



Solaris 9 Maintenance Update 2 Installation Guide

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Introduction

The *Solaris 9 Maintenance Update 2 Installation Guide* explains how to install and back out the Solaris™ 9 Maintenance Update 2 (MU2) software. This guide is for system administrators who are installing the MU2 software. For late-breaking MU2 issues that were identified too late to be included in this guide, refer to the *Solaris 9 Maintenance Update 2 Installation Guide* at <http://docs.sun.com>.

If you need more information on general procedures for system administration, refer to the Solaris 9 System Administrator Collection.

What Is the Solaris 9 Maintenance Update 2?

The Solaris 9 MU2 contains the same set of patches that is prepackaged on the Solaris 9 12/02 software CDs. The MU2 installation automatically updates your system without regressing any patches that you have previously installed.

The Solaris 9 MU2 is available as a file for downloading from the Web.

When to Install the Solaris 9 Maintenance Update 2

First, your system must be running the Solaris 9 operating environment.

You can then install the Solaris 9 MU2 if you meet both of the following conditions:

- You are applying patches that were released in the Solaris 9 12/02 operating environment.
- You are retaining patches that you previously applied to your system.

If your system is running the Solaris 9 operating environment, or a Solaris 9 Update release, and you want to fully upgrade to new features and hardware support, install the Solaris 9 12/02 operating environment. The patches that were applied by installing the Solaris 9 12/02 operating environment replace previously installed Solaris 9 patches. The newly installed patches cannot be backed out of the release.

Maintenance Updates are primarily designed to update the Solaris operating environment to a known, tested patch level. If you want to apply a particular patch, and only that patch, do so through your normal support channels.

Note – The name of this product is Solaris 9 MU2. Code or package path names might use Solaris 2.9 or SunOS™ 5.9. Always follow the code or path as it is written in this document.

Installing the Solaris 9 Maintenance Update 2

This chapter describes how to install your Solaris 9 MU2 software. If you are installing the Solaris 9 MU2 software as part of a custom JumpStart™ installation, refer to the *Solaris 9 Installation Guide*.

Time Considerations

The Solaris 9 MU2 installation time varies, depending on the following:

- CPU speed of your machine
- `install_mu` option you select
- Transfer speed of the hard drive or network you use to access the `install_mu` code and patch set

If you install the MU2 with the `-backout` option disabled, installation proceeds more quickly. However, you cannot then back out any of the patches MU2 delivers.

Requirements

The MU2 can only be installed on a system that is running the Solaris 9 operating environment.

Space requirements for each file system vary, depending on the following:

- Whether you select the `-backout` option
- The location of the backout directory when saving backout data

- The disk partitions and the space available in each file system, relative to the patch disk space that is needed for each file system
- Your system's locale
- Whether some of the Maintenance Update patches are already installed on your system

The `install_mu` script performs a space analysis and reports the space that is needed for each file system, including backout space if applicable. The space calculations are completed in several minutes.

The `install_mu` script does not proceed if it determines that space is lacking in one or more file systems. The patch installation space that is needed is calculated with some precision. However, the backout data space need is estimated. The reported need might be higher than the actual need.

Run `install_mu` with the `-f` option if you meet both of the following conditions:

- If you know, that you have enough disk space to apply the patch set and backout data if desired
- If you are bypassing the space calculation

Installing the Solaris 9 MU2

Solaris 9 MU2 software can only be installed if the system that is running `install_mu` is already running the Solaris 9 operating environment.

Note – Relocatable root and service areas are not supported in the Solaris 9 MU2.

Ideally, you reboot your system in single-user mode before installing MU2 because MU2 applies patches to system libraries. Avoid introducing instability in individual systems in a multiuser system. Ensure that no processes have mapped to an unpatched version of a library. Otherwise, those processes might later attempt to map to different sections of the old library.

In single-user mode, network services are not available. The MU2 image might be on the network rather than on a CD. If so, you must copy the MU2 image from the network to your local system before booting your system in single-user mode.

You need to install MU2 by using NFS in multiuser mode if you meet one of the following criteria:

- You cannot reboot the system in single-user mode

- You do not have enough disk space to make a local copy of the MU2 image

In this case, you should have the system in as quiet a state as possible, without users logged on or running jobs.

When in single-user mode or multiuser mode, you must reboot your system after MU2 is installed. Do not use the `exit` command. If the `exit` command is used, the system is brought to `init 3`, and no one can log in until the system is rebooted. If the root user has logged out, and no other root users remain logged in, the system must be rebooted. See Chapter 4, "Known Problems", for more detail.

Note – Ensure that you have backed up your system's operating system before proceeding.

To install the Solaris 9 MU2 software:

1. **Ensure that no important user or system processes are running.**

Note – You must kill the `powerd` process if it is running.

2. **Exit the current session.**

The CDE login screen is displayed.

3. **Click the Options button and select Command Line Login.**

The system prompts you to log in.

4. **Type your login name as root and type the root password:**

```
login: root
password: root password
```

5. **Reboot in single-user mode. From the root shell prompt, type:**

```
# reboot -- -s
```

6. **Type the root password.**

Check that the system displays the following message and is now in system maintenance mode.

```
Entering System Maintenance Mode

Sun Microsystems Inc. SunOS 5.9 Generic May 2002
#
```

7. **Run `install_mu`. From a local copy of the MU2 image, type:**

```
# cd local_directory
# ./install_mu options
```

You can use the following options at the command line.

TABLE 2-1 Command-Line Options for `install_mu`

Option	Description
-d	Specifies that patches will not be backed up. Use of this argument decreases the time to install the software, but it also prevents you from backing out individual patches. Cannot be specified with -B option.
-p patchdir	Specifies directory that includes all the patches.
-q	Disables the display of dots that indicate <code>install_mu</code> activity.
-B backoutdir	Specifies that the backout data is saved in the indicated directory. Cannot be specified with the -d option.
-f	Forces installation of patch set without checking for sufficient disk space. Use of this option is quicker, but you must use it only if you know that you have enough space.

8. When the installation is complete, check that the following message is displayed.

```
install_mu completed at date_time.
```

- If you see this message, go to Step 9.
- If you encounter any errors, go to Chapter 5.

9. Reboot the system by typing:

```
# sync ; reboot
```

You are then prompted for a login.

Note – To prevent the library conflict problem, you must reboot your system after installing MU2.

10. Type your login name and password:

```
login: login
password: password
```

Identifying the Version of Your Solaris 9 Maintenance Update

To identify the version of your Solaris 9 MU software, type:

```
# cat /etc/release
```

To identify the patches the MU software applied to your system, type:

```
# showrev -p
```


Backing Out the Solaris 9 Maintenance Update 2

If you need to remove one of the patches, you can do so. However, you must not have used the `-d` option of `install_mu` during the installation of the Solaris 9 MU2 software.

Instructions for backing out individual patches are located in each patch directory. Patch directories are located in `/var/sadm/patch/`.

Note – Backing out the entire MU is not possible if you selected the `-d` option of `install_mu`.

Backing Out the Solaris 9 MU2

Ideally, you reboot your system in single-user mode before backing out the MU2. MU2 applies patches to system libraries. Avoid introducing instability in individual systems in a multiuser system. Ensure that no processes have mapped to a patched version of a library. Otherwise, those processes might later attempt to map to different sections of the old library.

In single-user mode, network services are not available. You must copy the MU2 image from the network to your local system before booting your system in single-user mode.

You need to backout MU2 by using NFS in multiuser mode if you meet one of the following conditions:

- You cannot reboot the system in single-user mode
- You do not have enough disk space to make a local copy of the MU2 image

The `backout_mu` script that is provided by MU2 enables you to back out an entire MU.

To back out the Solaris 9 MU2 software:

1. Ensure that no important user or system processes are running.

2. Exit the current session.

The CDE login screen is displayed.

3. Click the Options button and select Command Line Login.

The system prompts you to log in.

4. Type your login name as root and type the root password:

```
login: root
password: root password
```

5. Reboot in single-user mode. From the root shell prompt, type:

```
# reboot -- -s
```

6. Type the root password.

Check that the system displays the following message and is now in system maintenance mode.

```
Entering System Maintenance Mode
```

```
Sun Microsystems Inc. SunOS 5.9 Generic May 2002
#
```

7. Run `backout_mu`. From a local copy of the MU2 image, type:

```
# cd local_directory
# ./backout_mu options
```

TABLE 3-1 Command-Line Options for `backout_mu`

Option	Description
-q	Disables the display of dots that indicate <code>backout_mu</code> activity
-B <i>backoutdir</i>	Specifies an alternate directory for storing the information that is required to back out a patch

8. When the backout is complete, check that the following message is displayed.

```
backout_mu completed at date_time.
```

- If you see this message, go to Step 9 to complete the backout.
- If you encounter any errors, go to Chapter 5.

9. Reboot the system by typing:

```
# sync ; reboot
```

You are then prompted for a login.

Note – To prevent the library conflict problem, you must reboot your system after backing out MU2.

10. Type your login name and password:

login: *login*

password: *password*

Known Problems

This chapter describes known problems that relate to the installation and use of the Solaris 9 MU2 software.

Installation Bugs

`patchadd` Displays Error Message if a Patch That Supports Multiple Patch Architecture Is Installed (4706994)

If you install a patch that supports multiple package architecture, an error that is similar to the following benign error message might be displayed in the `/var/sadm/install_data/Maintenance_Update_log`.

```
Installing xxxxx-yy (x of xx)
See /var/sadm/patch/xxxxx-yy log for details
grep: can't open pdgabbrev.extension/pkginfo
```

For example, if patch `123456-01` contains patch packages `SUNWcar` and `SUNWcar.u`, the following error message is displayed.

```
grep: can't open SUNWcar.u/pkginfo
```

Workaround: Ignore the error message. The message does not affect the installation of the patch. The message indicates that `patchadd(1M)` does not pass the correct parameter to the `remove_PATCH_PROPERTIES()` function.

install_mu Does Not Function Correctly if Started With sh (4062334)

Because of problems that stem from the interactions between `sh(1)` and `ksh(1)`, the `install_mu` utility might fail to install certain patches correctly. This failure occurs when you start the utility by using the following command from the command line or from an administrative script:

```
# /bin/sh ./install_mu options
```

Workaround: Execute `install_mu` from the command line or from an administrative script as follows:

```
# ./install_mu options
```

patchadd Displays an Error That It Is Terminating

One of the following benign messages might be displayed by `install_mu`:

```
One or more patch packages included in  
XXXXXX-YY are not installed on this system.
```

```
Patchadd is terminating.
```

Or:

```
Installation of XXXXXX-YY failed:  
Attempting to patch a package that is not installed.
```

These messages indicate `patchadd` could not find on your system any of the packages that it intended to patch, so `patchadd` skipped the indicated patch.

The message is displayed when `patchadd` notices a discrepancy while installing a patch of one architecture onto a system with a different architecture. For example, a `sun4u` patch on a `sun4m` system).

This message might also be the result of one or more missing packages. The package might have been removed by the administrator, or never installed, for example, if a cluster that was smaller than the Entire Distribution was installed.

Workaround: Ignore the message.

Cannot login if System Is Not Rebooted (4423853)

When installing in single-user mode, do not use the `exit` command when you are done. Use the `reboot` command. If the `exit` command is used instead of the `reboot` command, the following occurs:

- The system is brought to `init 3`, and you cannot log in until the system is rebooted.
- No other users can log in until the system is rebooted.
- `pam_projects.so.1` dumps core when any user or process tries to log in. The following message is displayed:

```
NOTICE: core_log: in.rshd[1479] core dumped:
/var/crash/core.in.rshd.1479
```

- If a process attempts to access the `pam_projects.so.1` module, load module messages are displayed on the system console. A message similar to the following is displayed:

```
cron[1433]: load_modules: can not open module
/usr/lib/security/pam_projects.so.1
```

These messages are also displayed if MU2 is installed in multiuser mode. In both cases, the messages are no longer displayed after the system is rebooted.

Workaround: If the `exit` command is used after installing in single-user mode, reboot the system.

If the `exit` command is used after installing in multiuser mode and no root users remain logged in, reboot the system.

Error Messages

The screen messages that are displayed during the execution of `install_mu` and `backout_mu` do not include all errors that might have occurred. Therefore, check the detail log file for additional information about any patches or packages that were not installed or backed out.

```
# more /var/sadm/install_data/log_file.mu_version_name.date_time
```

In this example, the following applies:

- *log_file* is the name of the log file for the process you completed. For install, the name is `Maintenance_Update_log`. For backout, the name is `MU_Backout_log`.
- *mu_version_name* is the name of the MU (it is `Solaris_9MU2` for MU2).
- *date_time* is the designated date and time that was copied from `date +%Y%m%d%H%M%S` (*yyyymmddHHMMSS* or *year-month-day-hour-minute-second*).

Note – `/var/sadm/install_data/log_file` is a symbolic link to the most recent MU log file.

Note – You see only the error text when the message is displayed. You cannot see the error code number that is included here. The error code numbers have been included here for reference. You might write a script that calls the `install_mu` or `backout_mu`. Your script then needs to check the return values for the failure conditions.

signal detected.

install_mu (backout_mu) is terminating.

Explanation and recommended action: (Error Code 1) You interrupted install_mu (or backout_mu) by pressing Control-C. Reinvoke the program. If you reinvoke install_mu, error messages about previously applied patches are displayed in the log file. Ignore the error messages.

install_mu (backout_mu) is unable to find the INST_RELEASE file for the target file system. This file must be present for install_mu (backout_mu) to function correctly.

Explanation and recommended action: (Error Code 2) The program cannot find the file /var/sadm/system/admin/INST_RELEASE on the system. The system has become corrupted. The system must be reinstalled.

ERROR: Cannot find *\$xcommand* which is required for proper execution of install_mu (backout_mu).

Explanation and recommended action: (Error Code 3) install_mu and backout_mu require certain system utilities (for example awk, sed, grep) to be present in the /usr/bin and /usr/sbin directories. One, of these utilities, is missing. Contact your system administrator for assistance.

The -B and -d arguments are mutually exclusive.

Explanation and recommended action: (Error Code 4) The -d option requests that no backout data be saved. The -B option specifies a directory to store backout data. You cannot use these two options together. Reinvoke install_mu with only one of these options.

The -p parameter must be a directory. *\$uPATCHDIR* is not a directory.

Explanation and recommended action: (Error Code 5) You selected the -p option and supplied a path that is not a valid directory. Reinvoke install_mu (or backout_mu) with a valid path to the -p option.

The -B parameter must be a directory. *\$l* is not a directory.

Explanation and recommended action: (Error Code 6) You supplied an option to -B that is not a directory. Reinvoke install_mu (or backout_mu) with a valid path to the -B option.

Permissions on backout directory *\$BACKOUTDIR* not adequate.

Explanation and recommended action: (Error Code 7) You supplied an option to -B that is not a writable directory. Contact your system administrator for assistance.

Invalid option.

Explanation and recommended action: (Error Code 10) You selected an unrecognized option. Read the usage message displayed and reinvoke install_mu (or backout_mu).

Can't write to Log File: *\$LOGFILE*

Explanation and recommended action: (Error Code 11) `install_mu` and `backout_mu` need to write its log into the `/var/sadm/install_data` directory. Check that the `install_data` directory is writable, then reinvoke `install_mu` (or `backout_mu`).

`SUNWcar` (core architecture root) package does not exist in `/var/sadm/pkg`.

Explanation and recommended action: (Error Code 12) The `/var/sadm/pkg/SUNWcar` directory is missing on the system. Your system has become corrupted. Contact your system administrator for assistance.

`install_mu` (`backout_mu`) only supports the `sparc` architecture.
`install_mu` (`backout_mu`) has detected `ARCH=$LPROC`

Explanation and recommended action: (Error Code 13) You ran `install_mu` (or `backout_mu`) on a system that is not based on SPARC™ architecture. Reinvoke `install_mu` (or `backout_mu`) on a SPARC platform.

`-p` parameter does not point to a directory containing a `.order` file. Looked in `$uPATCHDIR` and in `$uPATCHDIR/MU/sparc/Patches`.

Explanation and recommended action: (Error Code 14) You provided a path to a patch directory. However, `install_mu` could not find a `.order` file in that directory, which it needs to determine the correct patch installation order. `install_mu` checked the *\$path_you_specified* and in the *\$path_you_specified/MU/sparc/Patches*. Check for the existence of a `.order` file and reinvoke `install_mu`.

`install_mu` cannot locate patch order (`.order`) file. Paths searched: `./sparc/Patches`, `MU/sparc/Patches`, `./$uPATCHDIR/MU/sparc/Patches`.

Explanation and recommended action: (Error Code 15) You did not supply `install_mu` (or `backout_mu`) with the `-p` option to identify the patch directory and `install_mu` (or `backout_mu`) could not locate the patch directory. Reinvoke `install_mu` (or `backout_mu`) with the `-p` option.

You must be root to execute this script.

Explanation and recommended action: (Error Code 16) You need root privileges to run `install_mu` or `backout_mu` because only user root can apply and remove patches. Reinvoke the program as root.

`install_mu` (`backout_mu`) can only patch version 2.9 systems.
Target system is version *\$TrgOSVers*.

Explanation and recommended action: (Error Code 17) You asked `install_mu` to apply patches to a system not running Solaris 9, or you asked `backout_mu` to back out patches from a system not running Solaris 9. `install_mu` and `backout_mu` must be run on a Solaris 9 system.

Not enough disk space to apply entire patch set.

Explanation and recommended action: (Error Code 22) `install_mu` analyzed your system and determined that not enough disk space was on one or more file systems to install the entire patch set. Make disk space available in the deficient file systems reported and reinvoke `install_mu`. If you believe that you have enough disk space to apply the Maintenance Update, reinvoke `install_mu` with the `-f` option.

Not enough disk space to save patch backout data.

Explanation and recommended action: (Error Code 23) `install_mu` analyzed your system and determined that not enough disk space was in the backout directory to save patch backout data. Select a backout directory with enough space, then reinvoke `install_mu`. If you believe that you really have enough disk space in the backout directory, reinvoke `install_mu` with the `-f` option.

Dry run disk space check failed.

Explanation and recommended action: (Error Code 24) `install_mu` invokes `pkgadd` with a special option to check for sufficient disk space. `pkgadd` failed, probably because `/` or `/var` is very low on disk space or because your system has become corrupted. Contact your system administrator for assistance.

The `-f` and `-D` options are mutually exclusive.

Explanation and recommended action: (Error Code 25) The `-f` option instructs `install_mu` to skip the dry-run disk space calculation phase. The `-D` option requests that only the dry-run calculations be made. Choose one option, but not both.

Cannot find state file. Looked for a file of the form `/var/sadm/install_data/.mu_state.{$root_or_usr.date_time}`.

Explanation and recommended action: (Error Code 27) `backout_mu` requires a file that contains a list of the patches `install_mu` applied in order to know which patches to back out. If this file is missing, `backout_mu` cannot function. To remove the MU2 patch set, run the `backout_mu` program from the MU2 software distribution.