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 2005, the only patch sets available from Sun are All Available Patches and Recommended Patch Cluster.

### 1 Access the Patch Manager browser interface.

See “[How to Access the Sun Patch Manager Browser Interface \(Web Browser\)](#)” on page 63.

### 2 Click the Administration tab to access the Patch Management Configuration page.

### 3 Go to the Patch Set section under Patch Source.

### 4 Select the patch set to use.

- To base your analysis on all patches, select All Available Patches.
- To base your analysis on recommended patches, select Recommended Patch Cluster.
- To base your analysis on another patch set, select Other and type the name of the patch set in the field.

### 5 Click Save.

### Example 6–3 Changing the Patch Set

This example shows how to specify a Sun-defined patch set other than All Available Patches or Recommended Patch Cluster.

In this example, you specify a fictitious patch set called patchset1.

Patch Set

All Available Patches  
 Recommended Patch Cluster  
 Other

patchset1

## ▼ How to Change Directory Locations (Web Browser)

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.

---

**1 Access the Patch Manager browser interface.**

See “How to Access the Sun Patch Manager Browser Interface (Web Browser)” on page 63.

**2 Click the Administration tab to access the Patch Management Configuration page.**

**3 Go to the Directories section.**

**4 Determine which directory locations you want to change.**

- To change the location of the download directory, where patches are downloaded and from where patches are applied, type the new directory name in the Download Directory field.

For example, you might configure the download directory for a system to be `/export/patches`.

**Directories**

**Download Directory**

- To specify a location for the backout data directory, type the new directory name in the Backout Data Directory field.

For example, you might configure the backout data directory for a system to be `/export/patches/backout`.

**Backout Data Directory**

**5 Click Save.**

## ▼ How to Schedule a Regular Analysis of Patches (Web Browser)

You might want to configure the Patch Manager browser interface to generate an up-to-date list of patches that you can apply each time you access the interface. You do this by scheduling a patch analysis to occur on a regular basis.

- 1 **Access the Patch Manager browser interface.**  
See “[How to Access the Sun Patch Manager Browser Interface \(Web Browser\)](#)” on page 63.
- 2 **Click the Administration tab to access the Patch Management Configuration page.**
- 3 **Click the Schedule An Analysis subtab.**
- 4 **Select Enabled to permit a patch analysis to be run at a regular interval.**  
Select Disabled to disable a scheduled patch analysis.
- 5 **Schedule the analysis.**

---

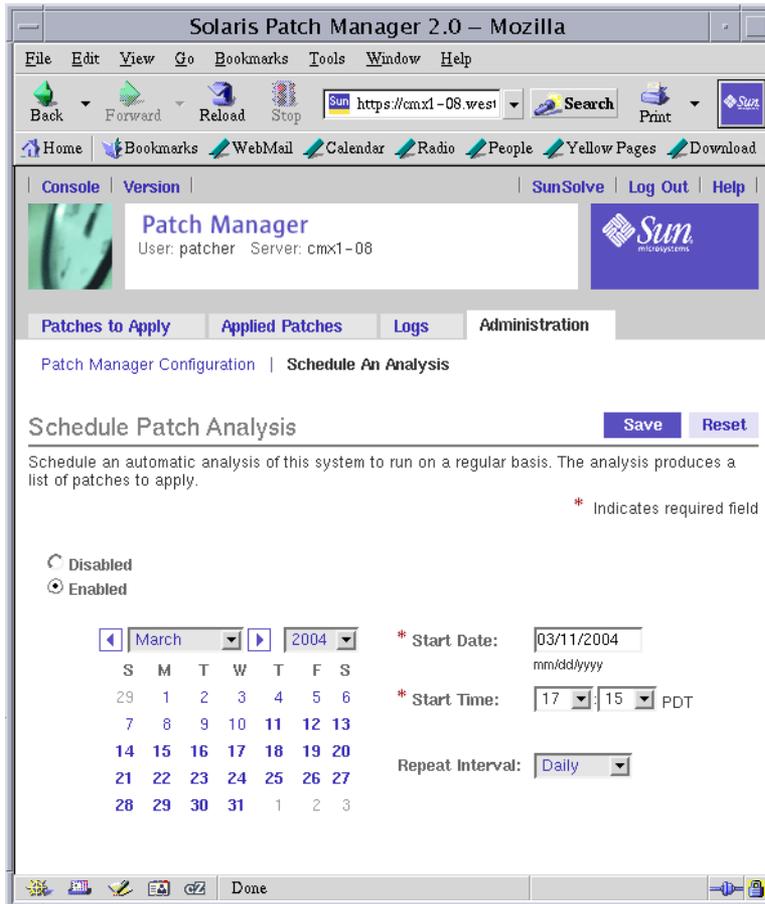
**Note** – The month and year that you specify is only used to determine the day of the week on which to perform a weekly analysis or the day of the month on which to perform a monthly analysis. The analysis is performed when the next interval begins.

---

- a. **Specify the date on which to start the analysis, using one of these methods:**
    - In the Start Date field, type the start date in the form *mm/dd/yyyy*.
    - From the drop-down menus, choose the month and year you want, and click the day of the month in the calendar.
  - b. **From the Start Time drop-down menus, choose the hour and minute of the start time.**
  - c. **From the Repeat Interval drop-down menu, choose the interval in which to perform the analysis.**  
The analysis is performed at the time you specified based on these intervals:
    - **Daily** – At the next occurrence of the time you specified
    - **Weekly** – On the day of the week represented by the date you specified
    - **Monthly** – On the day of the month represented by the date you specified
- 6 **Click Save.**

### Example 6–4 Scheduling a Regular Analysis of Patches

This example shows how to schedule a regular analysis of patches each day at 17:15 Pacific time starting on March 11, 2004.



## ▼ How to Reset Configuration Parameter Values (Web Browser)

The browser interface enables you to reset all parameter values in two ways:

- To the default values
- To the previously saved values

### 1 Access the Patch Manager browser interface.

See “How to Access the Sun Patch Manager Browser Interface (Web Browser)” on page 63.

### 2 Click the Administration tab to access the Patch Management Configuration page.

**3 Reset all of the configuration parameter values for your patch management environment.**

- Click Reset to Default to reset all of the configuration parameters for your patch management environment to the default values.

The default values appear in the parameter fields.

- Click Reset to Last Save to reset all of the configuration parameters for your patch management environment to the previously saved values.

The previously saved values appear in the parameter fields.

**4 Click Save.**



## Configuring Your Local Patch Server (Tasks)

---

This chapter describes how to configure a local patch server on a Solaris 9 system and includes the following task-related information:

- “Configuring Your Local Patch Server (Task Map)” on page 89
- “Configuring Your Local Patch Server” on page 90

---

**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.

---

### Configuring Your Local Patch Server (Task Map)



---

**Caution** – Only a system that runs at least Solaris 9 can be used as a local patch server.

---

The following table identifies the mostly optional tasks that you can perform with the `patchsvr` setup command to configure a patch server on your intranet. See the `patchsvr(1M)` man page.

Task	Description	For Instructions
Configure your local patch server for the first time.	<p>Before you can use your system as a local patch server, you must do the following:</p> <ul style="list-style-type: none"> <li>▪ Verify that the Sun Patch Manager 2.0 software is installed on the system.</li> <li>▪ Optionally change configuration settings, such as specifying a web proxy, for the system.</li> <li>▪ Enable the system to act as a local patch server.</li> <li>▪ Configure client systems to specify your local patch server as the source of patches.</li> </ul>	<a href="#">“How to Initially Configure Your Local Patch Server (Command Line)” on page 92</a>
(Optional) Obtain information about the configuration of your local patch server.	<p>This information can help you diagnose problems or view the configuration settings you specified.</p>	<a href="#">“How to View the Configuration Settings for Your Local Patch Server (Command Line)” on page 95</a>
(Optional) Change the configuration settings of your local patch server.	<p>By default, your local patch server directly connects to the Internet and obtains patches from the Sun patch server.</p> <p>If your patch management environment does not match the default, modify the configuration settings appropriately.</p>	<a href="#">“How to Change Configuration Settings for Your Local Patch Server (Command Line)” on page 95</a>

## Configuring Your Local Patch Server




---

**Caution** – Only a system that runs at least Solaris 9 can be used as a local patch server.

---

Client systems are configured to obtain patches from the Sun patch server by default.

You need a local patch server in the following situations:

- Your client systems are not permitted to connect to the Internet.
- You want to minimize the Internet traffic between your client systems and 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.

---

For additional information about local patch servers, see “Local Patch Server” on page 22.

To configure a local patch server on your intranet and to begin using it to serve client systems, do the following:

1. Configure and start your local patch server.  
See “How to Initially Configure Your Local Patch Server (Command Line)” on page 92.
2. Configure your client system or systems to obtain patches from your local patch server.  
See “How to Specify the Source of Patches (Web Browser)” on page 68 or “How to Specify the Source of Patches (Command Line)” on page 43.

After completing these steps, you are ready to have your client systems obtain patches from your local patch server. See “Managing Patches by Using the Command-Line Interface (Task Map)” on page 44 or “Managing Patches by Using the Browser Interface (Task Map)” on page 70.

## Configuration Requirements

Your local patch server needs to obtain patches and patch data from one of these sources:

- **Patch server** – The patch server can be the Sun patch server or another local patch server in the chain of patch servers. The Sun patch server is the default source of patches.
- **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.

If you would like to obtain a suitable patch CD from Sun, contact your Sun support representative.

After you set up the local patch server, you must configure each of your client systems to communicate with that server. Then you are ready to have your client systems obtain patches from your local patch server.

## Configuring Your Local Patch Server by Using the Command-Line Interface

Use the `patchsvr` command to configure and enable your local patch server. See the `patchsvr(1M)` man page.

## ▼ How to Initially Configure Your Local Patch Server (Command Line)

Before you can use a system as a local patch server, you must ensure that the Sun Patch Manager 2.0 software is installed, configure and start the local patch server, and configure clients to communicate with the local patch server.

A Solaris 9 system with at least the Developer Solaris Software Group (SUNWCdev) installed is suitable to be a patch server on your intranet. You must install Sun Patch Manager 2.0 for Solaris 9.

You can obtain this software from the Sun Download Center at <http://www.sun.com/software/download>.

---

**Note** – If your local patch server uses a web proxy to connect to the Internet, you *must* specify information about the web proxy. See “[How to Change Configuration Settings for Your Local Patch Server \(Command Line\)](#)” on page 95.

---

- 1 As superuser, log in to the system that you plan to use as your local patch server.
- 2 Determine whether the SUNWpsvrr and SUNWpsvru packages are installed on the system.

```
# pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
```

If the packages are not installed, you must install them before continuing this task.

- 3 If needed, specify the web proxy that your local patch server uses to connect to the Internet.

```
# patchsvr setup -x web-proxy-name:port
```

If you do not have the web proxy information, contact your network administrator.

- 4 Specify the patch source.

Your local patch server can point to a different source of patches. This patch source can be used to fulfill patch download requests that cannot be fulfilled by your local patch server. By default, the source of patches for your local patch server is the Sun patch server.

- To specify the next patch server in the chain of local patch servers, type:

```
# patchsvr setup -p http://server-name:3816/solaris/
```

- To specify a collection of patches on the local patch server, type:

```
# patchsvr setup -p file:/directory-name
```

- To specify the Sun patch server, which is the default, type:

```
# patchsvr setup -p https://updateserver.sun.com/solaris/
```

The local collection of patches can be in a directory, on a CD, or on a remote file system.

**5 Start your local patch server.**

```
# patchsvr start
```

**6 (Optional) Enable your local patch server so that it is started each time the system boots.**

```
# patchsvr enable
```

**Example 7-1 Initially Configuring Your Local Patch Server**

Each of these examples verify that the Sun Patch Manager 2.0 software is installed on the system.

- The following example shows how to configure a local patch server to point to another local patch server in a chain. You configure two local patch servers to serve systems in two buildings. You configure `psvr1` to obtain patches from the Sun patch server. Also, `psvr1` communicates with the Internet by using a web proxy. Before you can make the local patch server ready for use, you must specify the host name, `webproxy1`, and the port number, `2010`, of the web proxy. After you configure `psvr1`, you must start it. You can also enable it for automatic restart when the system boots.

```
psvr1 # pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
psvr1 # patchsvr setup -x webproxy1:2010
psvr1 # patchsvr setup -p https://updateserver.sun.com/solaris/
psvr1 # patchsvr start
Starting Local Patch Server
psvr1 # patchsvr enable
```

You configure `psvr2` to obtain patches from `psvr1` by specifying the URL to the server, which is `http://psvr1:3816/solaris/`. After you configure `psvr2`, you must start it. You can also enable it for automatic restart when the system boots.

```
psvr2 # pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
psvr2 # patchsvr setup -p http://psvr1:3816/solaris/
psvr2 # patchsvr start
Starting Local Patch Server
psvr2 # patchsvr enable
```

Now that both of the patch servers are configured and started, configure client systems to use them. See “How to Specify the Source of Patches (Command Line)” on page 43 or “How to Specify the Source of Patches (Web Browser)” on page 68.

- The following example shows how to configure a local patch server to obtain patches from a local collection of patches in the `/export/patches` directory. The URL that points to this directory is `file:/export/patches`. After configuring the local patch server, you must start it. You can also enable it for automatic restart when the system boots.

```
# pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
# patchsvr setup -p file:/export/patches
# patchsvr start
Starting Local Patch Server
# patchsvr enable
```

Now that the patch server is configured and started, configure client systems to use it. See [“How to Specify the Source of Patches \(Command Line\)”](#) on page 43 or [“How to Specify the Source of Patches \(Web Browser\)”](#) on page 68.

- The following example shows how to configure a local patch server to obtain patches from a local collection of patches on a CD mounted from the first CD-ROM drive. The URL that points to this CD is `file:/cdrom/cdrom0`. After configuring the local patch server, you must start it. You can also enable it for automatic restart when the system boots.

```
# pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
# patchsvr setup -p file:/cdrom/cdrom0
# patchsvr start
Starting Local Patch Server
# patchsvr enable
```

Now that the patch server is configured and started, configure client systems to use it. See [“How to Specify the Source of Patches \(Command Line\)”](#) on page 43 or [“How to Specify the Source of Patches \(Web Browser\)”](#) on page 68.

- The following example shows how to configure a local patch server to obtain patches from a collection of patches that is mounted on a remote system. The URL that points to this directory is `/net/mars/export/patches`. After configuring the local patch server, you must start it. You can also enable it for automatic restart when the system boots.

```
# pkginfo | grep SUNWpsvr
system      SUNWpsvrr      Patch Server Deployment (Root)
system      SUNWpsvru      Patch Server Deployment (Usr)
# patchsvr setup -p file:/net/mars/export/patches
# patchsvr start
Starting Local Patch Server
# patchsvr enable
```

Now that the patch server is configured and started, configure client systems to use it. See [“How to Specify the Source of Patches \(Command Line\)”](#) on page 43 or [“How to Specify the Source of Patches \(Web Browser\)”](#) on page 68.

## ▼ How to View the Configuration Settings for Your Local Patch Server (Command Line)

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

The information includes the following:

- **Location of the patch collection** – Source of patches to be checked when the requested patch is not available on the local server.
- **Web proxy information** – Host name and port of a web proxy that is used to communicate with the Internet.
- **Location of the patch cache** – Directory where patches are *cached*.

- 1 Log in to the local patch server as superuser.
- 2 List the configuration settings for your local patch server.

```
# patchsvr setup -l
Patch source URL: https://updateserver.sun.com/solaris/
Cache location: /var/sadm/spool/patchsvr
Web proxy host name: mars
Web proxy port number: 8080
```

## ▼ How to Change Configuration Settings for Your Local Patch Server (Command Line)

If you want to change the configuration settings of your local patch server, you must first stop it. After you change the settings by using the `patchsvr setup` command, you must restart the local patch server.

For information about the configuration settings that you can change, see the `patchsvr(1M)` man page.

- 1 As superuser, log in to the system that you plan to use as your local patch server.
- 2 Stop the local patch server.

```
# patchsvr stop
```

- 3 Change one or more configuration settings, one per command line.

For example, specify a web proxy, *web-proxy-name*, and a port, *port*.

```
# patchsvr setup -x web-proxy-name:port
```

- 4 Start the local patch server.

```
# patchsvr start
```

**Example 7-2** Changing Configuration Settings for Your Local Patch Server

This example shows how to change some configuration settings for your local patch server. The local patch server communicates with the Internet by using a web proxy. First, you stop the local patch server, then specify the host name, `webproxy1`, and the port number, `2010`, of the web proxy.

Next, you specify the next local patch server in the chain. You configure two local patch servers to serve systems in two buildings. The `psvr1` server obtains patches from the Sun patch server. The second server, `psvr2`, obtains patches from `psvr1`. You configure `psvr2` to obtain patches from `psvr1` by specifying the URL to the server, which is `http://psvr1:3816/solaris/`.

```
# patchsvr stop
Shutting down Local Patch Server
# patchsvr setup -x webproxy1:2010
# patchsvr setup -p http://psvr1:3816/solaris/
# patchsvr start
Starting Local Patch Server
```

## 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.

This appendix is divided into these topics:

- “General Errors” on page 97
- “Browser Interface Errors” on page 99
- “Local Patch Server Errors” on page 100

Additional troubleshooting information about Sun Patch Manager 2.0 might appear in the *Sun Patch Manager 2.0 Release Notes for the Solaris 9 Operating System*.

### General Errors

#### 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.

## Solaris WBEM Services Are Unavailable When Using `smpatch` in Remote Mode

- Description: When running `smpatch` in remote mode or trying to restart the Solaris WBEM services, the following error messages appear:

```
# smpatch analyze -u root
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default
denoted by [ ]
Please enter a string value for: password :: root-password
There is no Solaris Management Console Server running on
pserver2.
# /etc/init.d/init.wbem status
Solaris Management Console server not running on port 898.
# /etc/init.d/init.wbem start
# /etc/init.d/init.wbem status
Solaris Management Console server not running on port 898.
```

- Workaround: Manually stop the Solaris WBEM services before restarting them.

```
# /etc/init.d/init.wbem stop
# /etc/init.d/init.wbem start
# /etc/init.d/init.wbem status
Solaris Management Console server version 2.1.0 running on
port 898.
```

---

## Browser Interface Errors

---

**Note** – The browser interface that was originally released with the Sun Patch Manager 2.0 product for Solaris 9 systems has been withdrawn.

The Patch Manager product will be replaced by the new Sun Update Manager product.

---

### Typing the Patch Manager URL Produces an Error Page

**Description:** You type the correct URL for the Patch Manager application, and an error page appears.

**Workaround:** Verify that the Sun Web Console is running. If it is not running, start it.

```
# /usr/sbin/smcwebserver start
```

### Typing the Patch Manager URL Produces a Blank Page

**Description:** You type the URL for the Patch Manager application, and a blank page appears.

**Cause:** The URL you typed needs to use `https` instead of `http`.

**Workaround:** Correct the URL by using `https`.

### Cannot Access the Patch Manager Application From the Sun Web Console

**Description:** You log in to the Sun Web Console, but you cannot access the Patch Manager application.

**Workaround:** Verify that the user or role that you used to log in has the `solaris.admin.patchmgr.*`, `solaris.jobs.admin`, and `solaris.compsys.write` RBAC privileges.

### RMI Error When Navigating the Patch Manager Application

**Description:** While navigating the Patch Manager application, you see an RMI error.

Workaround: Verify that the Solaris Management Console server is running. If it is not, start it and log in to the console again.

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

## Local Patch Server Errors

### CannotConnectException **Error Returned for HTTP 500**

Description: The following error message appears when you run the `smpatch analyze` in remote mode against a local patch server:

```
# smpatch analyze -u root
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default
denoted by [ ]
Please enter a string value for: password :: root-password
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from
pserver-2
Login to pserver-2 as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from
pserver-2 was successful.
Assessing patches for machine pserver-2. Please wait...
Patch analysis failed.
com.sun.patchpro.util.CannotConnectException:
Cannot connect to retrieve patchprodb.zip: Server returned
HTTP response code: 500 for URL:
http://pserver-1:3816/solaris/.
```

Cause: You might see this error message if one of the following situations occur:

- One of the servers in the local patch server chain is down.
- The web proxy of the local patch server is not configured to reach the Internet.
- The local patch server is pointing to a bad patch source.

Workaround: Address these issues by doing the following:

- If one of the local patch servers in the chain is down, log in to that patch server and restart the web services.

```
# patchsvr stop
Shutting down Local Patch Server
# patchsvr start
Starting Local Patch Server
```

- If the web proxy is not configured to reach the Internet, ensure that the host name of the web proxy and the port number are correctly specified.

```
# patchsvr stop
Shutting down Local Patch Server
# patchsvr setup -x web-proxy-host:port
# patchsvr start
Starting Local Patch Server
```

- If the specified patch source is bad, check the value.

```
# patchsvr setup -l
```

- If the value is correct, see if one of the other two problems is the cause of the analysis failure. A valid patch source is a URL that begins with the `http://` or `file://` notation. The URL of a local patch server must terminate with a slash, such as `http://patchserver:3816/solaris/`.
- If the value is incorrect, correct the patch source value.

```
# patchsvr setup -p patch-source-url
```

## Cannot Download Patches From a Patch CD Mounted on a Local Patch Server

**Description:** You configure a local patch server to obtain patches from a CD mounted on the local patch server. When you attempt to download patches from the CD, you see the following error message:

```
Downloading the recommended patches for machine
host-name. Please wait...
Could not download patch. Error occurred while processing
the download for this patch, patch-id,
into /var/sadm/spool directory.
Error: No such file or directory.
```

**Workaround:** Ensure that Solaris Volume Manager is running properly on the local patch server. If it is not, type:

```
# /etc/init.d/volmgt stop
# /etc/init.d/volmgt start
# smpatch download
```

## Local Patch Server Ignores Your Configuration Changes

**Description:** You attempt to change the configuration settings of your local patch server, but the changes are not reflected.

**Workaround:** Stop and restart the local patch server.

```
# patchsvr stop
Shutting down Local Patch Server
# patchsvr start
Starting Local Patch Server
```

## Local Patch Server Does Not Work Properly

**Description:** You encounter other problems while using a patch management environment with one or more local patch servers.

**Workaround:** Do the following:

1. Verify that the client system's configuration settings are correct.

```
# smpatch get
```

2. Verify that the local patch server's configuration settings are correct.

```
# patchsvr setup -l
```

3. View the `/var/patchsvr/logs/catalina.out` and `/var/patchsvr/logs/localhost_log.date.txt` log files on the local patch server.
4. View the system log file `/var/adm/messages` on the client system.
5. Run the `snoop` command on the client system or on the local patch server to see if the data is being downloaded from the local patch server to the client.

# Glossary

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The following terms are used throughout this book.

<b>analyze</b>	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.
<b>apply</b>	To install a patch on a system.
<b>back out</b>	To remove a patch from a system.
<b>backout data</b>	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).
<b>backout directory</b>	Directory in which backout data is stored. By default, this is the save directory of each package that was installed by the patch.
<b>caching</b>	The ability of a server in a chain of patch servers to store a patch that has been downloaded to it from another server.
<b>dependency</b>	See <a href="#">patch dependency</a> .
<b>digital signature</b>	An electronic signature that can be used to ensure that a document has not been modified since the signature was applied.
<b>download</b>	To copy one or more patches from a source of patches, such as a local patch server or the Sun patch server, to the system where the patches are to be applied.
<b>download directory</b>	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 <code>/var/sadm/spool</code> .
<b>keystore</b>	A repository of certificates and keys that is queried when you attempt to apply a signed patch.
<b>local mode</b>	A mode available for the <code>smpatch</code> 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.

<b>local patch server</b>	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.
<b>nonstandard patch</b>	A patch that is associated with the <code>interactive</code> property, with one or more of the <code>rebootafter</code> , <code>rebootimmediate</code> , <code>reconfigafter</code> , <code>reconfigimmediate</code> , and <code>singleuser</code> properties, or a patch that cannot be applied by running the usual patch management tools.
<b>order</b>	To sort a set of patches in an order suitable for applying patches.
<b>package</b>	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.
<b>patch</b>	An update to software that corrects an existing problem or that introduces a feature.
<b>patch analysis</b>	A method of checking a system to determine which patches are appropriate for the system.
<b>patch dependency</b>	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.
<b>patch ID</b>	A unique alphanumeric string, with the patch base code first, a hyphen, and a number that represents the patch revision number.
<b>patch incompatibility</b>	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.
<b>patch list</b>	<p>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.</p> <p>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.</p>
<b>patch management process</b>	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.
<b>patch obsolescence</b>	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.
<b>patch server</b>	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 <i>local patch server</i> .

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<b>PatchPro</b>	A product developed by Sun Network Storage to provide automated patch management technology, which is used by Sun Patch Manager.
<b>policy for applying patches</b>	A user-configurable policy that specifies the types of patches that can be applied during an update of your system.
<b>remote mode</b>	A mode available for the <code>smpatch</code> command, which can be run on a local system to update another system with patches. This mode can only be used while the system is in multiuser mode.
<b>resolve</b>	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.
<b>signed patch</b>	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.
<b>standard patch</b>	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 <code>standard patch</code> property.
<b>SunAlert</b>	A notification to customers of a known product issue that might negatively impact customers' computing environments or productivity. A problem that warrants a Sun Alert notification meets the criteria for issues that are related to at least one of these concerns: availability, security, and data loss.
<b>SunSolve Online</b>	The Sun Microsystems web site that provides access to patch data. Patch Manager uses the data to perform patch analyses of your systems. See <a href="http://sunsolve.sun.com">http://sunsolve.sun.com</a> .
<b>unsigned patch</b>	A patch that is not signed with a digital signature.
<b>update</b>	To perform the steps necessary to apply patches to a system. The system is analyzed, and the patches are downloaded and then applied.
<b>web proxy</b>	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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