



Solaris™ 2.6 Maintenance Update 2 Release Notes

SPARC™ Platform Edition

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Contents

- 1. Introduction 1**
- 2. Installing the Solaris 2.6 Maintenance Update 3**
 - Requirements 3
 - Installing Maintenance Update 2 4
 - Installing on a Diskless Client or Solstice AutoClient from a Server 7
 - Installing with `install_mu` 9
 - Patching Servers That Support Net Installs and Custom JumpStart 9
 - Backing Out 10
 - Identifying the Version of Your Solaris 2.6 Maintenance Update 13
- A. Error Messages 15**
- B. Known Problems 23**
 - Known Problems in Solaris 2.6 MU2 23
 - Installation Bugs 23
- C. Solaris 2.6 Maintenance Update Contents 27**
 - Patch List 27

Introduction

The *Solaris 2.6 Maintenance Update 2 Release Notes* explains how to install the Solaris™ 2.6 Maintenance Update™ 2 (MU2) software, a set of patches that have been tested together and packaged for a one-step installation.

The Solaris 2.6 MU2 applies to all systems running Solaris 2.6 software and to all Solaris 2.6 locales. The installation automatically updates previously installed patches without regressing any post-Solaris 2.6 patches you have on your system.

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

The Solaris 2.6 MU2 installation procedure takes much less time than it takes to install the MU2 patches individually. The Solaris 2.6 MU2 installation time varies depending on:

- CPU speed of your host
- `install_mu` option you select
- Transfer speed of the CD-ROM drive, 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 will proceed more quickly. However, you will not be able to back out any of the patches MU2 delivers.

If you are performing an initial installation and want to make `install_mu` run slightly faster, use the `-u` option, which skips the validation step of `install_mu`. The validation step verifies that the files to be updated were not changed since the initial installation.

MU2 introduces a feature that allows you to install several MUs sequentially and back out one or more of them in the reverse order in which they were installed. This is possible because `install_mu` records and saves a list of patches it successfully applies.

backout_mu no longer reads its backout patch list from the source directory of installed patches, but reads a special system-wide (or client-wide) state file that contains the list that the last install_mu recorded. Consequently, you no longer specify a backout patch directory with the -p option when running backout_mu. This new feature ensures that MU2 is not backed out before MU3.

Note - Because this feature is new to MU2, backout_mu will not find a state file for MU1. To back out MU1, you will need to run the backout_mu script included in the MU1 distribution.

Installing the Solaris 2.6 Maintenance Update

This chapter describes how to install your Solaris 2.6 MU2 software on a standalone system or on a diskless client or Solstice™ AutoClient™ from a server. If you want to install the Solaris 2.6 MU2 software as part of a customized JumpStart™ (automatic installation) process, refer to the SunSoft Press publication *Automating Solaris Installations: A Custom JumpStart Guide*.

Requirements

Space requirements per file system vary depending on:

- Whether you select the back out option
- The location of the back out directory when saving backout data
- The disk partitions and the space available in each file system versus the patch disk space needed per file system
- Your system's locale
- Whether some of the Maintenance Update patches are already installed on your system
- Whether you are patching a client, a server, or a service area

The `install_mu` script performs a space analysis for you and reports the space needed per file system, including back out space if applicable. The space calculations take several minutes.

The `install_mu` script does not proceed if it determines that space is lacking in one or more file systems. Although the patch installation space needed is calculated fairly

precisely, the back out data space need is estimated and the reported need may be higher than the actual need.

- If you are certain that you have enough space to apply the patch set (and back out data if desired) and wish to bypass the space calculation, run `install_mu` with the `-f` option.
- If you would like to have `install_mu` report on your disk space availability and need without applying any patches, run `install_mu` with the `-D` option.

Note - The MU may only be installed on a system running the Solaris 2.6 operating environment. In a server/client environment, the MU can only be applied to a client if both the client and server are running the Solaris 2.6 operating environment.

Installing Maintenance Update 2

Solaris 2.6 MU2 software can only be installed if both the manager and the target systems are already running Solaris 2.6.

Note - Be sure that you have backed up your system's operating system before proceeding. You must shut down your system and be in a single-user state before you start to install the Solaris 2.6 MU2 software.

To install the Solaris 2.6 MU2 software:

1. **Exit the current session.**
The CDE login screen appears.
2. **Click the Options button and select Command Line Login.**
The system prompts you to login.
3. **Type your login name as `root` and enter the root password:**

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

4. **Shut down your system by typing:**

```
# /usr/sbin/shutdown -y -i S -g 120
```

The system changes to single-user state, displays the following messages, and then prompts you for the root password.


```
INIT: New run level: S
INIT: SINGLE USER MODE
Type Ctrl-d to proceed with normal startup,
(or give root passwd for system maintenance):
```

5. Enter the root password.

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

```
Entering System Maintenance Mode

Sun Microsystems Inc. SunOS 5.6 Generic August 1997
#
```

6. Run the `install_mu` script located in the product directory.

```
# cd product directory
# ./install_mu any desired options
```

The following options can be used on the command line:

TABLE 2-1 Command Line Options for `install_mu`

Option	Description
<code>-u</code>	Unconditional install; does not verify that files to be updated were not changed since the initial installation.
<code>-d</code>	Specifies that patches will not be backed up. Using this argument decreases the time it takes to install the software, but it also prevents you from backing out individual patches when needed. Cannot be specified with <code>-B</code> option.
<code>-p patchdir</code>	Specifies directory that includes all the patches.
<code>-q</code>	Disables the display of dots that indicate <code>install_mu</code> activity.
<code>-B backoutdir</code>	Specifies that the back out data is saved in the indicated directory. Cannot be specified with the <code>-d</code> option

TABLE 2-1 Command Line Options for `install_mu` (continued)

Option	Description
<code>-f</code>	Force installation of patch set without checking for sufficient disk space. Using this option saves time, but you should only use it if you are certain that you have enough space. Cannot be specified with the <code>-D</code> option.
<code>-D</code>	Dry run mode; reports the amount of needed disk space without applying patches. Cannot be specified with <code>-f</code> option.
<code>-R rootdir</code>	Specifies an alternate root directory. Use to apply MU2 to clients whose package system information files are located in a directory tree starting in the specified <i>rootdir</i> . Cannot be specified with the <code>-S</code> option.
<code>-S servicedir</code>	Specifies an alternate service directory. Use to apply MU2 to a service area for clients of a different operating system or architecture than the server. Cannot be specified with the <code>-R</code> option.

When the installation is complete, the following message is displayed:

```
install_mu completed successfully.
```

- If you see this message, go to Steps 7 and 8 to complete the installation.
- If you encounter any errors, go to Step 9.

7. Reboot the system by typing:

```
# sync ; reboot
```

You are then prompted for a login.

8. Type your login name and password:

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

9. If you encounter errors, check the detail log file for error information.

Errors encountered during patch installation are displayed after installation has been completed. Check the detail log file for additional information about any patches or packages that were not installed.

```
# more \  
$rootdir/var/sadm/install_data/Maintenance_Update_log.mu_version_name.date_time
```

where:

- *\$rootdir* is the root directory of the system that you have just updated; for example, / for the local system and /export/root/*clientname* for a diskless client.
- *mu_version_name* is the name of the MU (it is Solaris_2.6MU2 for the MU2).
- *date_time* is the designated date and time copied from `date +%Y%m%d%H%M%S` (i.e., *yyyymmddHHMMSS* or *year-month-day-hour-minute-second*).

Note - *\$rootdir/var/sadm/install_data/Maintenance_Update_log* is a symbolic link to the most recent MU2 log file.

For explanations and recommended actions for error codes, see Appendix A.

Installing on a Diskless Client or Solstice AutoClient from a Server

You can install the Solaris 2.6 MU2 software on a diskless client or Solstice AutoClient from a server that is in multiuser mode. However, you cannot run `install_mu` before you add a client. Refer to *Solaris 2.6 Information Library* for details on using Solstice™ AdminSuite™.

You need to decide whether to use `admclientpatch` or `install_mu` to install the Solaris 2.6 MU2 software in a client/server environment. Use the following table and discussion to decide which method to use:

TABLE 2-2 Differences between `admclientpatch` and `install_mu`

	<code>admclientpatch</code>	<code>install_mu</code>
Patching speed	Slower	Faster
Service area handling	Automatic	Manual

TABLE 2-2 Differences between `admclientpatch` and `install_mu` (continued)

	<code>admclientpatch</code>	<code>install_mu</code>
Ease of patching	More involved	Simple
Integration with AdminSuite	Complete	None

`admclientpatch` is an AdminSuite utility that manages the installation and removal of a collection of patches on a set of managed clients. Applying the MU patch set via `install_mu` bypasses AdminSuite's patch management process and makes it more difficult later to manage the patch set shared by multiple clients. This is a concern if the number of clients is large or if patches other than those in the MU set are installed or removed.

`admclientpatch` automatically patches client service areas. With `install_mu`, each client needs to be patched with the `-R` option, then `install_mu` must be executed with the `-S` option for each service area. If there are multiple clients that share a single service area, you only need to run `install_mu` once with the `-S` option. This procedure ensures that both the service area and root area of a client remain consistent.

`install_mu` patches clients more quickly because it bypasses the `admclientpatch` patch management process and because `admclientpatch` removes older revisions of patches before applying newer ones. In environments with few clients and service areas, `install_mu` may be a good way to patch clients and service areas.

`install_mu` may be easier to use because it recognizes the MU set of patches. The MU distribution patch directory contains a file (`.order`) that lists all of the patches it will apply in the correct order, considering patch requirements. To patch clients with `admclientpatch`, write a script that reads the `.order` file, applies the patches to the `admclientpatch` spool area, and then invokes `admclientpatch` to install the patches to the clients. Run `install_mu` with the `-D` (dry run) option to identify the location of the `.order` file.

For more information about managing clients and patches, see the *Solstice AutoClient 2.0 Administration Guide* at <http://docs.sun.com>

Note - `install_mu` supports installations on servers with both homogeneous and heterogeneous server/client root paths. It also supports installing on a server's service area for either heterogeneous or homogeneous clients.

Installing with install_mu

To install the Solaris 2.6 MU2 software on a diskless client or AutoClient from a server using `install_mu`:

1. Halt the diskless client or AutoClient.
2. On the server, run the `install_mu` script located in the product directory, with the client's root directory as the argument:

```
# ./install_mu -R /export/root/client_name
```

where *client_name* is the hostname of the diskless client or AutoClient.

3. Repeat this process for each diskless client or AutoClient being served.

To install the Solaris 2.6 MU2 software on a server's service area:

1. Run the `install_mu` script located in the product directory:

```
# ./install_mu -S servicedir
```

2. Repeat this process for each service area.

Patching Servers That Support Net Installs and Custom JumpStart

MU2 contains several patches that correct a problem with Interactive Install and Custom JumpStart. If you have servers that support Net Install, install the patch which corresponds to the release(s) installed by the Net Install server(s).

TABLE 2-3 Patches for Net Installs and Custom JumpStart

Release	Patch
Solaris 2.6	106152-01, 106305-01
Solaris 2.6 Hardware: 3/98	106154-01, 106307-01



Caution - Before installing these patches, you must install patch 106125-02 to the system containing the `patchadd` binary you will use to install these special patches. You can install patch 106125-02 as a stand alone patch or by installing MU2.

The patches are in the `/product_directory/sparc/Patches/Special_Patches` directory. Each patch affects the miniroot (the files located under `Tools/Boot` on the OS image) and are installed differently from other Solaris patches. To install one of these patches, refer to the "Special Install Instructions" section of the README located in the individual patch directory.

Note - The miniroot is found on full Net Install servers and Boot servers. You must patch the miniroot in both locations. If you patch a Net Install server and subsequently make a Boot server from it using the `setup_install_server` command, the new Boot server incorporates the patch applied to the Net Install server.

Follow these steps to backout the special patches:

1. Change directories to the patch directory:

```
# cd product_directory/sparc/Patches/Special_Patches/patch_id
```

2. Type the following command:

```
# ./backoutpatch -C path_to_image/Boot patch_id
```

Backing Out

The patches in the Solaris 2.6 MU2 software have been tested together as a set and, for the greatest stability, should be used that way. If you need to remove one of the patches, you may do so provided that you did not use the `-d` option of `install_mu` during the installation of the Solaris 2.6 MU2 software.

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

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

The `backout_mu` script provided by MU2 enables you to back out an entire MU. To back out the Solaris 2.6 MU2 software:

1. **Exit the current session.**
The CDE login screen appears.
2. **Click the Options button and select Command Line Login.**

The system prompts you to login.

3. Type your login name as **root** and enter the root password:

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

4. Shut down your system by typing:

```
# /usr/sbin/shutdown -y -i S -g 120
```

The system changes to single-user state, displays the following messages, and then prompts you for the root password.

```
INIT: New run level: S
INIT: SINGLE USER MODE
Type Ctrl-d to proceed with normal startup,
(or give root passwd for system maintenance):
```

5. Enter the root password.

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

```
Entering System Maintenance Mode

Sun Microsystems Inc. SunOS 5.6 Generic August 1997
#
```

6. Run the `backout_mu` script located in the product directory.

```
# cd product directory
# ./backout_mu any desired options
```

The following options can be used on the command line:

TABLE 2-4 Command Line Options for backout_mu

Option	Description
<code>-T tooldir</code>	Specifies the location of the patch tools directory.
<code>-q</code>	Disables the display of dots that indicate <code>install_mu</code> activity.
<code>-B backoutdir</code>	Specifies an alternate directory in which patches have been saved.
<code>-R rootdir</code>	Specifies an alternate root directory.
<code>-S servicedir</code>	Specifies an alternate service directory.

When the back out is complete, the following message is displayed:

```
backout_mu completed successfully.
```

- If you see this message, go to Steps 7 and 8 to complete the back out.
- If you encounter any errors, go to Step 9.

7. Reboot the system by typing:

```
# sync ; reboot
```

You are then prompted for a login.

8. Type your login name and password:

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

9. If you encounter errors, check the detail log file for error information.

Errors encountered during patch back out are displayed after back out has been completed. Check the detail log file for additional information about any patches or packages that were not backed out.


```
# more \  
$rootdir/var/sadm/install_data/MU_Backout_log.mu_version_name.date_time
```

where:

- *\$rootdir* is the root directory of the system that you have just updated; for example, / for the local system and /export/root/*clientname* for a diskless client.
- *mu_version_name* is the name of the MU (it is Solaris_2.6MU2 for the MU2).
- *date_time* is the designated date and time copied from date +%y%m%d%H%M%S (i.e., *yyyymmddHHMMSS* or *year-month-day-hour-minute-second*).

Note - *\$rootdir/var/sadm/install_data/Maintenance_Backout_log* is a symbolic link to the most recent MU2 log file.

For explanations and recommended actions for error codes, see Appendix A.

Identifying the Version of Your Solaris 2.6 Maintenance Update

To identify the version of your Solaris 2.6 MU software, type:

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


Error Messages

The screen messages displayed during the execution of `install_mu` and `backout_mu` do not include all errors that may have occurred. Therefore, verify the results of the installation by looking at the `Maintenance_Update_log` or `Maintenance_Backout_log` file in the `/var/sadm/install_data` directory. Messages recorded in this log file reflect the installation or back out status of each patch and package. Some error message examples follow.

Note - You will see only the error text when the message appears, not the error code number included here. The error code numbers are included here in case you are writing a script that calls the `install_mu` or `backout_mu` and your script needs to know the return values for the failure conditions.

Error Code 1

signal detected.

`install_mu (backout_mu)` is terminating.

Explanation and recommended action: 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 will appear in the log file. Ignore the error messages.

Error Code 2:

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

Explanation and recommended action: The program cannot find the file `/var/sadm/system/admin/INST_RELEASE` in the client's root area. The client

was not created properly or has become corrupted. Back up the client, then remove and recreate it.

Error Code 3:

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

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

Error Code 4:

The -B and -d arguments are mutually exclusive.

Explanation and recommended action: The -d option requests that no backout data be saved. The -B option specifies a directory to store backout data. These two options cannot be used together. Reinvoke install_mu with only one of these options.

Error Code 5:

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

Explanation and recommended action: 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.

Error Code 6:

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

Explanation and recommended action: 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.

Error Code 7:

Permissions on backout directory \$BACKOUTDIR not adequate.

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

Error Code 8:

The -R parameter must be a directory. \$ROOTDIR is not a directory.

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

Error Code 9:

The -S parameter must be a directory. /export/\$1 is not a directory.

Explanation and recommended action: install_mu and backout_mu look in /export for the Service area you supply to the -S option. Currently "Solaris_2.6" is the only valid option to -S. The /export/Solaris_2.6 directory must exist. If it does not, then the service area does not exist. Contact your system administrator for assistance.

Error Code 10:

Invalid option.

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

Error Code 11:

Can't write to Log File: \$LOGFILE

Explanation and recommended action: install_mu and backout_mu need to write its log into the \$ROOTDIR/var/sadm/install_data directory, where \$ROOTDIR specifies the root directory of your client or server. Check that the install_data directory is writable, then reinvoke install_mu (or backout_mu).

Error Code 12:

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

Explanation and recommended action: The /var/sadm/pkg/SUNWcar directory is missing in the client or server's root area. Your client or server has become corrupted. Contact your system administrator for assistance.

Exit Code 13:

install_mu (backout_mu) only supports sparc and i386 architectures. install_mu (backout_mu) has detected ARCH=\$LPROC.

Explanation and recommended action: You ran install_mu (or backout_mu) on a system whose architecture is not SPARC or i386. Reinvoke install_mu (or backout_mu) on a supported platform.

Exit Code 14:

-p parameter does not point to a directory containing a .order file. Looked in \$uPATCHDIR and in \$uPATCHDIR/\$MU_TOP/\$LPROC/Patches.

Explanation and recommended action: You provided a path to a patch directory but install_mu could not find a .order file in that directory, which it needs to determine the correct patch installation order. install_mu (or backout_mu) looked in \$path_you_specified and in \$path_you_specified/MU/\$sarch/Patches, where \$sarch is either "sparc" or "i386." Check for the existence of a .order file and reinvoke install_mu (or backout_mu).

Exit Code 15:

install_mu cannot locate patch order (.order) file. Paths searched: ./LPROC/Patches, \$MU_TOP/LPROC/Patches, /cdrom/cdrom0/LPROC/Patches ./uPATCHDIR, and ./uPATCHDIR/\$MU_TOP/LPROC/Patches.

Explanation and recommended action: 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.

Exit Code 16:

You must be root to execute this script.

Explanation and recommended action: You need root privileges to run install_mu or backout_mu since only user root can apply and remove patches. Reinvoke the program as root.

Exit Code 17:

install_mu (backout_mu) can only patch version 2.6 systems. Target system is version \$TrgOSVers.

Explanation and recommended action: You asked install_mu to apply patches to a server or client not running Solaris 2.6, or you asked backout_mu to back out patches from a server or client not running Solaris 2.6; install_mu and backout_mu must be run on a Solaris 2.6 system.

Exit Code 18:

Directory with patch tools, \$TOOLSDIR, not found.

Explanation and recommended action: install_mu (or backout_mu) cannot find the Tools directory distributed with the Maintenance Update. If you copied the Maintenance Update distribution to your system, then the copy has probably become corrupted or modified. Reinstall the Maintenance Update distribution.

Exit Code 19:

`$TOOLS DIR/patchadd` (or `patchrm`) does not exist or is not executable.

Explanation and recommended action: The Maintenance Update distribution comes with its own versions of `patchadd` and `patchrm`. One of these is missing or is not executable. If you copied the Maintenance Update distribution to your system, then the copy has probably become corrupted or modified. Reinstall the Maintenance Update distribution.

Exit Code 20:

The service area must be `Solaris_2.6`.

Explanation and recommended action: The `-S` option currently only supports patch Solaris 2.6 Service areas. Reinvoke `install_mu` (or `backout_mu`) with a valid 2.6 service area and the argument "`Solaris_2.6`" to the `-S` option.

Exit Code 21:

The `-S` and `-R` arguments are mutually exclusive.

Explanation and recommended action: If you are applying (or backing out) the Maintenance Update to a diskless client or AutoClient, then you need to invoke `install_mu` (or `backout_mu`) twice, once with the `-R` option to patch (or backout) the client's root area and again with the `-S` option to patch (or backout) the client's service area.

Exit Code 22:

Not enough disk space to apply entire patch set.

Explanation and recommended action: `install_mu` analyzed your system and determined that there was not enough disk space on one or more file systems to install the entire patch set. Free up disk space 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.

Exit Code 23:

Not enough disk space to save patch backout data.

Explanation and recommended action: `install_mu` analyzed your system and determined that there was not enough disk space in the back out directory to save patch back out data. Select a back out directory with enough space, as is reported needed, then reinvoke `install_mu`. If you believe that you really have enough disk space in the back out directory reinvoke `install_mu` with the `-f` option.

Exit Code 24:

Dryrun disk space check failed.

Explanation and recommended action: `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.

Exit Code 25:

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

Explanation and recommended action: 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 or the other, but not both.

Exit Code 26:

The `$service_area` service cannot be found on this system.

Explanation and recommended action: `install_mu` expected to find the `/export/$service_area/var/sadm/pkg` directory, where `$service_area` is the argument to the `-S` option. The directory was not found. Check that you have a valid service area. Contact your system administrator for assistance.

Error Code 27:

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

Explanation and recommended action: Starting with MU2, `backout_mu` requires a file containing a list of patches `install_mu` applied to know which patches to back out. If this file is missing, `backout_mu` cannot function. To remove the MU1 patch set, run the `backout_mu` program from the MU1 software distribution.

Error Code 28:

The `-T` parameter must be a directory. `uTOOLDIR` is not a directory.

Explanation and recommended action: You supplied an option to `-T` that is not a directory. Reinvoke `backout_mu` with a valid path to the `-T` option.

Error Code 29:

`-T` parameter does not point to a directory containing patching tools. Looked in `$uTOOLDIR` and in `$uTOOLDIR/MU/common/Tools`.

Explanation and recommended action: `backout_mu` requires the tools `installpatch.fast` and `backoutpatch.fast`. These tools could not be found in the directory specified by the `-T` option. Reinvoke `backout_mu` with a valid path to the `-T` option.

Error Code 30:

backout_mu cannot locate tools directory. Paths searched: ./
common/Tools, MU/common/Tools, /cdrom/cdrom0/MU/common/Tools

Explanation and recommended action: backout_mu searched unsuccessfully in various directories for the patch tools installpatch.fast and backoutpatch.fast. Reinvoke backout_mu with the -T option and a path to these tools.

Known Problems

Known Problems in Solaris 2.6 MU2

This chapter describes known problems relating to the installation and use of the Solaris 2.6 MU2 software.

Installation Bugs

`install_mu` Does Not Function Correctly When Starting It Using `sh` 4108278

Because of problems regarding the interactions between `sh(1)` and `ksh(1)`, the `install_mu` utility may fail to install certain patches correctly whenever you start it using the following command from the command line or from an administrative script:

```
# /bin/sh ./install_mu arguments
```

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

```
# ./install_mu arguments
```

install_mu Leaves Files in the /tmp Directory 4108278

install_mu leaves files and working directories in /tmp. The files and directories could cause /tmp to become full, potentially leading to system problems. Files and directories left in /tmp are of the form install* and SUNW*.

Workaround: After install_mu has completed execution, check /tmp for files and directories named install* and SUNW*. If the files were created recently by root, remove them. Or, if the MU was applied to a stand alone machine or server, reboot the system.

Solaris 2.6 MU1 and MU2 Display Errors in the Miniroot With Solaris 2.6 and Solaris 2.6 Hardware: 3/98 4133860

If you are running the Solaris 2.6 or Solaris 2.6 Hardware: 3/98 operating environment and you use install_mu in the miniroot environment or through JumpStart to install MU1 or MU2, the following message is displayed:

```
ERROR: Cannot find /usr/xpg4/bin/grep which is required
for proper execution of patchadd.
```

Workaround: To correct the problem you must extract the missing grep file from the SUNWxcu4 package's compressed cpio archive and put it into the proper place in the OS image miniroot area. Follow these steps to do this:

1. Change directories to the Boot directory:

```
# cd 2.6_OS_image/Tools/Boot
```

2. Type the following command:

```
# zcat ../../Product/SUNWxcu4/reloc.cpio.Z | cpio -imd usr/xpg4/bin/grep
```

SPARCStorage™ Array Patches Cause Warnings on Console

After installing the patches that affect the SPARCStorage Array, 105223 or 105375, you may see the following warning messages during your next reboot:

```
WARNING: Cannot merge hwconf devinfo node SUNW,soc@d,10000

WARNING: Cannot merge hwconf devinfo node SUNW,soc@d,10000
soc1: port 0: Fibre Channel is ONLINE
NOTICE: pln2: Old SSA firmware has been detected (Ver:3.11) :
Expected
(Ver:3.12) - Please upgrade
WARNING: Cannot merge hwconf devinfo node SUNW,soc@d,10000
```

(continued)

```
WARNING: Cannot merge hwconf devinfo node SUNW,soc@d,10000
NOTICE: Hot Plug not supported in this system
configuring network interfaces:WARNING: Cannot merge hwconf
devinfo node SUNW
e@3,8c00000
WARNING: Cannot merge hwconf devinfo node SUNW,hme@3,8c00000
hme1.
```

Note - These warnings will not affect the operation of your SPARCStorage Array.

Workaround: Downloading new firmware to your SPARCStorage Array will resolve the problem. You will find more information in the README.*\$patch_id* file in /var/sadm/patch/*\$patch_id*, where *\$patch_id* is the latest revision of patch 105223 or 105375.

Solaris 2.6 Maintenance Update Contents

This chapter provides a patch list for the SPARC platform.

For example, the following patch:

```
105182-03 : SunOS 5.6_x86: kernel update patch
         4062572 4064495 4070968 4076062 4077343
```

lists all parts of a patch where:

- 105182-03: is the patch ID number
- SunOS 5.6_x86: kernel update patch is the synopsis patch description

4062572 4064495 4070968 4076062 4077343 are the identification numbers of the bugs fixed by patch ID 105182-03

Patch List

```
105160-02 : CDE 1.2: dtterm libDtTerm.so.1 patch
         4064605 4091071
```

```
105181-05 : SunOS 5.6: kernel update patch
         1237009 1266113 4009567 4044980 4062572 4067641 4070714 4070968 4073684 4076062 4076118 4077343
         4079028 4080714 4089451 4089974 4090929 4093708 4095093 4095650 4097064 4097082 4097233 4099656 4099664
         4101647 4106093 4114176 4115793 4117875 4117898 4093052 4098576 4099466 4109198 4110996 4115526 4116141
         4116349 4116351 4116396 4117010 4117862 4117925 4119285 4119751 4126588 4128193 4129902 4130700 4131604
         4131712
```

(continued)

105189-02 : SunOS 5.6: xlibi18n.so.2 and locale.alias patch for upgrade
4061479 4111022

105210-05 : SunOS 5.6: libc & watchmalloc patch
1256914 4055257 4089406 4089981 4097441 4112035

105214-01 : SunOS 5.6: /kernel/fs/sockfs patch
4065762 4067568

105216-03 : SunOS 5.6: /usr/sbin/rpcbind patch
4066019 4070261 4073327 4085394

105222-03 : SunOS 5.6: sbus driver patch
4013307 4072048 4072841 4078795 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710
4097096 4097284 4097849 4099658 4099749

105223-04 : SunOS 5.6: pln/soc drivers & ssafirmware patch
1261305 4005293 4013307 4022233 4040095 4059100 4060752 4063760 4072048 4072841 4077919 4083139
4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096 4097284 4097849 4099658 4099749 4113228
4118419

105332-04 : CDE 1.2: Various swedish GUI fixes for Solaris 2.6
4086032 4073428 4075363 4082033 4087269 4073420 4073713 4090216 4098651 4098653

105338-07 : CDE 1.2: dtmail patch
4064109 4067469 4073484 4065579 4084829 4080866 4083194 4080866 4075562 4091161 4099305 4065965

105356-05 : SunOS 5.6: /kernel/drv/ssd patch
4015886 4058807 4079906 4094627 4111066 4113228 4128046

105357-01 : SunOS 5.6: /kernel/drv/ses patch
4062778

105360-10 : Creator 2.6: FFB Graphics Patch
4056444 4057836 4065302 4081549 4085947 4062930 4092009 4092717 4093080 4094981 4059126 4082494
4097557 4091979 4099666 4100146 4079085 4100204 4103064 4103199 4104671 4104743 4109634 4109883 4116544
4016327 4051347 4098468 4118733

105361-03 : VIS/XIL 2.6 Graphics Patch:
4071130 4083476 4114940

105362-08 : Solaris 2.6: M64 Graphics Patch
4060833 4069724 4076407 4078895 4094117 4094140 4094446 4099137 4099203 4099501 4103169 4099205
4013015 4054648 4098262 4112253 4112476 4112477 4109173 4110034 4112097 4123411

105363-05 : Elite3D 2.6: AFB Graphics Patch
4079085 4101889 4104602 4104743 4106153 4108234 4109390 4109883 4111275 4112056 4111859 4102165
4104671 4109634 4111859 4111967 4111973 4112056 4116157 4116544 4116036 4116591 4116975 4117701 4117711
4118733 4119097 4119152 4119155 4119561 4102361 4110885 4113004 4116923 4118798 4120233 4120244 4120247
4120321 4120506 4120984 4122854 4122867 4122899

105364-01 : Solaris 2.6: SX Graphics Patch
4051223 4090567

(continued)

105375-07 : SunOS 5.6: sf & socal driver patch
 4015886 4025409 4030734 4031041 4036472 4036749 4047301 4050519 4051284 4054687 4054760 4055040
 4055228 4056709 4057005 4058805 4058810 4059228 4060193 4060307 4060560 4062000 4063084 4063493 4063496
 4063497 4063499 4063742 4064114 4064166 4064279 4064482 4064549 4065043 4065321 4065385 4065417 4065420
 4065940 4066322 4066415 4067130 4067384 4067387 4068175 4068954 4069476 4069480 4069883 4070007 4070592
 4071327 4071594 4073562 4073760 4075971 4076393 4076803 4078020 4078980 4080541 4080808 4080854 4081476
 4083546 4083799 4085407 4085409 4086742 4087136 4088087 4088433 4097503 4099594 4100296 4100443 4100605
 4101561 4103990 4104809 4108240 4109787 4110306

105377-03 : SunOS 5.6: BCP patch
 1261543 4007747 4091935

105379-03 : SunOS 5.6: /kernel/misc/nfssrv patch
 4066034 4067949 4071076 4072666

105390-02 : SunOS 5.6: Manual Pages Patch
 4109955

105393-02 : SunOS 5.6: /usr/bin/at patch
 4063161 4099944

105397-02 : SunOS 5.6: /usr/sbin/passmgmt patch
 4059628 4077704

105400-02 : SunOS 5.6: Greek keyboard layout incorrect on Sparc
 4085085

105401-09 : SunOS 5.6: libnsl and NIS+ commands patch
 1168376 1189481 1225430 4062999 4075462 4076999 4080264 4082712 4085394 4098943 4103308 4111288

105403-01 : SunOS 5.6: /usr/lib/netshvc/yp/ypbind patch
 1225430 4080264

105405-01 : SunOS 5.6: libcurses.a and libcurses.so.1 patch
 4058714

105407-01 : SunOS 5.6: /usr/bin/volrmmount patch
 4074650

105416-01 : SunOS 5.6: /usr/lib/acct/acctdisk patch
 4076557

105421-01 : SunOS 5.6: /etc/init.d/asppp patch
 4067655

105426-01 : SunOS 5.6: /usr/lib/libtnfprobe.so.1 patch
 4063963

105464-01 : SunOS 5.6: multiple xterm fixes
 4048352 1197532

105472-02 : SunOS 5.6: /usr/lib/autofs/automountd patch

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4076901 4089254

105486-02 : SunOS 5.6: /kernel/fs/hsfs patch
4079732 4101513 4101516

105490-04 : SunOS 5.6: linker patch
1182346 4008477 4044285 4050759 4058928 4062757 4064724 4066815 4067926 4068108 4074398 4075643
4079003 4079633 4081897 4084466 4085036 4085734 4088306 4092335 4092511 4093064 4095156 4095586 4096079
4096995 4097806 4099127 4099713 4100002 4102130 4102797 4104963 4107525 4108699 4108808 4112585 4126405

105492-02 : SunOS 5.6: cgsix driver patch
4013307 4062599 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710
4097096 4097284 4097849 4099658 4099749

105497-01 : OpenWindows 3.6: printtool patch
4071779

105516-01 : SunOS 5.6: /usr/lib/fs/ufs/fsck patch
4079241

105518-01 : SunOS 5.6: /usr/bin/vacation patch
4072035

105528-01 : SunOS 5.6: /kernel/drv/be patch
4067267

105529-01 : SunOS 5.6: /kernel/drv/tcp patch
4060583

105552-02 : SunOS 5.6: /usr/sbin/rpc.nisd_resolv patch
4069684 4098331

105558-01 : CDE 1.2: "su user dtpad" edits other user's files
1199005

105562-01 : SunOS 5.6: chkey and keylogin patch
1168376

105564-02 : SunOS 5.6: /kernel/misc/rpcsec patch
1168376 4080713

105566-01 : CDE 1.2: calendar manager patch
4062516 4075925 4068406

105568-05 : SunOS 5.6: /usr/lib/libthread.so.1 patch
4068431 4079302 4088215 4100047 4104703 4110026

105570-01 : SunVideo 1.3: SunVideo fixes
4063913 4064500 4081352

105572-03 : SunOS 5.6: /kernel/fs/ufs patch
4073391 4083720 4096789

(continued)

105580-05 : SunOS 5.6: /kernel/drv/glm patch
 4061982 4065612 4067392 4084243 4086287 4091189 4091409 4091943 4092164 4092932 4095570 4096003
 4097481 4101978 4105422 4105427 4110628

105600-05 : SunOS 5.6: /kernel/drv/isp patch
 1221116 4013307 4064135 4072048 4072841 4080914 4083139 4083146 4083171 4084482 4084583 4084938
 4085266 4092346 4093250 4094710 4097096 4097284 4097849 4099658 4099749 4102682 4109700 4109722 4111444
 4112702 4122065 4124026

105604-05 : SunOS 5.6: ebus/pci/rootnexus driver patch
 4013307 4062734 4072048 4072841 4075854 4081673 4083139 4083146 4083171 4084482 4084583 4084938
 4085266 4091031 4094710 4097096 4097284 4097849 4099658 4099749 4100221 4104993

105615-03 : SunOS 5.6: /usr/lib/nfs/mountd patch
 4076760 4094336 4096655

105618-01 : OpenWindows 3.6: Xsun patch
 4086671

105621-02 : SunOS 5.6: libbsm patch
 1243241 4087559

105630-01 : CDE 1.2: libDtWidget patch
 4062940

105633-05 : OpenWindows 3.6: Xsun patch
 4093042 4076297 4101279 4099505 4076297 4066985 4060341 4108134

105637-01 : SunOS 5.6: /usr/lib/power/powerd patch
 4083004

105642-03 : SunOS 5.6: prtdiag patch
 4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4091214 4091434
 4094710 4095278 4097096 4097284 4097849 4099078 4099658 4099749

105651-06 : SunOS 5.6: ac/enviro/fhc/sysctrl driver patch
 4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4091434 4094710
 4095269 4097096 4097284 4097849 4099658 4099749 4100260 4101073 4108488 4110347 4110605 4110630 4110648
 4110707 4110871 4111011 4111641 4111650 4111659 4112705 4113315 4114313 4115412 4115416 4117074 4117075
 4117080 4120268 4121500 4121509 4121512 4121941 4123626 4123644 4123702

105654-03 : SunOS 5.6: driver_aliases/driver_classes/name_to_major patch
 4086747 4091036 4095546

105664-05 : SunOS 5.6: AnswerBook2 1.0
 4091561 4064749 4072794 4074070

105669-02 : CDE 1.2: libDtSvc Patch
 4057875 4095426 4101096 4099389

105686-02 : SunOS 5.6: /usr/sbin/auditreduce patch
 4091316 4094608

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105693-03 : SunOS 5.6: /kernel/fs/cacheefs patch
 1235055 1254308 1260827 1261839 4022851 4054794 4057251 4057254 4059759 4089083 4104645 4104673
 4116501

105703-03 : CDE 1.2: dtlogin patch
 4093449 4091713 4093361

105705-02 : SunOS 5.6: /usr/kernel/drv/audiocs patch
 4085124 4098088 4113904

105718-02 : SunOS 5.6: /usr/bin/su patch
 1224537

105720-03 : SunOS 5.6: /kernel/fs/nfs patch
 4034003 4063668 4113636

105722-01 : SunOS 5.6: /usr/lib/fs/ufs/ufsdump patch
 4090210

105724-01 : SunOS 5.6: /usr/lib/fs/ufs/ufsrestore patch
 4095387

105736-01 : SunOS 5.6: /usr/lib/mail.local patch
 4087808

105741-02 : SunOS 5.6: /kernel/drv/ecpp patch
 4081985 4081996 4084947

105742-03 : SunOS 5.6: /kernel/drv/le patch
 4013307 4072048 4072841 4082867 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710
 4097096 4097284 4097849 4099658 4099749 4100855

105743-01 : SunOS 5.6: /usr/lib/libxfs.so.2 patch
 4059233

105746-01 : SunOS 5.6: /usr/bin/cpio patch
 4072520

105752-01 : AnswerBook2 1.0 (Japanese): Table widths too narrow in Japanese AB2
 4074065

105755-03 : SunOS 5.6: in.named & libresolv patch
 1266187 4056997 4071167 4089702

105757-01 : SunOS 5.6: /usr/bin/echo patch
 1260581

105778-01 : SunOS 5.6: /kernel/fs/specfs patch
 4090929

105780-01 : SunOS 5.6: /kernel/fs/fifofs patch
 4090929

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105786-03 : SunOS 5.6: /kernel/drv/ip patch
4069630 4090772 4098152 4099624

105792-02 : SunOS 5.6: /usr/sbin/tar patch
4064315 4074640 4107828

105795-03 : SunOS 5.6: /kernel/drv/hme patch
4013307 4052280 4064879 4065646 4065896 4067539 4070989 4071199 4072048 4072841 4077699 4078996
4083139 4083146 4083171 4084482 4084583 4084938 4085266 4088622 4094710 4097096 4097284 4097849 4099658
4099749 4100397 4106687 4110875

105797-02 : SunOS 5.6: /kernel/drv/sd patch
4079906 4095563

105798-03 : SunOS 5.6: sun4m & sun4u cprboot patch
1253112 4098143 4108928

105800-01 : usermgr subtracts 1 day from exp date for each modification done:
1152466

105802-03 : OpenWindows 3.6: tooltalk patch
1234927 4100289 4115735

105836-02 : SunOS 5.6: /kernel/drv/qe patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099253 4099658 4099749

105837-02 : CDE 1.2: dtapppgather Patch
4097549 4107453

105845-01 : SunOS 5.6: /etc/security/audit_event patch
4053536

105847-01 : SunOS 5.6: /kernel/drv/st.conf patch
4095719 4098879

105867-01 : SunOS 5.6: /usr/sbin/tapes patch
4100165

105874-01 : SunOS 5.6: libspmisoft.so.1 patch for upgrade
4030965

105924-03 : SunOS 5.6: devlink.tab/iu.ap/minor_perm & se driver patch
4060687 4080183 4087337 4098045 4100150 4110873 4113141 4115830 4116603

105926-01 : SunOS 5.6: /usr/sbin/static/tar patch
4089406

105953-01 : SunOS 5.6: /usr/bin/xargs patch
4094859

105959-01 : SunOS 5.6: /usr/kernel/stmod/ppp patch
4090117

(continued)

105988-01 : SunOS 5.6: /usr/sbin/rwall patch
4098657

105990-01 : SunOS 5.6: vi/ex/edit/view/vedit patch
4066281

106025-01 : CDE 1.2 sdtfprop: patch for group permissions
4083715

106027-01 : CDE 1.2 dtsession: patch for screenlock
4104035

106029-01 : Patch for Solaris 2.6 make:
4098933

106031-02 : SunOS 5.6: adb & kadb patch
4092838 4105822

106033-01 : SunOS 5.6: /usr/sbin/cron patch
4106673

106035-01 : SunOS 5.6: /usr/bin/getopt patch
1087872

106040-03 : SunOS 5.6: dtwm dumps core under s998 due to problems in remote IM
4080186 4097754 4109758

106044-01 : SunOS 5.6: /usr/lib/nss_nisplus.so.1 patch
4101392

106048-02 : SunOS 5.6: Dynamic Reconfiguration dr/hswp patch for Starfire.
4032766 4052382 4099466 4116141 4116351 4117010 4119285 4119751 4119852 4121978 4129031

106049-01 : SunOS 5.6: /usr/sbin/in.telnetd patch
4082063

106058-01 : Solaris2.6: Olwm dosen't accept XtNtitle resource properly in ja locale.
4096940 4081320

106064-01 : SunOS 5.6: /usr/sbin/rpc.rexd patch
4100414

106075-01 : SunOS 5.6: allocate, deallocate and list_devices patch
4095152

106084-01 : XIL 1.3 Patch:
4098786

106112-01 : CDE 1.2 SUNWdtdst dtfile patch:
1236640

106123-01 : SunOS 5.6: sgml patch

(continued)

4109955

106125-02 : SunOS 5.6: Patch for patchadd and patchrm
4107568 4092154 4104959 4113647 4116095

106131-01 : SunOS 5.6(japanese): Japanese iconv patch
4107714 4109293

106138-01 : OpenWindows 3.6: mp fails to set correct A4 paper size information
4114795

106141-01 : SunOS 5.6: /usr/bin/mkdir patch
1237009 4073684

106150-01 : SunOS 5.6: /usr/lib/inet/in.dhcpd patch
4064489

106152-01 : SunOS 5.6: Jumpstart install fails searching for profile()
4097356

106154-01 : SunOS 5.6: Jumpstart install fails searching for profile() with HW398
4097356

106168-02 : SunOS 5.6: dma driver patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749

106169-02 : SunOS 5.6: sbusmem driver patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749

106170-02 : SunOS 5.6: /kernel/drv/esp patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749 4108008

106171-01 : SunOS 5.6: /kernel/drv/lebuffer patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749

106172-02 : SunOS 5.6: /kernel/drv/fas patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749 4108008

106173-02 : SunOS 5.6: /kernel/misc/scsi patch
4013307 4072048 4072841 4083139 4083146 4083171 4084482 4084583 4084938 4085266 4094710 4097096
4097284 4097849 4099658 4099749 4116427

106179-01 : OpenWindows 3.6: XIM XI18N jumbo patch for ja_JP.PCK locale
4108971

106183-03 : SunOS 5.6: cfgadm utility & libraries
4100260 4101073 4108488 4109969 4110347 4110605 4110630 4110648 4110707 4110871 4111011 4111641
4111650 4111659 4112705 4113315 4114313 4115412 4115416 4117074 4117075 4117080 4120268 4121500 4121509

(continued)

4121512 4121941 4123626 4123644 4123702

106193-01 : SunOS 5.6_x86: NIS locale ordering fails to be read by sysidnet
4098639

106216-01 : SunOS 5.6: envctrl driver patch
4058804 4097475

106219-01 : SunOS 5.6: Manual Pages Patch
4105263 4103993 4086039 4086112 4082006

106260-01 : SunOS 5.6: Manual Pages Patch for ffbconfig.1m

106261-01 : SunOS 5.6: Manual Pages Patch cfgadm.1m config_admin.3x libcfgadm.4

106262-01 : SunOS 5.6: Manual Pages Patch for qfe.7d

106284-01 : SunOS 5.6: dr_daemon patch
4115975 4124247 4129034

106305-01 : SunOS 5.6: ttyinstall aborts with 'caught signal 11' on 2.6
4121361

106307-01 : SunOS 5.6: ttyinstall aborts with 'caught signal 11' with HW398
4121361

106317-01 : SunOS 5.6: upgrade_script terminated abnormally during upgrade
4010183

106323-01 : SunOS 5.6: /etc/inet/services patch
4124095