# Signed Patches Administration Guide for PatchPro 2.2

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# Contents

# Preface

The *Signed Patches Administration Guide for PatchPro 2.2* provides an overview and step-by-step instructions for managing signed patches in the Solaris™ 2.6, Solaris 7, Solaris 8, and Solaris 9 releases.

## How This Book Is Organized

The following topics are covered in this guide:

Chapter 1 provides an overview of managing signed patches for Solaris systems.

Chapter 2 provides step-by-step instructions for managing signed patches by using Solaris patch management tools.

Appendix A contains procedures for managing signed patches by using Java™ technology-based tools (Java tools) or Netscape™ technology-based tools (Netscape tools) instead of the Solaris patch management tools.

## Related Books

The *System Administration Guide: Basic Administration* provides general information about managing patches for Solaris systems.

# Accessing Sun Documentation Online

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

This software is accompanied by documentation, which you can access from the `Docs` directory in the product tar file. You can also access the man pages by using the `man` command.

# Ordering Sun Documentation

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

# Typographic Conventions

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

**TABLE P–1** Typographic Conventions

| Typeface or Symbol | Meaning | Example |
|---|---|---|
| `AaBbCc123` | The names of commands, files, and directories; on-screen computer output | Edit your `.login` file.<br>Use `ls -a` to list all files.<br>`machine_name% you have mail.` |
| **`AaBbCc123`** | What you type, contrasted with on-screen computer output | `machine_name%` **`su`**<br>`Password:` |
| *AaBbCc123* | Command-line placeholder: replace with a real name or value | To delete a file, type `rm` *filename*. |

**TABLE P–1** Typographic Conventions *(Continued)*

| Typeface or Symbol | Meaning | Example |
|---|---|---|
| *AaBbCc123* | Book titles, new words, or new terms. | Read Chapter 6 in the *User's Guide*.<br>These are called *class* options. |
| *AaBbCc123* | Words to be emphasized. | Do *not* save changes yet. |

# Shell Prompts in Command Examples

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

**TABLE P–2** Shell Prompts

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

CHAPTER 1

# Managing Signed Patches (Overview)

This chapter provides overview information for using signed patches with Solaris systems. This chapter contains the following overview information:



For instructions on using Solaris patch management tools to manage signed patches, see Chapter 2. For instructions on using signed patches without Solaris patch management tools, see Appendix A.

## Overview of Signed Patches

Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 patches provided by Sun Microsystems include a digital signature. Patches with this digital signature are called *signed patches*.

A signed patch offers greater security than an unsigned patch. The digital signature on the patch can be 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.

Signed patches are stored in Java Archive (JAR) format files. Both signed patches and unsigned patches are available from the SunSolve Online$^{SM}$ Web site at `http://sunsolve.sun.com`. Follow the Patchfinder link and specify the patches that you want to download. You can download signed or unsigned patches.

Signed patches can be managed with or without Solaris patch management tools. For overview information about patch management tools, see "Solaris Patch Management Tools for Signed Patches" on page 11. For information about managing signed patches without using Solaris patch management tools, see Appendix A.

# Sun Certificates That Verify Signed Patches

Digital certificates, issued and authenticated by Sun Microsystems, are used to verify that the downloaded patch archive with the digital signature has not been compromised.

## Sun PKI Registration Authorities

The Sun™ Public Key Infrastructure (Sun PKI) architecture is designed with one top-level certificate and a subordinate certificate authority (CA). The top-level certificate is called the Root CA. The subordinate CA is called the Sun Microsystems, Inc. CA (Class B) certificate. An additional certificate, the patch signing certificate, is issued by Sun Enterprise™ Services and verifies the digital signatures on signed patches.

Sun certificates are issued by Baltimore Technologies, who recently bought GTE CyberTrust.

The Sun Root CA and the Sun Class B CA are available from `http://www.sun.com/pki/ca`. The patch signing certificate is included in the `SUNWppro` package.

These three certificates provide a *certificate chain* of trust in the patch verification process. The Sun Root CA certifies the Class B CA, and the Class B CA certifies the patch signing certificate. And ultimately, the GTE CyberTrust CA certifies the Sun Root CA.

A *certification authority* certifies the relationship between public keys and the owner of the public keys. The public keys are used to validate the digital signature that is found in the patch JAR file.

The Sun CA process means that the following statements are true:

- Sun has issued and authenticated the digital certificates.
- The public keys in the certificates are paired with a private key that is held by Sun.
- These certificates can be used for business purposes only. The certificates can be revoked or suspended if the certificate user violates Sun's certificate policy.

For information about Sun's certificate policy, see `http://www.sun.com/pki/cps.html`.

## Revoked Sun Certificates

If the Sun Root or Class B certificates are stolen or lost, the certificates are revoked. A revoked certificate list is posted at `http://www.sun.com/pki/ca/pkismica.crl.html`.

View this site occasionally to verify that your imported certificates are still valid. If your imported certificates are revoked, remove them from your keystore and import replacement certificates.

If the patch signing certificate is revoked, the existing signed patches on the SunSolve Online site will be replaced by patches that have a new digital signature.

# Solaris Patch Management Tools for Signed Patches

You use the `smpatch` command with Solaris Patch Manager Base 1.0.1 to manage signed patches on systems that run the Solaris 2.6, Solaris 7, and Solaris 8 releases. You use the `smpatch` command with PatchPro 2.2 to manage signed patches on systems that run the Solaris 9 release.

Both Solaris patch management tools for signed patches provide the following capabilities:

- Analyzing patch requirements and downloading signed patches for the local system only.
- Applying one or more signed patches in JAR format. They also authenticate the patch or patches to be applied.
- **Solaris 9 GUI only –** Removing one or more patches. Patch dependencies are checked beforehand.
- Enabling you to set up a default policy for applying patches of various types, such as `rebootafter` and `standard`.

---

**Note –** You can still use the `patchadd` command to apply *unsigned* patches to systems that run the Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 releases.

You *cannot* use Patch Manager Base 1.0.1 to apply unsigned patches to Solaris 2.6, Solaris 7, or Solaris 8 systems. However, you can use `smpatch add` to apply unsigned patches to Solaris 9 systems.

---

# Manual and Automatic Application of Patches

Patches are classified as standard patches or nonstandard patches. The Solaris patch management tools can apply patches in two modes: automatic mode and manual mode. In *automatic mode*, only standard patches can be applied on a regularly scheduled basis. In *manual mode*, all standard patches and most nonstandard patches can be applied from the command line.

A *standard patch* is one that is safe to apply and can be applied while the system is in multiuser mode. The effects of the patch are visible as soon as it is applied unless the application being patched is running while the patch is applied. In this case, the effects of the patch are visible after the affected application is restarted. A standard patch is associated with the `standard` property and can be applied in automatic mode.

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

- A patch that is associated with the `interactive` property.
- A patch that is associated with the `rebootafter`, `rebootimmediate`, `reconfigafter`, `reconfigimmediate`, or `singleuser` properties. This nonstandard patch can be applied in manual mode.
- A patch that cannot be applied by running the patch management tools, but must be applied by following the instructions in the patch's README file.

Two options are available for applying patches in automatic mode:

- **Standard patches only –** Only standard patches are downloaded to the patch directory and applied. A *standard patch* is one that does not require any special actions on the part of the user. A standard patch also does not require a reboot for the patch to take effect.

  Specify this policy by using the `pprosetup -p standard` command.
- **No patches –** No patches are downloaded to the patch directory or applied. This option is the default.

  Specify this policy by using the `pprosetup -p none` command.

Most nonstandard patches can only be applied in manual mode. You can specify the patch policy for manual mode by using this command:

```
# pprosetup -i patch-property-list
```

*patch-property-list* is one or more of the following patch properties: `interactive`, `rebootafter`, `rebootimmediate`, `reconfigafter`, `reconfigimmediate`, `singleuser`, and `standard`. For descriptions of the patch properties, see the `pprosetup`(1M) man page.

A number of patches cannot be applied by PatchPro 2.2 or by Patch Manager Base 1.0.1 under any circumstances. For instance, nonconforming patches cannot be applied by using the `smpatch`, `pprosvc`, or `patchadd` command. Nonconforming patches must be extracted manually and applied by following the instructions in the patch's README file.

# Solaris Patch Manager Base 1.0.1 Limitations

The patch management tool for Solaris 2.6, Solaris 7, and Solaris 8 has some limitations. You cannot apply signed patches in the following cases:

- When applying signed patches to an alternate boot environment or to a diskless client
- When automatically applying a signed patch that has the `rebootimmediate`, `reconfigimmediate`, or `nonconforming` patch property

# Software Requirements for the Solaris Patch Management Tools

Certain Solaris packages must be installed on your system before you install the Solaris patch management tools for signed patches.

- **For Solaris 2.6, Solaris 7, or Solaris 8 –** Your system requires a minimal system configuration plus some additional packages. All the required packages are available from the End User cluster (`SUNWCuser`).
- **For Solaris 9 –** You must have at least the Developer cluster (`SUNWCprog`) installed.

The following table shows the Solaris cluster and package requirements for running the Solaris patch management tools. Notice that when only a Solaris cluster is listed, the required packages are included in that cluster.

| Solaris Version | Required Clusters and Packages |
|---|---|
| Solaris 2.6 | One of the following is required:<br>■ Core System (`SUNWCreq`) plus `SUNWadmc`, `SUNWadmfw`, `SUNWmfrun`, `SUNWlibC`, and `SUNWxcu4`<br>■ End User System (`SUNWCuser`)<br>■ Developer System (`SUNWCprog`)<br>■ Entire Distribution (`SUNWCall`)<br>■ Entire Distribution Plus OEM Support (`SUNWCXall`) |
| Solaris 7 or Solaris 8 | One of the following is required:<br>■ Core System (`SUNWCreq`) plus `SUNWadmc`, `SUNWadmfw`, `SUNWmfrun`, and `SUNWlibC`<br>■ End User System (`SUNWCuser`)<br>■ Developer System (`SUNWCprog`)<br>■ Entire Distribution (`SUNWCall`)<br>■ Entire Distribution Plus OEM Support (`SUNWCXall`) |

| Solaris Version | Required Clusters and Packages |
|---|---|
| Solaris 9 | One of the following is required:<br>■ Developer System (`SUNWCprog`)<br>■ Entire Distribution (`SUNWCall`)<br>■ Entire Distribution Plus OEM Support (`SUNWCXall`) |

For information about verifying whether the required Solaris packages are installed on your system, see "How to Verify Package Requirements for Patch Management Tools" on page 20.

# Summary of Solaris Patch Management Features

| Feature | `patchadd` and `patchrm` Commands | Patch Check | PatchPro Interactive or PatchPro Expert | Solaris 2.6, Solaris 7, and Solaris 8 Patch Management Tool | Solaris 9 Patch Management Tool |
|---|---|---|---|---|---|
| How do I get this tool? | Included in Solaris release (`SUNWswmt`) | SunSolve Online site | Run tool from PatchPro Web site[1] | Download Solaris Patch Manager Base 1.0.1 from PatchPro Web site[1] | Download PatchPro 2.2 from PatchPro Web site[1] |
| Solaris release availability | Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 | Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 | Solaris 2.6, Solaris 7, Solaris 8, and Solaris 9 | Solaris 2.6, Solaris 7, and Solaris 8 | Solaris 9 |
| Applies signed patches? | Yes[2] | No | No | Yes, and automatically verifies the signed patch when it is downloaded | Yes, and automatically verifies the signed patch when it is downloaded |
| Applies unsigned patches? | Yes | Yes | No | No | Yes |
| GUI available? | No | No | No | No | Yes |
| Analyzes system for recommended patches, and downloads patches | No | Yes, unsigned patches only | Yes, unsigned patches only | Yes, signed patches only | Yes, signed patches only |
| Local and remote system patch support | Local | Local | No | Local | Local and remote |
| RBAC support? | No | No | No | No | Yes |

[1] The PatchPro Web site is `http://www.sun.com/PatchPro`.

[2] You can unpack a signed patch and then apply it to your system by using the `patchadd` command. However, in this case, the digital signature is lost. For information about manually verifying a signed patch and then applying it with the `patchadd` command, see "How to Verify a Signed Patch (`jarsigner`)" on page 48 or "How to Verify a Signed Patch (`signtool`)" on page 55.

CHAPTER 2

# Managing Signed Patches by Using Solaris Patch Management Tools (Tasks)

This chapter provides instructions for managing signed patches by using Solaris patch management tools. See these sections:



For information about how to manage signed patches without Solaris patch management tools, see Appendix A.

See Chapter 1 for overview information about using signed patches. For information about troubleshooting problems with the patch management tools, see the *Signed Patches Release Notes for PatchPro 2.2*.

## Using Solaris Patch Management Tools

Patch Manager Base 1.0.1 and PatchPro 2.2 are tools that manage signed patches on Solaris systems. Patch Manager Base 1.0.1 runs on Solaris 2.6, Solaris 7, and Solaris 8 systems. PatchPro 2.2 runs on Solaris 9 systems. These tools also run on both SPARC™ and x86 hardware.

By using the patch management tools, you can do the following:

- Analyze a Solaris system to determine the recommended patches.

If your system includes hardware products from Sun Network Storage, the patch management tools can recommend firmware patches associated with that hardware. You might need to identify that hardware manually. See "How to Identify the Hardware on Your System" on page 30.

- Download the recommended patches from Sun to a local system.
- Apply the recommended patches to a local system.
- Remove patches from a local system.

# Solaris Patch Management Tool Caveats

Be aware of these key points when using the Solaris patch management tools:

- **For Solaris 2.6, Solaris 7, or Solaris 8 only –** If you have a previous version of the PatchPro software on your system, the older version will be upgraded when Solaris Patch Manager Base 1.0.1 is installed.
- The digital signature for signed patches is verified when the patches are downloaded with the `smpatch download` command.

  However, on a Solaris 9 system, no patch signature validation message is displayed during the patch download, even if the patch signature is successfully verified. If the patch signature verification fails, you will know because the patch is not downloaded to your system.
- **For Solaris 9 only –** The `smpatch` command prompts you for authentication information if you do not specify the information in the command line.

  For example, you can specify authentication information to the `smpatch` command using the following syntax:

  ```
  # smpatch add -p mypassword -u root -- -i patch-ID
  ```

  The `smpatch` subcommands are separated from the authentication options and arguments by `--`. The `smpatch` subcommands are `add`, `analyze`, `download`, `remove`, and `update`. Support for the `update` subcommand began with the Solaris 9 4/03 release.

  Or, you can let the `smpatch` command prompt you for the authentication information.

  ```
  # /usr/sadm/bin/smpatch add -i patch-ID
  Authenticating as user: root

  Type /? for help, pressing <enter> accepts the default denoted by [ ]
  Please enter a string value for: password ::
  Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
  Login to starbug as user root was successful.
  Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
  ```

`successful.`

- Use the `/opt/SUNWppro/bin/uninstallpatchpro` script if you need to uninstall PatchPro 2.2.

# Downloading and Installing the Patch Management Tools (Task Map)

Use this task map to identify the tasks that must be completed before you can apply signed patches to your system. Notice that you can install or upgrade a patch management tool in interactive mode or in non-interactive mode. Perform the tasks in the order shown.

| Task | Description | For Instructions |
|---|---|---|
| 1. Verify Solaris package requirements. | Verify that the required Solaris packages are installed on your system to support the patch management tools. | See "How to Verify Package Requirements for Patch Management Tools" on page 20. |
| 2. Download the software for the Solaris patch management tool. | Select a Solaris patch management tool based on your Solaris release. | See "How to Download the Patch Management Tools From SunSolve Online" on page 21. |
| 3. Install or upgrade the patch management tool. | Install the patch management tool in interactive mode or in non-interactive mode.<br>Upgrade from PatchPro 2.1 to PatchPro 2.2 in interactive mode or in non-interactive mode. | See "How to Install and Configure the Patch Management Tool in Interactive Mode" on page 22 or "How to Install the Patch Management Tool in Non-Interactive Mode" on page 24.<br>See "How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Interactive Mode" on page 25 or "How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Non-Interactive Mode" on page 27. |

| Task | Description | For Instructions |
|---|---|---|
| 4. *Non-interactive mode only* – Set up your patch management environment. | Set up your system for applying signed patches. | See "How to Set Up Your Patch Management Environment After a Non-Interactive Installation or Upgrade" on page 28. |
| 5. (Optional) Identify the hardware on your system. | Identify the hardware from Sun Network Storage that is on your system so that your patch management tool can determine appropriate patches for this hardware. | See "How to Identify the Hardware on Your System" on page 30. |
| 6. (Optional) Specify the policy to use for applying patches. | Specify the types of patches to apply to your system in manual mode. | See "How to Identify the Types of Patches to Apply to Your System" on page 31. |
| 7. (Optional) Configure your patch management environment to access contract patches. | Configure your patch management environment to access contract patches. These patches are available to you if you have a Sun service contract. | See "How to Configure Your System to Access Contract Patches" on page 31. |
| 8. (Optional) Uninstall the patch management tool. | Uninstall the patch management tool from your system. | See "How to Uninstall the Patch Management Tool" on page 32. |

## ▼ How to Verify Package Requirements for Patch Management Tools

1. **Verify that the appropriate Solaris cluster and Solaris packages are installed on your system.**

   - For the Solaris 2.6 release, verify that these packages are present:

     ```
     # pkginfo | grep SUNWmfrun
     system      SUNWmfrun      Motif RunTime Kit
     # pkginfo | grep SUNWlibC
     system      SUNWlibC       Sun Workshop Compilers Bundled libC
     # pkginfo | grep SUNWxcu4
     system      SUNWxcu4       XCU4 Utilities
     ```

   - For the Solaris 7 or Solaris 8 release, verify that these packages are present:

     ```
     # pkginfo | grep SUNWmfrun
     system      SUNWmfrun      Motif RunTime Kit
     # pkginfo | grep SUNWlibC
     system      SUNWlibC       Sun Workshop Compilers Bundled libC
     ```

- For the Solaris 9 release, verify that one of these Solaris clusters is present by checking the `/var/sadm/system/admin/CLUSTER` file:
  - `SUNWCprog`
  - `SUNWCall`
  - `SUNWCXall`

2. **If the `pkginfo` commands do not return any output, you must install the required packages.**

## ▼ How to Download the Patch Management Tools From SunSolve Online

The Solaris patch management tools are available for both the SPARC and x86 platforms.

1. **Go to `http://www.sun.com/PatchPro`.**
2. **To begin the download process, go to the section that describes Patch Manager and click the download link.**

   The binary code license agreement appears.
3. **Agree to the terms of the binary code license agreement.**
   - To accept the license agreement, click Agree.

     The Patch Manager download page appears.
   - To reject the license agreement, click Cancel.

     You are not permitted to download the software.
4. **Identify the Solaris version and platform of your local system to get the appropriate patch management tool.**

   a. **Determine which version of Solaris you need:**
      - Solaris 2.6
      - Solaris 7
      - Solaris 8
      - Solaris 9

   b. **Click the README link associated with the Solaris version you chose to get information about installing the patch management tool.**

   c. **Click the platform link associated with the version of Solaris that this tool supports.**
      - Click SPARC to download the SPARC version of the patch management tool.
      - Click x86 to download the x86 version of the patch management tool.

5. **Choose a directory on your local system in which to download and extract the tool.**

   For example, you might create a directory called `/export/download/patchpro`.

   Ensure that this directory can be written by superuser.

6. **Download the software tar file to that directory.**

   The software you selected is downloaded.

7. **Become superuser.**

8. **Change to the directory in which you downloaded the tar file.**

   ```
   # cd /export/download/patchpro
   ```

9. **Extract the patch management tool from the tar file.**

   - If you are downloading the tar file for Solaris 2.6 or Solaris 7, the tar file is compressed.

     ```
     # zcat pproSunOSsparc5.6jre2.2.tar.Z | tar xvf -
     ```

   - If you are downloading the tar file for Solaris 8 or Solaris 9, the tar file is in zip format.

     ```
     # gunzip -dc pproSunOSx865.9jre2.2.tar.gz | tar xvf -
     ```

   The name of the tar file indicates the operating system type, platform, and operating system version:

   ppro<*OS*><*platform*><*OS version*>jre2.2.tar

   For example, `pproSunOSsparc5.8jre2.2.tar` is the tar file that contains the patch management tool for the SPARC version of Solaris 8 (SunOS™ 5.8). `pproSunOSx865.9jre2.2.tar` is the tar file that contains the patch management tool for the x86 version of Solaris 9 (SunOS 5.9).

Now, you can install and configure the tool on your system. See "How to Install and Configure the Patch Management Tool in Interactive Mode" on page 22 or "How to Install the Patch Management Tool in Non-Interactive Mode" on page 24.

## ▼ How to Install and Configure the Patch Management Tool in Interactive Mode

Use the `setup` command to install and configure the patch management tool on your system in interactive mode.

If you want to install the patch management tool in a hands-off manner, such as a custom JumpStart™ installation, see "How to Install the Patch Management Tool in Non-Interactive Mode" on page 24.

1. **Become superuser.**

2. **Change to the directory in which you downloaded the tar file.**

```
# cd /export/download/patchpro
```

3. **Run the `setup` command to install and configure the tool.**

   For example, install and configure the Solaris 9 (SPARC Platform Edition) version of the patch management tool:

```
# cd pproSunOSsparc5.9jre2.2
# ./setup
```

4. **Specify the mechanism your system uses to connect to the Internet to retrieve Sun patches.**

   The patch management tool requires that your system be connected to the Internet, either directly or indirectly through a web proxy.

   - If your system is connected directly to the Internet, type `1`.
     - If your system runs Solaris 2.6, Solaris 7, or Solaris 8 software, go to Step 6.
     - If your system runs Solaris 9 software, go to Step 5.
   - If your system is connected to the Internet through a web proxy, type `2`.

   a. **Specify the host name or IP address of the web proxy.**

   b. **Specify the port number of the web proxy.**

   c. **Specify whether the web proxy requires authentication.**

      - If the web proxy does not require authentication, type `n`.
        - If your system runs Solaris 2.6, Solaris 7, or Solaris 8 software, go to Step 6.
        - If your system runs Solaris 9 software, go to Step 5.
      - If the web proxy requires authentication, type `y`.

   d. **Specify the name of a user for the web proxy.**

   e. **Specify the password of the user for the web proxy.**

5. *Solaris 9 only* – **Indicate whether to automatically restart the Solaris WBEM services after you install the patch management tool.**

   Restarting the Solaris WBEM services on an active system can cause unexpected problems, so ensure that your system is in a quiet state before restarting these services.

   - If you can restart the services now, type `y`.

     The services are automatically restarted after the patch management tool is installed.
   - If you cannot restart the services now, type `n`.

After you install the patch management tool, bring your system to a quiet state, then manually restart the services.

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

6. **Verify that the data you specified is correct.**

   The `setup` program shows the configuration information that you supplied.

   - If the configuration data is correct, type `y`.
   - If the configuration data is incorrect and you want to change some of the values, type `n`.

   The patch management tool is installed.

7. **Add patch management tool directories to your path.**

   - For Bourne shell or Korn shell:

     ```
     # PATH=/usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
     # export PATH
     ```

   - For C shell:

     ```
     machine_name# setenv PATH /usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
     ```

8. **Add the patch man page directory to your man page path.**

   - For Bourne shell or Korn shell:

     ```
     # MANPATH=/opt/SUNWppro/man:${MANPATH}
     # export MANPATH
     ```

   - For C shell:

     ```
     machine_name# setenv MANPATH /opt/SUNWppro/man:${MANPATH}
     ```

## ▼ How to Install the Patch Management Tool in Non-Interactive Mode

Use the `setup` command with the `-f` option if you want to perform a hands-off installation. This command can be used to perform a custom JumpStart installation.

If you want to install and configure the patch management tool in interactive mode, see "How to Install and Configure the Patch Management Tool in Interactive Mode" on page 22.

1. **Become superuser.**

2. **Change to the directory in which you downloaded the tar file.**

   ```
   # cd /export/download/patchpro
   ```

3. **Run the `setup` command to install the tool.**

For example, install the Solaris 9 (x86 Platform Edition) version of the patch management tool:

```
# cd pproSunOSx865.9jre2.2
# ./setup -f
```

**Caution –** After the patch management tool is installed, you must configure it by running the `pprosetup` command. See "How to Set Up Your Patch Management Environment After a Non-Interactive Installation or Upgrade" on page 28.

If not configured, the patch management tool will not be functional.

## ▼ How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Interactive Mode

Use the `setup` command to manually upgrade your system that runs PatchPro 2.1 to PatchPro 2.2. You do not need to uninstall PatchPro 2.1 before you upgrade the tool. The `setup` command also enables you to configure the patch management tool on your system.

If you want to upgrade the patch management tool in a hands-off manner, such as a custom JumpStart installation, see "How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Non-Interactive Mode" on page 27.

If your system is not already running PatchPro 2.1, just install PatchPro 2.2 by using one of the following procedures:

- "How to Install and Configure the Patch Management Tool in Interactive Mode" on page 22
- "How to Install the Patch Management Tool in Non-Interactive Mode" on page 24

1. **Become superuser.**
2. **Change to the directory in which you downloaded the PatchPro 2.2 tar file.**

   ```
   # cd /export/download/patchpro
   ```

3. **Run the `setup` command to upgrade and configure the tool.**

   For example, upgrade and configure the Solaris 9 (SPARC Platform Edition) version of the patch management tool:

   ```
   # cd pproSunOSsparc5.9jre2.2
   # ./setup
   ```

4. **Indicate whether you want to continue with the upgrade of the patch management tool.**

   - If yes, type `y`.

- If you want to exit the `setup` program, type `q`.

5. **Specify the mechanism your system uses to connect to the Internet to retrieve Sun patches.**

   The patch management tool requires that your system be connected to the Internet, either directly or indirectly through a web proxy.

   - If your system is connected directly to the Internet, type `1`.
     - If your system runs Solaris 2.6, Solaris 7, or Solaris 8 software, go to Step 7.
     - If your system runs Solaris 9 software, go to Step 6.
   - If your system is connected to the Internet through a web proxy, type `2`.

   a. **Specify the host name or IP address of the web proxy.**

   b. **Specify the port number of the web proxy.**

   c. **Specify whether the web proxy requires authentication.**
      - If the web proxy does not require authentication, type `n`.
        - If your system runs Solaris 2.6, Solaris 7, or Solaris 8 software, go to Step 7.
        - If your system runs Solaris 9 software, go to Step 6.
      - If the web proxy requires authentication, type `y`.

   d. **Specify the name of a user for the web proxy.**

   e. **Specify the password of the user for the web proxy.**

6. *Solaris 9 only* – **Indicate whether to automatically restart the Solaris WBEM services after you upgrade the patch management tool.**

   Restarting the Solaris WBEM services on an active system can cause unexpected problems, so ensure that your system is in a quiet state before restarting these services.

   - If you can restart the services now, type `y`.

     The services are automatically restarted after the patch management tool is upgraded.
   - If you cannot restart the services now, type `n`.

     After you upgrade the patch management tool, bring your system to a quiet state, then manually restart the services.

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

7. **Verify that the data you specified is correct.**

   The `setup` program shows the configuration information that you supplied.

   - If the configuration data is correct, type `y`.

- If the configuration data is incorrect and you want to change some of the values, type `n`.

8. **Indicate whether you want to upgrade your current installation.**

   You are asked to specify whether to upgrade software on a per-package basis.

   - If you want to upgrade to the new version of the specified package, type `y`.
   - If you want to exit the `setup` program, type `q`.

9. **Indicate whether to continue with the upgrade of the patch management tool.**

   - If you want to continue, type `y`.

     The patch management tool is upgraded on your system. The old version is removed, and the tool is configured based on your answers to the configuration questions.

     The PatchPro configuration settings you specified are displayed.
   - If you want to exit the `setup` program, type `q`.

10. **Add patch management tool directories to your path.**

    - For Bourne shell or Korn shell:

      ```
      # PATH=/usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
      # export PATH
      ```

    - For C shell:

      ```
      machine_name# setenv PATH /usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
      ```

11. **Add the patch man page directory to your man page path.**

    - For Bourne shell or Korn shell:

      ```
      # MANPATH=/opt/SUNWppro/man:${MANPATH}
      # export MANPATH
      ```

    - For C shell:

      ```
      machine_name# setenv MANPATH /opt/SUNWppro/man:${MANPATH}
      ```

## ▼ How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Non-Interactive Mode

If you are already running PatchPro 2.1 on your system, you can upgrade your system to run PatchPro 2.2.

If you want to upgrade the patch management tool interactively, instead of in a hands-off manner, see "How to Upgrade From PatchPro 2.1 to PatchPro 2.2 in Interactive Mode" on page 25.

If your system is not already running PatchPro 2.1, just install PatchPro 2.2 by using one of the following procedures:

- "How to Install and Configure the Patch Management Tool in Interactive Mode" on page 22
- "How to Install the Patch Management Tool in Non-Interactive Mode" on page 24

1. **Become superuser.**
2. **Change to the directory in which you downloaded the PatchPro 2.2 tar file.**

   ```
   # cd /export/download/patchpro
   ```

3. **Run the `setup` command to install and configure the tool.**

   For example, upgrade the Solaris 7 x86 version of the patch management tool:

   ```
   # cd pproSunOSx865.7jre2.2
   # ./setup -f UPGRADE=true
   ```

**Caution –** After the patch management tool is upgraded, you must configure it by running the `pprosetup` command. See "How to Set Up Your Patch Management Environment After a Non-Interactive Installation or Upgrade" on page 28.

If not configured, the patch management tool will not be functional.

## ▼ How to Set Up Your Patch Management Environment After a Non-Interactive Installation or Upgrade

1. **Become superuser.**
2. **Add patch management tool directories to your path.**
   - For Bourne shell or Korn shell:

     ```
     # PATH=/usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
     # export PATH
     ```

   - For C shell:

     ```
     machine_name# setenv PATH /usr/sadm/bin:/opt/SUNWppro/bin:${PATH}
     ```

3. **Add the patch man page directory to your man page path.**
   - For Bourne shell or Korn shell:

     ```
     # MANPATH=/opt/SUNWppro/man:${MANPATH}
     # export MANPATH
     ```

   - For C shell:

```
machine_name# setenv MANPATH /opt/SUNWppro/man:${MANPATH}
```

4. **Specify whether an Internet connection must be established by a web proxy.**
   - If you do not need to use a web proxy to establish an Internet connection, you have completed the web proxy configuration process.
   - If you must use a web proxy to establish an Internet connection, run the following command:

     ```
     # pprosetup -x proxy-server:proxy-port
     ```

     where *proxy-server* is the host name of the web proxy, and *proxy-port* is the port number of the web proxy, which is 8080 by default. Notice that these values must be separated by a colon (`:`).

     For example, if you select `webaccess.corp.net.com` as the proxy server, the `pprosetup` command would look like this:

     ```
     # pprosetup -x webaccess.corp.net.com:8080
     ```

     Obtain this information from your system administrator or from your network administrator.

5. **(Optional) Specify whether the web proxy requires authentication.**
   - If the web proxy does not require authentication, you have completed the web proxy configuration process.
   - If the web proxy does require authentication, do the following:

   a. **Specify the name for your web proxy.**

      ```
      # pprosetup -U proxy-user-name
      ```

   b. **Specify the user's password for your web proxy by adding the password to the `/opt/SUNWppro/lib/.proxypw` file.**

      ```
      # echo proxy-user-passwd > /opt/SUNWppro/lib/.proxypw
      ```

      Keep the password safe by setting the owner, group, and permissions of this file to `root`, `sys`, and `0600`, respectively.

6. *Solaris 9 only* – **Notify the Solaris Management Console server that the PatchPro packages are added to the system.**

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

After you have completed all the signed patch preparation tasks, you can begin applying signed patches to your system by using your patch management tool.

You can use the `pprosetup` command to change the configuration of your patch management environment. See the `pprosetup`(1M) man page.

**Note –** *Solaris 9 only* – If you change your patch management environment by running `pprosetup`, you must restart the Solaris WBEM services before you use the `smpatch` command. Restarting these services causes the configuration changes take effect.

## ▼ How to Identify the Hardware on Your System

You can use your patch management tool to apply firmware patches to Sun Network Storage hardware products that are attached to your system. The tool needs to know what hardware is attached to your system. Some of the hardware is automatically identified by software, but some needs to be identified manually by following this procedure.

When the hardware is identified, the `smpatch analyze` command can determine whether you need specific firmware patches based on your hardware configuration.

1. **Become superuser.**
2. **Start up the dialog program to identify the hardware that exists on your system.**

```
# pprosetup -H

Change Hardware Configuration.
Analyzing this computer.
..............
```

3. **Select the numbers that are associated with the disk drives that are attached to your system.**

   You must page through the entire list before you can make your selections. So, note the numbers that are associated with the disk drives that are attached to your system.

   Your selections are listed.

4. **Select the numbers that are associated with the storage servers and disk arrays that are attached to your system.**

   You must page through the entire list before you can make your selections. So, note the numbers that are associated with the storage servers and disk arrays that are attached to your system.

   Your selections are listed.

5. **Select the numbers that are associated with the tape storage systems that are attached to your system.**

   You must page through the entire list before you can make your selections. So, note the numbers that are associated with the tape storage systems that are attached to your system.

   Your selections are listed.

6. **Save your selections to a file.**

   This file is also used by PatchPro Expert, which is available on the SunSolve Online site.

   - If you want to save your selections, type `y`.
   - If you do not want to save your selections, type `n`.

## ▼ How to Identify the Types of Patches to Apply to Your System

This procedure enables you to establish the default patch policy for your system. See also the `pprosetup`(1M) man page.

1. **Become superuser.**

2. **Identify the types of patches to apply to the system.**

   ```
   # pprosetup -i standard:singleuser:rebootafter:reconfigafter
   ```

   In this example command line, the default patch policy applies the following types of patches to your system:

   - Standard patches
   - Patches that must be applied in single-user mode
   - Patches that must have the system undergo a reboot after they have been applied
   - Patches that must have the system undergo a reconfiguration reboot after they have been applied

## ▼ How to Configure Your System to Access Contract Patches

If you are a customer with a Sun service contract, additional patches are available to you. To access these patches, you must specify your SunSolve™ user name and password.

1. **Specify your SunSolve user name.**

   ```
   # pprosetup -u sunsolve-user-name
   ```

2. **Specify your SunSolve password by adding the password to the `/opt/SUNWppro/lib/.sunsolvepw` file.**

   ```
   # echo sunsolve-user-passwd > /opt/SUNWppro/lib/.sunsolvepw
   ```

   Keep the password safe by setting the owner, group, and permissions of this file to `root`, `sys`, and `0600`, respectively.

## ▼ How to Uninstall the Patch Management Tool

When you uninstall the patch management tool, the tool is completely removed from your system.

1. **Become superuser.**
2. **Uninstall the PatchPro software.**

   ```
   # /opt/SUNWppro/bin/uninstallpatchpro
   ```

3. *Solaris 2.6, Solaris 7, and Solaris 8 only* – **Determine whether you want the Java 2 software removed.**

   Java 2 is installed with the patch management tool.

   - If you want to remove the Java 2 software, type `y`.
   - If you do not want to remove the Java 2 software, type `n`.

# Selecting the Best Method for Applying Signed Patches

After you have installed or upgraded your patch management tool and completed the preparatory tasks (see "Downloading and Installing the Patch Management Tools (Task Map)" on page 19), use this table to determine which method is best for downloading and applying signed patches to your system.

| Command or Tool | Description | For More Information |
|---|---|---|
| `smpatch update` | **For Solaris 2.6, Solaris 7, Solaris 8, and at least Solaris 9 4/03 –** Use this command to identify the recommended patches and automatically download and apply the patches to your system. Notice that this command will not apply a patch that has the `interactive` property set. | See the `smpatch`(1M) man page. |

| Command or Tool | Description | For More Information |
|---|---|---|
| `smpatch analyze` | Use this command to identify the recommended patches and display a list of recommended patch IDs for your system. Then, use the `smpatch download` and `smpatch add` commands to download and apply the patches to your system. | See the `smpatch`(1M) man page. |
| `smpatch download` and `smpatch add` | Use these commands to download and apply one or more patches to your system. These commands also download and apply any prerequisite patches. | See "Example—Downloading and Applying a Signed Patch That Has No Dependencies" on page 36.<br>See "Example—Downloading and Applying a Signed Patch That Has Dependencies" on page 37.<br>See "Example—Downloading and Applying a Signed Patch That Has No Dependencies to a Solaris 9 System" on page 37. |
| `ftp` and `smpatch add` | Use the `ftp` command to transfer one or more patches to your system. Then, use the `smpatch add` command to apply the patch or patches to your system. | See "Example—Downloading and Applying a Signed Patch by Using `ftp`" on page 39. |
| Solaris Management Console Patches Tool | **For Solaris 9 only –** Use this tool when you want the convenience of a GUI tool to manage signed patches. | See the `smc`(1M) and `smcconf`(1M) man pages.<br>See the Solaris Management Console online help. |

# Downloading and Applying Signed Patches to a Solaris System (Task Map)

Use this task map to identify the tasks that are used to manage signed patches. Perform the tasks in the order shown.

| Task | Description | For Instructions |
|---|---|---|
| 1. Perform the signed patches preparation tasks. | Perform the required and optional signed patches preparation tasks:<br>■ Verify package requirements for Solaris patch management tools.<br>■ Download and install your Solaris patch management tool.<br>■ Set up your system for applying signed patches. | See "Downloading and Installing the Patch Management Tools (Task Map)" on page 19. |
| 2. (Optional) Analyze the system to identify the recommended patches. | Analyze the system to identify recommended patches by using the `smpatch analyze` command. | See "How to Analyze Your System to Identify the Recommended Patches" on page 35. |
| 3. Download and apply a signed patch or patches. | Download and apply one or more signed patches by using the `smpatch` command. The download step also performs an analysis of the system. | See "How to Download and Apply a Signed Patch to a Solaris System" on page 35. |
| 4. (Optional) Remove a signed patch. | If necessary, remove a signed patch from your system. | See "How to Remove a Signed Patch From a Solaris System" on page 40. |

**Note –** Be aware of these disk space considerations when using the `smpatch` command to download and apply signed patches:

- The default patch directory for signed patches is `/var/sadm/spool`.
- To specify an alternate patch directory, use the `-d` option of the `smpatch add`, `smpatch download`, or `smpatch update` command.
- The download process might use more disk space than anticipated because prerequisite patches might be required by and downloaded with the patch that you download.
- To reclaim disk space in the patch directory, remove the signed patches from the `/var/sadm/spool` directory after they are successfully downloaded and applied to your system. Notice that the `smpatch` and `pprosvc -i` commands automatically remove the patch after it has been successfully applied.

## ▼ How to Analyze Your System to Identify the Recommended Patches

Ensure that you have completed the preparation tasks before analyzing your system. For more information, see "Downloading and Installing the Patch Management Tools (Task Map)" on page 19.

1. **Become superuser.**
2. **Analyze the system.**

```
# smpatch analyze
Assessing required patches for machine "venus/172.20.27.26" . Please wait...

110453-04 SunOS 5.8: admintool Patch
109318-33 SunOS 5.8: suninstall Patch
112396-02 SunOS 5.8: /usr/bin/fgrep patch
...
```

Now, you can download and apply these patches to your system. See "How to Download and Apply a Signed Patch to a Solaris System" on page 35. Notice that the `smpatch download` command also performs the analysis step before downloading the patches to your system.

## ▼ How to Download and Apply a Signed Patch to a Solaris System

Ensure that you have completed the preparation tasks before downloading and applying a signed patch to your system. For more information, see "Downloading and Installing the Patch Management Tools (Task Map)" on page 19.

To download and apply a signed patch on a Solaris system, follow this procedure. Following the procedure are examples.

1. **Become superuser.**

2. **Download one or more signed patches from the SunSolve Web site to your local system.**

   ```
   # smpatch download -i patch-ID -i patch-ID ...

   Requested patches:

       patch-ID
       patch-ID
       ...

   Downloading the requested patches

   /var/sadm/spool/patch-ID.jar has been validated.
   /var/sadm/spool/patch-ID.jar has been validated.
   ...

   For downloaded patch(es) see /var/sadm/spool
   ```

   This command also analyzes the system to determine the list of recommended patches to download.

3. **Apply the signed patches.**

   ```
   # smpatch add -i patch-ID -i patch-ID
   ```

## Example—Downloading and Applying a Signed Patch That Has No Dependencies

This example shows how to download and apply patch 105407-01 by using the `smpatch` command on a Solaris 2.6 system.

```
# smpatch download -i 105407-01

Requested patches:

    105407-01

Downloading the requested patches



/var/sadm/spool/105407-01.jar has been validated.

For downloaded patch(es) see /var/sadm/spool
# smpatch add -i 105407-01

On machine "earth/172.20.27.27" ...
```

```
Installing patch 105407-01 ...
Purging /var/sadm/spool/105407-01
/var/sadm/spool/README.txt has been moved to
/var/sadm/spool/patchproSequester
```

## Example—Downloading and Applying a Signed Patch That Has Dependencies

This example shows how to download and apply patch 107081-45 by using the `smpatch` command on a Solaris 7 system or a Solaris 8 system. This patch has two patch dependencies, which are automatically downloaded and verified.

```
# smpatch download -i 107081-45

Requested patches:

    107081-45

Downloading the requested patches

The following patches were added due to patch dependencies:
    108376-37
    107656-09

/var/sadm/spool/108376-37.jar has been validated.

/var/sadm/spool/107656-09.jar has been validated.

/var/sadm/spool/107081-45.jar has been validated.

For downloaded patch(es) see /var/sadm/spool
# smpatch add -i 108376-37 -i 107656-09 -i 107081-45

On machine "venus/172.20.27.26" ...

Installing patch 108376-37 ...
Installing patch 107656-09 ...
Installing patch 107081-45 ...
Purging /var/sadm/spool/108376-37
Purging /var/sadm/spool/107656-09
Purging /var/sadm/spool/107081-45
```

## Example—Downloading and Applying a Signed Patch That Has No Dependencies to a Solaris 9 System

This example shows how to download and apply a signed patch by using the `smpatch` command on a Solaris 9 system.

```
# /usr/sadm/bin/smpatch download -i 111711-01
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default denoted by [ ]
Please enter a string value for: password :: xxx
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
Login to starbug as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
successful.


        Requested patches:
                111711-01

        Downloading the requested patches ...


For downloaded patch(es) see /var/sadm/spool.
# smpatch add -i 111711-01
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default denoted by [ ]
Please enter a string value for: password :: xxx
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
Login to starbug as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
successful.

        On machine starbug ...
                Installing patch 111711-01
```

## Example—Downloading and Applying a Signed Patch That Has Dependencies to a Solaris 9 System

This example shows how to download and apply patch 113434-06 by using the `smpatch` command on a Solaris 9 system. This patch has a patch dependency, which is automatically downloaded and verified.

```
# smpatch download -i 113434-06
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default denoted by [ ]
Please enter a string value for: password :: xxx
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
Login to starbug as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
successful.


Requested patches:
    113434-06
```

```
Downloading the requested patches


The following patches were added due to patch dependencies:
    114482-02


For downloaded patch(es) see /var/sadm/spool.
# smpatch add -1 114482-02 -i 113434-06
Authenticating as user: root

Type /? for help, pressing <enter> accepts the default denoted by [ ]
Please enter a string value for: password :: xxx
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
Login to starbug as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
successful.

    On machine starbug ...
        Installing patch 114482-02
        Installing patch 113434-06
```

## Example—Downloading and Applying a Signed Patch by Using `ftp`

This example shows how to use the `ftp` command to get a signed Solaris 8 patch from the SunSolve Online site. Then, the example shows how to use the `smpatch add` command to apply the signed patch to the system.

```
# ftp sunsolve.sun.com
Connected to sunsolve.sun.com.
220-
220-Welcome to the SunSolve Online FTP server.
220-
220-Public users may log in as anonymous.
...
Name (sunsolve.sun.com:root): anonymous
331 Guest login ok, send your complete e-mail address as password.
Password: xxx
230-
230-SUN MICROSYSTEMS, INC.
...
230 Guest login ok, access restrictions apply.
ftp> cd signed_patches
250 CWD command successful.
ftp> get 112846-01.jar /var/sadm/spool/112846-01.jar
200 PORT command successful.
150 Opening ASCII mode data connection for 112846-01.jar (22524 bytes).
226 Transfer complete.
local: /var/sadm/spool/112846-01 remote: 112846-01.jar
22613 bytes received in 0.065 seconds (341.70 Kbytes/s)
ftp> quit
```

```
# smpatch add -i 112846-01
On machine "earth/172.20.27.27" ...


Installing patch 112846-01 ...
Purging /var/sadm/spool/112846-01
```

## ▼ How to Remove a Signed Patch From a Solaris System

---

**Note –** If the patch you want to remove is required by one or more of the patches that have already been applied to the system, an error is issued and the patch is not removed.

---

1. **Become superuser.**
2. **Remove the signed patch.**

   # **smpatch remove -i** *patch-ID*

   You can remove only one patch at a time.

### Example—Removing a Signed Patch From a Solaris 2.6 System

```
# smpatch remove -i 105407-01

On machine "earth/172.20.27.27" ...

Removing patch 105407-01

Checking installed patches...

Backing out patch 105407-01...

Patch 105407-01 has been backed out.
```

### Example—Removing a Signed Patch From a Solaris 9 System

```
# /usr/sadm/bin/smpatch remove -i 111711-01
Authenticating as user: root
```

```
Type /? for help, pressing <enter> accepts the default denoted by [ ]
Please enter a string value for: password ::
Loading Tool: com.sun.admin.patchmgr.cli.PatchMgrCli from starbug
Login to starbug as user root was successful.
Download of com.sun.admin.patchmgr.cli.PatchMgrCli from starbug was
successful.

          On machine starbug ...
                Removing patch 111711-01
```

# Troubleshooting Signed Patch Problems (Task Map)

Use the following task map to troubleshoot signed patch problems.

| Task | Description | For Instructions |
|---|---|---|
| Obtain PatchPro configuration information. | Obtain information about your patch management environment to help you diagnose problems. | See "How to Obtain Information About Your Patch Management Environment" on page 42. |
| View patch management tool log files. | View log files on the system to identify problems with installing patch management tools or applying signed patches. | See "How to View Patch Management Tool Log Files" on page 42. |
| Set up a separate PatchPro log file. | Move the log from `syslog` to a separate file. | See "How to Move the Log From `syslog` to a Separate File" on page 43. |
| Resolve a sequestered patch. | Resolve a patch that has been sequestered, one that cannot be installed by PatchPro. | See "How to Resolve a Sequestered Patch" on page 44. |

For up-to-date information about troubleshooting signed patch problems, error messages, or documentation errata, see the *Signed Patches Release Notes for PatchPro 2.2*.

## ▼ How to Obtain Information About Your Patch Management Environment

To begin troubleshooting problems with PatchPro 2.2 or Patch Manager Base 1.0.1, you must understand how your patch management environment is configured. Use the `pprosetup -L` command to obtain the configuration information.

1. **Become superuser.**
2. **Obtain the configuration information.**

```
# pprosetup -L

Log file location:   System log file (consult /etc/syslog.conf for
                     exact location)
Log file size:       50000
Download directory:  /var/sadm/spool
Sequester directory: /var/sadm/spool/patchproSequester
Proxy server name:   webaccess.corp.net.com
Proxy server port:   8080
Server URL:          https://patchpro.sun.com/servlet/ \
                     com.sun.patchpro.server.PatchProServerServlet/
Database URL:        https://patchpro.sun.com/database/patchprodb.zip
Detectors URL:       https://patchpro.sun.com/database/pprodetectors.jar
```

## ▼ How to View Patch Management Tool Log Files

Various log files on the system can help you to identify problems with installing patch management tools or applying signed patches.

By default, PatchPro writes to the system log file. The system log configuration file, `/etc/syslog.conf`, specifies where the system log file resides on the system. By default, the system log file is `/var/adm/messages`.

1. **(Optional) To instruct PatchPro to write messages to a different file on the local file system, update the `patchpro.log.file` property in the PatchPro configuration file, `/etc/opt/SUNWppro/etc/patchpro.conf`.**

   For example, if you want PatchPro to write to the `/var/tmp/patchpro.log` file, assign `/var/tmp/patchpro.log` to the `patchpro.log.file` property.

2. **Use the following table to determine which log file might contain information about a failed installation of a patch management tool or a signed patch.**

| Log File | Description |
|---|---|
| `/var/tmp/ppro_install_log.`*nnn* | Identifies the success or failure of the installation of PatchPro packages and patches. |
| `/var/tmp/log/patchpro.log` | Identifies problems that are found when using the patch management tool. |
| `/var/adm/messages` | Identifies problems that are found when applying a signed patch to a system by using the various patch management tools. Also, identifies problems that are found when the patch management tools do not initialize properly. |
| Solaris Management Console Log Viewer on a Solaris 9 system | Identifies the success or failure of applying a signed patch with the Solaris Management Console Patches Tool. |

## ▼ How to Move the Log From `syslog` to a Separate File

1. **Select a file of specific maximum size to serve as the PatchPro circular log.**
2. **Become superuser.**
3. **Save the current PatchPro configuration by creating a copy of the PatchPro configuration file.**

   ```
   # cp /etc/opt/SUNWppro/etc/patchpro.conf \
   /etc/opt/SUNWppro/etc/patchpro.conf.orig
   ```

4. **Edit the `patchpro.conf` configuration file.**
   a. **Change the value of the `patchpro.log.file` property to specify the new log file.**
   b. **Change the value of the `patchpro.log.size` property to specify the size of the log file in bytes.**
5. **Resume `syslog` logging.**

   ```
   # cp /etc/opt/SUNWppro/etc/patchpro.conf.orig \
   /etc/opt/SUNWppro/etc/patchpro.conf
   ```

## ▼ How to Resolve a Sequestered Patch

A patch might not install successfully if the patch installation policy cannot be satisfied. Namely, a patch that has the `rebootafter` property cannot be applied in automatic mode. A patch that cannot be installed by PatchPro is sequestered in the `/var/sadm/spool/patchproSequester` directory, by default.

Review the README file associated with the patch to determine the installation details of the patch.

To view the README, do one of the following:

- View a copy of the patch README from the SunSolve Online Web site.
- Extract the README file from the JAR archive.

To protect the digital signature, do not expand the JAR archive. Use the following procedure to safely extract the patch README file.

Also, review the contents of the `/var/tmp/log/patchpro.log` file to determine why a patch did not install successfully.

1. **Become superuser.**
2. **Verify that one or more patches were not installed by viewing the contents of the `/var/sadm/spool/patchproSequester` directory.**

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

3. **Extract the README file from the JAR archive.**

   a. **First, identify the name of the README file, for example:**

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

   b. **Then, extract the README file.**

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

4. **View the README file.**

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

APPENDIX **A**

# Managing Signed Patches Without Solaris Patch Management Tools (Tasks)

This appendix provides step-by-step instructions for managing signed patches by using Java technology-based tools (Java tools) or Netscape technology-based tools (Netscape tools), instead of the Solaris patch management tools. See these sections:

- "Managing Signed Patches by Using Java Tools (Task Map)" on page 46
- "Managing Signed Patches by Using Netscape Tools (Task Map)" on page 49

For information about signed patches, see Chapter 1.

For information about how to manage signed patches with Solaris patch management tools, see Chapter 1 and Chapter 2.

## Managing Signed Patches by Using Java or Netscape Tools

You can manage signed patches with either Java or Netscape security tools. You need the Java 1.3 version to verify signed patches. Java 1.3 is available from `http://java.sun.com`.

# Managing Signed Patches by Using Java Tools (Task Map)

Perform these tasks in the order shown.

| Task | Description | For Instructions |
|---|---|---|
| 1. Download and install the `SUNWcert` package. | Download and install the `SUNWcert` package. For a list of download sites, see "Sun Certificates That Verify Signed Patches" on page 10. | "How to Download the `SUNWcert` Package" on page 46 |
| 2. Import the Sun certificates. | Use the `keytool` command to import and accept the Sun certificates from the `SUNWcert` package. | "How to Import the Sun Certificates With Java Tools" on page 47 |
| 3. (Optional) Change the keystore password. | Change the password to keep the keystore secure. | "How to Change the Java Keystore Password" on page 48 |
| 4. Verify a signed patch. | Download a patch from SunSolve Online, and use the `jarsigner` command to verify the patch. | "How to Verify a Signed Patch (`jarsigner`)" on page 48 |
| 5. Apply the verified signed patch. | Use the `patchadd` command to apply the verified signed patch. | "How to Apply the Verified Signed Patch" on page 49 |

## ▼ How to Download the `SUNWcert` Package

This procedure assumes that the `SUNWcert` package is located in the `/tmp` directory.

1. **Download the `SUNWcert` package from the following site:**

   `https://sunsolve.sun.com/SUNWcert`

   For a list of additional sites, see "Sun Certificates That Verify Signed Patches" on page 10.

2. **Become superuser.**

3. **Install the `SUNWcert` package.**

```
# cd /tmp
# unzip SUNWcert.zip
# pkgadd -d .
```

4. **Verify that the `SUNWcert` package is installed.**

```
# pkginfo -l SUNWcert
```

## ▼ How to Import the Sun Certificates With Java Tools

Verify the signed patches that you want to install against the authenticated Sun certificates.

1. **Become superuser.**

2. **Determine the fingerprints of your Sun Root certificate and Sun Class B certificate.**

   For example, on a Solaris 8 system:

   ```
   # /usr/java1.3/bin/keytool -printcert \
   -file /etc/certs/SUNW/smirootcacert.b64
   # /usr/java1.3/bin/keytool -printcert -file /etc/certs/SUNW/smicacert.b64
   ```

3. **Verify that the output of these commands match the Sun Root and Class B certificate fingerprints displayed at this site:**

   ```
   https://www.sun.com/pki/ca
   ```

4. **Change to the `/etc/certs/SUNW` directory.**

   ```
   # cd /etc/certs/SUNW
   ```

5. **Import the Class B certificate.**

   For example, on a Solaris 8 system, type:

   ```
   # /usr/java1.3/bin/keytool -import -alias smicacert \
   -file smicacert.b64 -keystore /usr/java1.3/jre/lib/security/cacerts
   Enter keystore password:  changeit
   Owner: O=Sun Microsystems Inc, CN=Sun Microsystems Inc CA (Class B)
   Issuer: CN=Sun Microsystems Inc Root CA, O=Sun Microsystems Inc, C=US
   Serial number: 1000006
   Valid from: Mon Nov 13 12:23:10 MST 2000 until: Fri Nov 13 12:23:10 MST 2009
   Certificate fingerprints:
            MD5:  B4:1F:E1:0D:80:7D:B1:AB:15:5C:78:CB:C8:8F:CE:37
            SHA1: 1E:38:11:02:F0:5D:A3:27:5C:F9:6E:B1:1F:C4:79:95:E9:6E:D6:DF
   Trust this certificate? [no]:  yes
   Certificate was added to keystore
   ```

6. **Import the root certificate.**

   ```
   # /usr/java1.3/bin/keytool -import -alias smirootcacert \
   -file smirootcacert.b64 -keystore /usr/java1.3/jre/lib/security/cacerts
   Enter keystore password:  changeit
   Owner: CN=Sun Microsystems Inc Root CA, O=Sun Microsystems Inc, C=US
   Issuer: CN=GTE CyberTrust Root, O=GTE Corporation, C=US
   Serial number: 40002ae
   Valid from: Wed Oct 16 09:45:00 MDT 2002 until: Sat Oct 16 17:59:00 MDT 2004
   Certificate fingerprints:
   ```

```
         MD5:  54:E3:D1:E4:79:B4:17:23:65:B4:F9:14:AD:C6:4A:FE
         SHA1: 90:F1:AB:87:AE:A0:4C:1F:AF:43:60:DE:5D:A8:0E:D8:CE:E7:06:AE
Trust this certificate? [no]:  yes
Certificate was added to keystore
```

## ▼ How to Change the Java Keystore Password

1. **Become superuser.**
2. **Change the keystore password.**

```
# /usr/java1.3/bin/keytool -storepasswd \
-keystore /usr/java1.3/jre/lib/security/cacerts
Enter keystore password:  changeit
New keystore password:  new-password
Re-enter new keystore password:  new-password
```

## ▼ How to Verify a Signed Patch (`jarsigner`)

1. **Verify that the following prerequisites are met:**
   - You have installed the `SUNWcert` package.

     For more information, see "How to Download the `SUNWcert` Package" on page 46.
   - You have imported the appropriate Sun PKI certificates.

     For more information, see "How to Import the Sun Certificates With Java Tools" on page 47.
   - You are logged in as superuser.
2. **Download a signed patch from the SunSolve Online site.**
3. **Verify the signed patch, for example:**

```
# /usr/java1.3/bin/jarsigner -verify -verbose -keystore
/usr/java1.3/jre/lib/security/cacerts /patchdb/100103-12.jar
smk     2149 Tue Sep 25 15:47:20 MDT 2001 100103-12/README
smk    18553 Tue Sep 25 15:47:20 MDT 2001 100103-12/4.1secure.sh
         385 Tue Sep 25 15:47:20 MDT 2001 META-INF/manifest.mf
         493 Tue Sep 25 15:47:20 MDT 2001 META-INF/zigbert.sf
        3819 Tue Sep 25 15:47:20 MDT 2001 META-INF/zigbert.rsa

  s = signature was verified
  m = entry is listed in manifest
  k = at least one certificate was found in keystore
  i = at least one certificate was found in identity scope

jar verified.
#
```

Make sure that you see the `smk` entries in the output to confirm that the patch signature is verified. Otherwise, the patch verification has failed, even if you see the `jar verified` message.

### ▼ How to Apply the Verified Signed Patch

1. **Become superuser.**
2. **Unzip the patch bundle, for example:**

```
# unzip 100103-12.jar
Archive:  100103-12.jar
       inflating: 100103-12/README
       inflating: 100103-12/4.1secure.sh
       inflating: META-INF/manifest.mf
       inflating: META-INF/zigbert.sf
       inflating: META-INF/zigbert.rsa
#
```

3. **Apply the verified uncompressed signed patch, for example:**

```
# patchadd /patchdb/100103-12
```

# Managing Signed Patches by Using Netscape Tools (Task Map)

Perform these tasks in the order shown.

| Task | Description | For Instructions |
|---|---|---|
| 1. Download the Netscape `signtool` command. | Download the Netscape `signtool` command to verify signed patches. | "How to Download the Netscape `signtool` Command" on page 50 |
| 2. Import the Sun certificates. | Import and accept the Sun certificates into the Netscape 4.7 keystore.<br>Import and accept the Sun certificates into the Netscape 6 keystore. | "How to Import the Sun Certificates With Netscape 4.7 Tools" on page 50<br>"How to Import the Sun Certificates With Netscape 6 Tools" on page 53 |

| Task | Description | For Instructions |
|---|---|---|
| 3. Certify the Sun certificates. | Certify the Sun certificates by using Netscape 4.7 tools.<br>Certify the Sun certificates by using Netscape 6 tools. | "How to Certify the Sun Certificates With Netscape 4.7 Tools" on page 52<br>"How to Certify the Sun Certificates With Netscape 6 Tools" on page 53 |
| 4. Create or change the keystore password. | Create or change a password to keep the keystore secure. | "How to Create or Change a Keystore Password With Netscape Tools" on page 54 |
| 5. Verify a signed patch. | Download a patch from SunSolve Online, and verify it with the `signtool` command. | "How to Verify a Signed Patch (`signtool`)" on page 55 |
| 6. Apply the verified signed patch. | Use the `patchadd` command to apply the verified signed patch. | "How to Apply a Verified Signed Patch" on page 55 |

## ▼ How to Download the Netscape `signtool` Command

1. **Go to the following site:**

   `http://developer.netscape.com/software/signedobj/jarpack.html#signtool1.3`

2. **Download `signtool` 1.3 by clicking SignTool 1.3 for Solaris 2.6 (SunOS 5.6).**

3. **As superuser, uncompress the `signtool13SunOS56.tar.gz` package.**

   ```
   # gunzip signtool13SunOS56.tar.gz
   ```

4. **Untar the `signtool13SunOS56.tar` file.**

   ```
   # tar xvf signtool13SunOS56.tar
   ```

## ▼ How to Import the Sun Certificates With Netscape 4.7 Tools

The following procedure removes the existing GTE CyberTrust Root CA before importing the Sun certificates into your certificate store. You will add the GTE CyberTrust Root CA back when you import the chain of Sun certificates into your certificate store.

Use this procedure with Netscape Communicator 4.7.

1. **If necessary, start Netscape Communicator.**
2. **Access the Security Info page in one of the following ways:**
   - Click the Security button on your Netscape browser (the small lock in the lower left corner).
   - Click the Security button in the Navigator toolbar.
   - From the Communicator menu, choose Tools→Security Info.
3. **Select Signers under Certificates on the Security Info pop-up window.**
4. **Select GTE CyberTrust Root CA, and click the Delete button.**
5. **Click OK in the Delete pop-up window.**
6. **Click OK in the Signers window.**
7. **Import the Sun certificates into Netscape Communicator.**
   a. **Go the following site to import the Sun certificates:**

      `https://ra.sun.com:11005`

   b. **Select the Retrieval tab at the top of the page.**
   c. **Select Import CA Certificate Chain in the left panel, and if it is not already selected, click the radio button next to Import the CA Certificate Chain Into Your Browser.**
   d. **Click Submit.**
   e. **Click Next on the pop-up windows that lead you through the import process until you get to a panel that has three checkboxes for accepting the certificate for network sites, email users, and software developers.**
   f. **Check all three boxes, then click Next.**
   g. **Continue clicking Next until you get to a panel with a Name text field.**
   h. **Type `GTE CyberTrust Root CA` in the Name text field.**
   i. **Click Finish.**
8. **Verify that the certificates have been successfully imported.**
   a. **Access the Netscape Security Info page in one of the following ways:**
      - Click the Security button on your Netscape browser (the small lock in the lower left corner).
      - Click the Security button in the Navigator toolbar.
      - From the Communicator menu, choose Tools→Security Info.

b. **Select Signers under Certificates on the Security Info pop-up window.**

c. **Scroll down until you see the GTE CyberTrust Root entry, and the SunPKI certificates: Sun Microsystems Inc CA (Class B) - Sun Microsystems Inc and Sun Microsystems Inc Root CA - GTE Corporation entries.**

9. **You can verify that the Sun certificates are imported by viewing the Sun Microsystems certificates in the output of this command:**

```
# signtool -L
```

10. **Go to the next procedure to certify the Sun certificates that you just imported.**

## ▼ How to Certify the Sun Certificates With Netscape 4.7 Tools

This procedure describes how to *uncertify* the GTE CyberTrust Root certificate and *certify* the Sun Microsystems Inc. CA (Class B) certificate.

1. **Verify that you have already completed the import procedure.**
   See "How to Import the Sun Certificates With Netscape 4.7 Tools" on page 50.
2. **If necessary, access the Netscape Communicator Security Info window.**
3. **Select Signers under Certificates on the Security Info pop-up window.**
4. **Select GTE CyberTrust Root and click Edit.**
5. **Deselect the three Accept boxes and click OK.**
6. **Select Sun Microsystems Inc. CA (Class B), and click the three Accept boxes.**
7. **Click OK.**
8. **Select Sun Microsystems Inc. Root CA, and click the three Accept boxes.**
   This means that you are restricting your certification of signed objects to only those signed by Sun Microsystems, Inc.
9. **Click OK.**
10. **Click OK in the Signers window.**
11. **Create a keystore password.**
    See "How to Create or Change a Keystore Password With Netscape Tools" on page 54.

## ▼ How to Import the Sun Certificates With Netscape 6 Tools

1. **If necessary, start Netscape Communicator 6.**
2. **Import the Sun certificates into Netscape Communicator.**
   a. **Go the following site to import the Sun certificates:**

      `https://ra.sun.com:11005`

   b. **Select the Retrieval tab at the top of the page.**
   c. **Select Import CA Certificate Chain in the left panel, and if it is not already selected, click the radio button next to Import the CA Certificate Chain Into Your Browser.**
   d. **Click Submit.**
   e. **Click the three checkboxes regarding accepting the certificate for web sites, email users, and software developers for the Sun Microsystems Inc CA (Class B) certificate on the Downloading Certificate pop-up window.**
   f. **Click OK.**
3. **Verify that the certificates have been successfully imported.**
   a. **Access the Netscape Edit→Preferences→Privacy and Security→Certificates window.**
   b. **Click Manage Certificates in the middle of the window.**
   c. **Click the Authorities tab to display the list of certificate authorities.**
   d. **Scroll through the list of certificates and verify that you see these entries: GTE Corporation - GTE CyberTrust Root, Sun Microsystems Inc Root CA, and Sun Microsystems Inc - Sun Microsystems Inc CA (Class B ).**
4. **Go to the next procedure to certify the Sun certificates that you just imported.**

## ▼ How to Certify the Sun Certificates With Netscape 6 Tools

1. **Verify that you have already completed the import procedure.**
   See "How to Import the Sun Certificates With Netscape 6 Tools" on page 53.
2. **If necessary, access the Netscape Communicator Edit→Preferences→Privacy and Security→Certificates window.**

3. **Click Manage Certificates.**
4. **Click the Authorities tab.**
5. **Select GTE Corporation - GTE CyberTrust Root in the scrolling pane and click Edit.**
6. **Verify that the three Accept boxes are deselected and click OK.**
7. **Select the Sun Microsystems Inc - Sun Microsystems Inc CA (Class B) entry and click Edit.**
8. **Verify that the three Accept boxes are selected and click OK.**

   This means that you are restricting your certification of signed objects to only those signed by Sun Microsystems Inc CA (Class B).
9. **You can verify that the Sun certificates are imported by viewing the Sun Microsystems certificates in the output of this command:**

   ```
   # signtool -L
   ```
10. **Go to the next procedure to create a keystore password.**

## ▼ How to Create or Change a Keystore Password With Netscape Tools

This procedure might vary slightly depending on whether you are using Netscape 4 or Netscape 6.

1. **Verify that you have completed the following procedures:**
   - "How to Import the Sun Certificates With Netscape 4.7 Tools" on page 50
   - "How to Certify the Sun Certificates With Netscape 4.7 Tools" on page 52
2. **If necessary, access the Netscape Communicator Security Info window.**
3. **Click Passwords in the left panel.**
4. **Set or change the keystore password.**
   - Click the Set Password button in the main panel, and follow the steps to set the keystore password.
   - Click the Change Password button in the main panel if you need to change the keystore password.
5. **Select or change one of the following password policies:**
   - The first time your certificate is needed
   - Every time your certificate is needed

- After (30) minutes of inactivity

6. **Click OK.**

## ▼ How to Verify a Signed Patch (`signtool`)

1. **Verify that the following prerequisites are met:**
   - You have downloaded the Netscape `signtool` program.

     For more information, see "How to Download the Netscape `signtool` Command" on page 50.
   - You have imported the appropriate Sun certificates.

     For more information, see "How to Import the Sun Certificates With Netscape 4.7 Tools" on page 50.
   - You are logged in as superuser.
2. **Download a signed patch from the following location:**

   ```
   http://sunsolve.Sun.COM/pub-cgi/show.pl?target=patches/patch-access
   ```
3. **Verify a signed patch, for example:**

   ```
   # signtool -v /patchdb/100103-12.jar
   using certificate directory: /.netscape
   archive "/patchdb/100103-12.jar" has passed crypto verification.

              status   path
       ------------   -------------------
           verified   100103-12/README
           verified   100103-12/4.1secure.sh
   #
   ```

   If the patch verification fails, you will see a message similar to this:

   ```
   archive DID NOT PASS crypto verification
   ```

## ▼ How to Apply a Verified Signed Patch

1. **Become superuser.**
2. **Unzip the patch bundle, for example:**

   ```
   # unzip 100103-12.jar
   Archive:  100103-12.jar
     inflating: 100103-12/README
     inflating: 100103-12/4.1secure.sh
     inflating: META-INF/manifest.mf
     inflating: META-INF/zigbert.sf
     inflating: META-INF/zigbert.rsa
   ```

```
#
```

3. **Apply the verified uncompressed signed patch, for example:**

```
# patchadd /patchdb/100103-12
```

# Troubleshooting Problems With Netscape Security Tools

This section describes how to troubleshoot problems using signed patches with Netscape tools.

If you need to verify a signed patch, use the following command:

```
# signtool -v patch-ID.jar
```

| Problem or Error Message | Explanation | Solution |
|---|---|---|
| Cannot import Sun certificate chain from `https://ra.sun.com:110005` to the Netscape cert database | Self-explanatory. | Make sure that the GTE CyberTrust Root CA was deleted before importing the certificate chain. For more information, see "How to Import the Sun Certificates With Netscape 4.7 Tools" on page 50. |
| `signtool: No certificate database in` *keystore-location*<br>`signtool: Check the -d arguments that you gave` | Either the certificate is not in the keystore, the keystore is not accessible, or the arguments are incorrect. | Make sure that the argument is correct and that the keystore is accessible. Use Netscape→Security→Signers to check if all three CAs are present: GTE CyberTrust Root CA, Sun Microsystems Inc CA (Class B) - Sun Microsystems Inc, Sun Microsystems Inc Root CA - GTE Corporation. If the certificates are not in the Netscape keystore, import the certificate chain from `https://ra.sun.com:11005`. |
| Cannot install sign patches | It is possible that signed patches cannot be installed due to lack of space. | Make sure that there is enough disk space. |

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## U



## V