



# Solaris™ 8 2/02 Release Notes Supplement for Sun™ Hardware

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Includes Additional Release Notes and End-of-Support Statements for the Solaris 8 2/02 Operating Environment Running on Sun Hardware Products

Sun Microsystems, Inc.  
[www.sun.com](http://www.sun.com)

Part No. 816-2584-11  
February 2004, Revision A

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## Late-Breaking News

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This manual provides the following information:

- Late-breaking news (this chapter)
- End-of-support and future end-of-support statements (Chapter 2)
- Open issues (Chapter 3)
- Alternate Pathing issues (Chapter 4)
- Sun Fire 6800/4810/4800/3800 issues (Chapter 5)
- Sun midrange system open issues (Chapter 6)
- Sun Enterprise™ 10000 server issues (Chapter 7)

This manual supplements the *Solaris 8 2/02 Sun Hardware Platform Guide* and the *Solaris 8 2/02 Release Notes*.

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## Software Supplement for the Solaris 8 2/02 Operating Environment CD Changed

Current media kits for this Solaris release include revised versions of this CD. The following software, mentioned in the *Solaris 8 2/02 Sun Hardware Platform Guide*, is no longer provided on this CD:

- ShowMe TV
- PC file viewer
- PC Launcher
- Firmware patches for DVD-ROM drives

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# Release Notes Update

New information that becomes available between the time this document goes to press and the release of the Solaris™ 8 2/02 operating environment is available in the online release notes at the following URLs:

<http://docs.sun.com>

[http://www.sun.com/products-n-solutions/hardware/docs/software/Solaris\\_On\\_Sun\\_Hardware/Solaris\\_8\\_202/index.html](http://www.sun.com/products-n-solutions/hardware/docs/software/Solaris_On_Sun_Hardware/Solaris_8_202/index.html)

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# Unbundled Product Support

Although the Solaris 8 2/02 software is designed and tested to be compatible with previous releases, some applications may not be fully ABI-compliant. Contact the supplier of the unbundled product directly for information about compatibility.

If you are upgrading from an existing version of Solaris software and have installed unbundled products, either from Sun or from a different company, you must ensure that all those products are supported on the Solaris 8 2/02 operating environment prior to upgrading. Depending on the status of each unbundled product, you have three options for each unbundled product:

- Verify that the existing version of the unbundled product is supported on the Solaris 8 2/02 operating environment.
- Acquire and install a new version of the unbundled product that is supported on the Solaris 8 2/02 operating environment. Note that in this case you may need to remove the previous version of the unbundled product prior to upgrading to the Solaris 8 2/02 operating environment. See the unbundled product documentation for more details.
- Remove the unbundled product prior to upgrading to the Solaris 8 2/02 operating environment.

For additional information contact the supplier of the unbundled product or your service provider or go to:

<http://sunsolve.sun.com/pubpatch>

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# Documents on the Software Supplement for the Solaris 8 2/02 Operating Environment CD

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**Note** – In this document, the CD labeled “Software Supplement for the Solaris 8 2/02 Operating Environment” is called the “Supplement CD”.

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[TABLE 1-1](#) lists the documents available on the Supplement CD that are not included in AnswerBook™ or man page collections:

**TABLE 1-1** Documents on the Supplement CD

Path	Comment
Docs/README_en.html	Readme file for Solaris 8 2/02 Sun Supplement CD
Docs/HWPG/HWPG_en.ps	<i>Solaris 8 2/02 Sun Hardware Platform Guide</i>
Docs/dmfe.ps	<i>Platform Notes: The dmfe Fast Ethernet Device Driver</i>
SunForum_3.1/Docs/sunforumUG.ps	<i>SunForum™ User's Guide</i>

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**Note** – The \_en indicates an English language document. Other languages may be indicated, depending on locale.

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The Supplement CD also contains other documentation in AnswerBook packages and in man page packages. The documentation in AnswerBook packages can only be read through the AnswerBook2™ server software provided on the Solaris Documentation CD. Documents in the man page packages can only be read through the man command. Refer to the *Solaris 8 2/02 Sun Hardware Platform Guide* for details on installing these packages from the Supplement CD.

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## Flash PROM Update for 64-Bit Operations

Some sun4u systems need to be updated to a higher level of OpenBoot™ firmware in the flash PROM before they can run the 64-bit mode of the Solaris 8 2/02 operating environment. Systems that can only run the 32-bit mode (such as those in the sun4d and sun4m platform groups) do not require updated firmware to run Solaris 8 2/02 software.

The only systems that may require this flash PROM update are the following:

- Sun Ultra™ 1
- Ultra 2
- Ultra 450 and Sun Enterprise 450
- Sun Enterprise 3000, 4000, 5000, and 6000 systems

See the *Solaris 8 2/02 Sun Hardware Platform Guide* for instructions for determining whether your system needs a flash PROM update and for instructions on performing that update.

For the Ultra and Ultra 2 systems, an antistatic wrist strap may be required for the update. If you need a wrist strap, send e-mail to [strap@sun.com](mailto:strap@sun.com).

## Flash PROM Update CD No Longer Included

As of Solaris 8 7/01, the Flash PROM multimedia AnswerBook CD is no longer available. Up-to-date instructions for updating flash PROM are still available in the *Solaris 8 2/02 Sun Hardware Platform Guide*.

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## Removable Media Manager Issues

The Removable Media Manager replaces the “Open Floppy” and “Open CD-ROM” options formerly found in the CDE menus and front panel. For related bug descriptions and workarounds, refer to the “Common Desktop Environment Bugs” section of “Solaris Runtime Issues” in the *Solaris 8 (SPARC Platform Edition) 2/02 Release Notes Update* on <http://docs.sun.com>.

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## Patch Enables Booting From DVD-ROM Media

If your system has a Toshiba SD-M1401 DVD-ROM drive with firmware revision 1007, the system cannot boot from the Solaris 8 2/02 DVD.

Workaround: Apply patch 111649-03, or a later version, to update the Toshiba SD-M1401 DVD-ROM drive's firmware. You can download patch 111649-03 or a later version by going to the SunSolve<sup>SM</sup> website at:

<http://sunsolve.sun.com>

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## DVD-ROM/CD-ROM Drives on Headless Systems (BugID 4365497)

Power management of interactive devices such as removable media is linked with power management of your monitor and the graphics card that drives your monitor. If your screen is active, devices such as the CD-ROM drive and floppy disk are kept at full-power mode. This means that if you are running a system without a monitor, these devices may go into low-power mode. If you want to restore power to the CD or floppy, simply type `volcheck` to cause the OS to get the latest status from each removable device.

Alternatively, you can disable power management on your system by using the `dtpower` GUI. Then the devices are not put into low-power mode even when on a headless system, but run at full power all the time. This is not a bug, but is the intended behavior.

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## Maintenance Update CD

Future updates to the Solaris operating environment might no longer include the Maintenance Update (MU) CD. The preferred mechanism for updating a Solaris release—for example, to update from the Solaris 8 6/00 operating environment to the Solaris 8 1/01 operating environment—is to use the "upgrade" mechanism (see

*Solaris 8 Advanced Installation Guide, SPARC Platform Edition, Chapter 3*). The MU CD does not include all of what comprises a Solaris update, and takes longer to install than an upgrade.

In cases where the MU method is still considered necessary, the MU image can be obtained from the web at:

<http://sunsolve.sun.com>

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## Installing Supplement CD Products From DVD

If you are installing Solaris using a DVD and want to install any products from the Supplement CD, select the “custom installation” option in the “Select Type of Install” window.

## End-of-Support Products

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### Products Not Supported in the Solaris 8 Operating Environment

Support for the following products has been discontinued. For more information, contact your support provider.

#### Sun4c Systems

The following sun4c architecture systems and servers based on these systems are not supported by this Solaris release:

- SPARCstation™ SLC
- SPARCstation ELC
- SPARCstation IPC
- SPARCstation IPX
- SPARCstation 1
- SPARCstation 1+
- SPARCstation 2

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**Note** – All hardware options (such as SCSI devices) and supported configurations that are dependent upon the sun4c architecture are no longer supported. A list of these options is included in the Supplement CD /Docs/HWPG directory in the EOS.html file.

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## SPARCstation Voyager

SPARCstation Voyager™ systems are not supported by this Solaris release.

## SPARC Xterminal 1

SPARC Xterminal 1™ systems are not supported by this Solaris release.

## PC File Viewer and PC Launcher

PC file viewer and PC Launcher software is no longer supplied with this Solaris release.

Similar functionality in viewing PC files is now available using the Sun StarOffice™ 6.0 Office Productivity Suite. StarOffice can read and write more than 100 different file formats used by major desktop applications, including Microsoft Office, Lotus, WordPerfect, WordStar, FrameMaker, AutoCAD, Photoshop, and more.

For more information, go to:

<http://www.sun.com/staroffice>

## ShowMe TV

ShowMe TV software is no longer provided with this Solaris release.

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## Future End-of-Support Products

Support for the following products may be discontinued in future releases. For more information, contact your service provider.

### sun4d Servers (32-bit only)

The following sun4d architecture servers may no longer be supported in a future release:

- SPARCserver™ 1000 systems



- SPARCcenter 2000 systems

Hardware options that are dependent on the sun4d architecture may no longer be supported in a future release.

## Ethernet Quad Drivers `qe` and `qec`

Ethernet Quad drivers `qe` and `qec` may no longer be supported in a future release.

## Alternate Pathing Multipath I/O

Alternate Pathing (AP) multipath I/O technology may no longer be supported in a future release. See [Chapter 4](#) for further details.

## SunHSI/S, SunFDDI/S, SunFDDI/P

SunHSI™/S, SunFDDI™/S, and SunFDDI/P drivers may no longer be supported in a future release.



## Open Issues

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### Booting From Partitions Greater Than 2 Gbytes (BugID 1234177)

Due to PROM limitations, no sun4d and sun4m architectures boot from partitions greater than 2 Gbytes. These systems fail with the following message:

```
bootblk: can't find the boot program
```

---

**Note** – All sun4u architectures support booting from larger partitions.

---

One related bug (4023466) reports a problem with `re-preinstall` where the boot image for large disks creates root partitions greater than 2 Gbytes. System administrators are cautioned not to use `re-preinstall` on sun4d or on sun4m systems with large root disks (4 Gbytes and greater).

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### Network Drivers Installed by Default

The Computer Systems Installer CD automatically installs the Network Drivers from the Supplement CD. Drivers for the SunATM™, SunHSI/S, SunHSI/P, SunFDDI/S, and SunFDDI/P cards are now installed by default when the Solaris 8 2/02

operating environment is installed. Error messages might be displayed if you do not have some of the corresponding hardware installed. You can ignore these error messages.

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## Serial Parallel Controller Driver Does Not Support Dynamic Reconfiguration (BugID 4177805)

This `spc` driver does not support Dynamic Reconfiguration features in the Solaris 8 operating environment.

---

## Booting a Sun Enterprise 10000 System in 32-Bit Mode (BugID 4348354)

Sun Enterprise 10000 systems with 64 Gbytes of memory cannot boot the Solaris 8 2/02 operating environment in 32-bit mode.

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## Some DVD and CD-ROM Drives Fail to Boot Solaris (BugID 4397457)

The default timeout value for the SCSI portion of the SunSwift PCI Ethernet/SCSI host adapter (X1032A) card does not meet the timeout requirements of the Sun SCSI DVDROM drive (X6168A). With marginal media, the DVD-ROM occasionally experiences timeout errors. The only exceptions are Sun Fire 6800, 4810, 4800, and 3800 systems, which overwrite the SCSI timeout value via OBP.

Workaround for other platforms: use the on-board SCSI interfaces or DVD-ROM compatible SCSI adapters, such as X1018A (SBus: F501-2739-xx) or X6540A (PCI: F375-0005-xx).

---

## FDDI May Hang During Heavy Load (BugIDs 4485758, 4174861, 4486543)

The PCI FDDI card has known hardware problems related to `DTXSUSP` (DMA TX process suspend interrupt) and `DRXSUSP` (DMA RX process suspend interrupt) bits in the `MAIN_CONTROL` and `MAIN_STATUS` registers. These hardware bugs minimally affect FDDI functionality under normal conditions. However, under a *very* heavy TX or RX load, the card posts an unexpected interrupt. The system posts the error message, "Interrupt level 6 is not serviced". After 20 such errors, the `pcipsy` driver shuts down interrupt processing for the FDDI and hangs FDDI.

---

## DR Commands Hang Waiting for `rcm_daemon` While Running `ipc`, `vm`, and `ism` Stress (BugID 4508927)

In rare cases when a quiesce of the Solaris operating environment fails to stop certain user threads, other user threads may not be restarted and remain in a stopped state. Depending on the threads affected, applications running on the domain may stop running and other DR operations may not be possible until the domain is rebooted.

Workaround: To avoid this problem, do not use DR to remove a board that contains permanent memory.

---

## Monitor Goes Blank When Stop-A Is Pressed During Screen Lock (BugID 4519346)

The monitor may go blank if all of the following conditions occur:

- Your frame buffer card is a Creator3D or an Elite3D.
- The "Blank Screen" screen saver is used.
- Stop-A is pressed while in the blank screen mode.

Workaround: If your screen saver is enabled, choose any pattern other than "Blank Screen."

---

## U-Code Does Not Reload After IFB Driver Unloaded (BugID 4532844)

At the command line login, systems with Expert3D or Expert3D-Lite cards may be unable to start a window system or dtlogin.

Workaround:

1. Remotely log into the troubled system as superuser.
2. Stop all `ifbdaemon` processes:

```
# sh /etc/init.d/ifbinit stop
```

3. Start all `ifbdaemon` processes:

```
# sh /etc/init.d/ifbinit start
```

---

## QFE May Panic the System During Heavy Load (BugIDs 4510631, 4517740)

In rare cases, Sun Fire 6800, 4810, 4800, or 3800 systems configured with multiple network interfaces may panic under a heavy traffic load. Also in rare cases, Sun Enterprise 10000 systems may panic under an extremely heavy network load.

---

## SunScreen SKIP 1.1.1 Not Supported in Solaris 8 2/02 Operating Environment

If you have SunScreen™ SKIP 1.1.1 software currently installed on your system, you should remove the SKIP packages before installing or upgrading to the Solaris 8 2/02 operating environment. The packages you should remove are: SICGbdcdr, SICGc3des, SICGcdes, SICGcrc2, SICGcrc4, SICGcsafe, SICGes, SICGkdsup, SICGkeymg, SICGkisup.

---

## ISDN — Supported in 32-bit Mode Only

ISDN does not support the Power Management™ suspend and resume features.

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## SunVTS 4.6 Issues

The following issues apply to the SunVTS™ 4.6 product.

### New Features for This Release

The following tests, enhancements, and features have been added to the SunVTS 4.6 release:

- `gfbtest`—a new test that verifies the functionality of the graphics frame buffer (GFB).
- `wrsmtest`—a new test that verifies the functionality of the Sun Fire Link Interconnect by checking the cluster networking hardware.

Refer to the *SunVTS 4.6 User's Guide* and the *SunVTS 4.6 Test Reference Manual* for more details about these new features.

# SunVTS End-of-Support Statements

## SunVTS OPEN LOOK User Interface

The SunVTS OPEN LOOK user interface does not support the latest SunVTS features and will be discontinued when the OPEN LOOK environment is discontinued in the Solaris operating environment. The OPEN LOOK tests, sundials and sunbuttons, will be discontinued too. For full feature support, use the SunVTS CDE interface. Refer to the Solaris “End of Software Support Statements” section of the Solaris operating environment release notes for the latest end-of-support news.

## SunVTS Online Testing

As of SunVTS 4.3, the SunVTS online testing capability that was initiated using the `vtsui.online` command is no longer available. The `SUNwodu` package that provides this online testing functionality is no longer provided.

Online diagnostic testing of Sun systems is now available through the Sun Management Center software using the Sun Management Center Hardware Diagnostic Suite add-on software. See <http://www.sun.com/sunmanagementcenter> for details.

## Old SunVTS Message Format

In a future SunVTS version, the old message format and the `VTS_OLD_MSG` variable will no longer be supported. Update any scripts that rely on the old message format from SunVTS. Refer to the *SunVTS 4.6 User's Guide* for message format details.

## SunVTS Stress Mode Option

In a future SunVTS version, the Stress Mode option that is available in the Test Execution dialog box will no longer be supported.

## The `sunpcitest` Will Be Discontinued

In a future version of SunVTS the `sunpcitest` will be discontinued.



## The `isdntest` Will Be Discontinued

In a future version of SunVTS, the `isdntest` will be discontinued.

## The `dpttest` Will Be Discontinued

In a future version of SunVTS, the `dpttest` will be discontinued.

## Possible Installation Problems

As described in the following paragraphs, you might encounter an installation problem when you attempt to install SunVTS with an installation program other than the `pkgadd` command.

### Installation Problem:

#### 32-bit Only Systems and Web Start 2.0 (BugID 4257539)

Web Start 2.0 may not install SunVTS on systems that do not have the Solaris 64-bit environment installed. Web Start 2.0 removes the SunVTS 32-bit packages when the SunVTS 64-bit packages cause the installation to suspend.

Workaround: Use the `pkgadd` command to install the 32-bit SunVTS packages as described in the *SunVTS 4.6 User's Guide*.

### Installation Problem:

#### Security and Web Start 2.0 (BugID 4362563)

When you install SunVTS using Web Start 2.0, you are not prompted to enable the Sun Enterprise Authentication Mechanism™ (SEAM) Kerberos v5, SunVTS security feature. The installation defaults in a way that installs SunVTS without this high level of security. If you do not want the high-level security, there is no problem.

Workaround: To enable the high-level SEAM security, use the `pkgadd` command to install SunVTS packages as described in the *SunVTS 4.6 User's Guide*.

## Installation Problem: Installation Directory With Web Start 2.0 Is Not User- Definable (BugID 4243921)

When you attempt to install SunVTS using Web Start 2.0, you are unable to change the directory where SunVTS is installed. SunVTS is installed in `/opt`.

Workaround: Use the `pkgadd -a none` command to install SunVTS in the directory of your choice, as described in the *SunVTS 4.6 User's Guide*.

## Installation Recommendation: Perform Installations and Uninstallations Using the Same Program

If you install SunVTS using Web Start 2.0, you should also uninstall it using Web Start 2.0. If you install SunVTS with the `pkgadd` command, you should uninstall it with the `pkgrm` command.

## Possible Runtime Problems

### The `saiptest` Device Does Not Display in the SunVTS UI (BugID 4482710, 4322468, 4313346)

The `saiptest`, which tests the serial asynchronous interface (SAI) card, does not show up in the SunVTS UI.

Workaround: Install the `saip` driver patch 109338 if you want to test the SAI device.

### The `env5test` Fails (BugID 4493544, 4487110, 4508863)

A communication problem between the `env5test` and the `picld` daemon causes the `env5test` to fail.

Workaround: Before you start SunVTS, stop and start the `picld` daemon as shown in the following example:

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

---

**Note** – Once you stop and start the `picld` daemon, the problem is resolved until the system is rebooted, at which time you need to perform these commands again.

---

## The `cg6test` Might Not Complete a Test Pass (BugID 4506219)

The `cg6test` for testing the CG6 frame buffer might not complete a test pass.

Workaround: Do not run the `cg6test`.

## Possible `env4test` Problem (BugID 4516503)

The `env4test` might fail if you select the All Tests option in the Test Parameter Options dialog box.

Workaround: Do not select the All Tests option from the Test Parameter Options dialog box.

## Possible `sctest` Problem (BugID 4526192)

If you run the `sctest` for an extended period of time, the `ocfserv` may core dump.

Workaround: Do not run `sctest` if this problem occurs.

## Possible Problem of Not Detecting All Serial Ports (BugID 4523182)

If a system has additional serial devices installed other than the onboard serial(s), SunVTS might not detect all the devices.

## `env4test` Documentation Error in Test Reference Manual (BugID 4530573)

There is an error in the *SunVTS 4.6 Test Reference Manual* in the environment test (`env4test`) chapter. Figure 22-1, `env4test` Test Parameter Options Dialog Box, shows an option called Reset Test. This option is not available in the 4.6 release.

---

## ShowMe TV 1.3 Known Problems

---

**Note** – ShowMe TV software is no longer supplied with this Solaris release.

---

ShowMe TV 1.3 software contains support for MPEG2 movie playback. Support was dropped for the Sun MediaCenter™ in ShowMe TV 1.3. Also, ShowMe TV 1.3 software contains a number of bug fixes over ShowMe TV 1.2.1. Here are some known problems:

- There are various minor problems with playing MPEG1/2 files: Zoom does not work on some frame-buffers, the position indicator is not accurate enough, the frame-by-frame step back function does not work.
- You cannot switch between CIF and QCIF H.261 streams (that is, regular resolution, or 352x288 size frames, and low resolution, or 176x244 size frames) on systems that are not Ultras.
- Mixing Asian and ASCII characters in one line of text can confuse the input/output functions in ShowMe TV software. In particular, if a user sets up a transmission in which the transmission name or the hostname contains Asian characters, then saving or recovering these parameters to or from the `.showmetv-programs-hostname` configuration file might not work correctly.
- The receiver's buttons and menus contain incorrect text in locales other than English (bugID 4210702).

---

## PCMCIA Issues

The following bugs have been filed against PCMCIA device support in this Solaris release.

## Known Bugs

### System Appears to Hang When the PC ATA (`pcata`) Module Is `modunloaded` (BugID 4096137)

If there is a PCMCIA I/O card in a slot that has been accessed and the card driver is unloaded (as occurs during `modunload -i 0` at the end of multi-user boot) the system appears to hang.

Workaround: Removing the card may bring the system back.

### Booting the Solaris 8 Operating Environment Initially With a 64-bit Kernel May Not Create the Device `/dev/term/pc0`, PC Card Serial Driver (BugID 4162969)

When booting the Solaris 8 operating environment initially with a 64-bit kernel, the `/dev/term/pc0` hardware device node for PC card serial device may not be created.

Workaround: Boot the system with the 32-bit kernel first, then reboot with the 64-bit kernel.

---

## PC File Viewer Issues

---

**Note** – PC file viewer software is no longer supplied with this Solaris release.

---

### Install in the `/opt` Directory

The *Solaris 8 2/02 Sun Hardware Platform Guide* provides installation instructions that might indicate that PC file viewer can be installed in a directory other than the default directory. The instructions are misleading. PC file viewer *must* be installed in the default (`/opt`) directory.

## Known Bugs

- Backdrop image is not displayed in PowerPoint97 document (BugID 4159447).
- Cannot display nonstandard fonts in PowerPoint97 (BugID 4159448).
- Excel graph/table in PowerPoint97 document is not displayed (BugID 4159449).
- Cannot display scaled font, colored text, italic-underlined text in PowerPoint97 (BugID 4159450, 4159451, 4159452).
- Copy and paste of certain files into a text editor results in asterisks (\*) instead of actual text (BugID 4165089).
- Searching does not work for multibyte (tch, ko) in PC file viewer (BugID 4151774).
- Wrong string is reversed in PC file viewer search on Japanese locales (BugID 4171815).
- Cannot display TCH Word95 saved in Word97 or PowerPoint97 formats in zh.TW.BIG5 locale (BugID 4150413).

---

## Documentation Errata

The following documentation errors have been found in the Solaris 8 2/02 documents.

## Documentation for Removed Software

Some documentation for software that has been removed from this release might no longer be included.

## Supplemental License Terms

The license terms published for Java 3D™ 1.3.1 apply to the Java 3D 1.2.1 software provided with this release.

## References to MPxIO Documentation

The *Sun Enterprise 10000 SSP 3.5 User Guide*, *Sun Enterprise 10000 Dynamic Reconfiguration User Guide*, and the *Sun Enterprise 10000 DR Configuration Guide* contain references to a document that is not available, namely the *MPxIO Installation and Configuration Guide*.

The MPxIO product is now called the Sun StorEdge™ Traffic Manager. Information on installing and configuring the Sun StorEdge Traffic Manager is provided in the *Sun StorEdge™ Traffic Manager Software Installation and Configuration Guide*, available on the Sun Network Storage Solutions website:

<http://www.sun.com/storage/san>

To access this document:

1. Go to <http://www.sun.com/storage/san> and click the “Sun StorEdge™ SAN3.0 release Software/Firmware Upgrades and Documentation” link.
2. Sign on or register.
3. Click the “Download STMS Install/Config Guide, Solaris/SPARC (.35 MB)” link.

## SSP 3.5 Installation Guide and Release Notes

Page 8: In the description of the `snmpd` memory leaks (Bug ID 4486454), you must be superuser on the main SSP to stop and start SSP daemons, not user `ssp` as indicated in the text.

Pages 75 and 99: The references to the *Solaris 8 Installation Supplement* are incorrect. Refer to the *Solaris 8 Advanced Installation Guide* for details.

## `eri(7d)` Man Page

The `eri(7d)` man page incorrectly states that the `eri.conf` file is in the `/kernel/drv/sparcv9/eri.conf` file

The correct location is: `/kernel/drv/eri.conf`

# Platform Notes: Sun GigaSwift Ethernet Driver

The English language version of the *Platform Notes: Sun GigaSwift Ethernet Driver* contains several errors that are corrected in the Japanese language version. The errors are as follows:

- Page 7, Table 7: In the "Description" column for the `rx_intr_time`, in the sentence "... 4.5 US ticks...", "US" is in error and should read "microsecond".
- Page 14: The description "The comma-separated numbers after the @ character at the end represent the device and function numbers, which are together referred to as unit-address." should instead read: "The comma separated numbers after the @ character represent the device and function numbers, which are together referred to as unit-address."
- Page 14: In the example `/pci108e;abba;/pci@4,4000/network@0`, the unit-address is defined as `4,4`.
- Pages 15, 19, and 21: Several steps are misnumbered.
- Page 17: In Table 11, "`lp_autoneg_cap`" should be "`lp_cap_autoneg`".

---

## Netra T4/Netra T20 Issues

### System Incorrectly Reports Removed Device Links (BugID 4418718)

When calling `luxadm remove_device /dev/rdisk/c1t1d0s2`, the system asks for confirmation and reports that the disk is spinning down and being taken offline. When the disk is removed, pressing Return causes the system to report that the device links are removed.

However, the device links are not removed. The disk can then be re-inserted and used without running the `luxadm insert_device` command. When the command is subsequently run, the system reports that no new devices were added and the following message is produced at the console:



```
bash-2.03# luxadm remove_device /dev/rdisk/clt1d0s2
```

```
WARNING!!! Please ensure that no filesystems are mounted on these device(s).  
All data on these devices should have been backed up.
```

```
The list of devices which will be removed is:
```

```
1: Device name: /dev/rdisk/clt1d0s2  
Node WWN:      2000002037e367e4  
Device Type:Disk device  
Device Paths:  
    /dev/rdisk/clt1d0s2
```

```
Please verify the above list of devices and  
then enter 'c' or <CR> to Continue or 'q' to Quit. [Default: c]:  
stopping: /dev/rdisk/clt1d0s2....Done  
offlining: /dev/rdisk/clt1d0s2....Done
```

```
Hit <Return> after removing the device(s)
```

```
Device: /dev/rdisk/clt1d0s2  
Logical Nodes being removed under /dev/dsk/ and /dev/rdisk:  
    clt1d0s0  
    clt1d0s1  
    clt1d0s2  
    clt1d0s3  
    clt1d0s4  
    clt1d0s5  
    clt1d0s6  
    clt1d0s7
```

```
Device: /dev/rdisk/clt1d0s2  
Logical Nodes being removed under /dev/dsk/ and /dev/rdisk:  
    clt1d0s0  
    clt1d0s1  
    clt1d0s2  
    clt1d0s3  
    clt1d0s4  
    clt1d0s5  
    clt1d0s6  
    clt1d0s7
```

```
bash-2.03# ls -l /dev/dsk/clt1*  
lrwxrwxrwx  1 root    root          70 May  4 19:07 /dev/dsk/clt1d0s0 -> ../  
../devices/pci@8,600000/SUNW,q1c@4/fp@0,0/ssd@w2100002037e367e4,0:a
```

```

lrwxrwxrwx  1 root      root          70 May  4 19:07 /dev/dsk/c1t1d0s1 -> ../
../devices/pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e367e4,0:b

bash-2.03# ls -l /dev/rdisk/c1t1*
lrwxrwxrwx  1 root      root          74 May  4 19:07 /dev/rdisk/c1t1d0s0 -> ../
../devices/pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e367e4,0:a,raw
lrwxrwxrwx  1 root      root          74 May  4 19:07 /dev/rdisk/c1t1d0s7 -> ../
../devices/pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e367e4,0:h,raw
.
.
/* the following errors are caused by SUNWvts reprobe looking for said disk */

bash-2.03#
8012    05/22/01 14:05:07 Failed on iotcl DKIOCGMEDIAINFO: 6: No such device or
address

8012    05/22/01 14:05:41 Failed on iotcl DKIOCGMEDIAINFO: 6: No such device or
address

8012    05/22/01 14:07:25 Failed on iotcl DKIOCGMEDIAINFO: 6: No such device or
address

bash-2.03# luxadm insert_device
Please hit <RETURN> when you have finished adding Fibre Channel Enclosure(s)/
Device(s):

Waiting for Loop Initialization to complete...
No new device(s) were added!!

```

To work around, enter the following when `luxadm remove_device` claims to have completed successfully:

```
# devfsadm -C -c disk
```

## Not All USB Zip Drives Found (BugID 4453787)

If four USB Iomega zip drives are attached, `prtconf` indicates that no driver is loaded after the system has booted. `drvconf` starts a system probe that finds only two of the four USB zip drives.

Running `cat` on the `/dev/usb/hub0` file causes the system to add the two zip drives.

Workaround: Do not use more than two zip drives in the current release.

## LOMlite2 `reset-x` Does Not Reset CPUs (BugID 4462131)

The LOMlite2 `reset-x` command does not currently reset the CPUs. Look for this functionality in a later revision of the OpenBoot PROM.

---

# Sun Remote System Control 2.2 Release Notes

This document deals with Sun Remote System Control (RSC) 2.2 hardware and software issues. For complete information about using RSC, see the *Sun Remote System Control (RSC) 2.2 User's Guide*.

## What's New in RSC 2.2

Several new features are available in RSC 2.2:

- The RSC GUI requires an updated version of the Java™ Runtime Environment, Java 2 Standard Edition (J2SE) Runtime Environment Version 1.3.0\_02 or greater. You can download the appropriate version from one of these Web sites:
  - Solaris—<http://www.sun.com/solaris/java>
  - Windows—<http://java.sun.com/j2se/1.3/>
- Client support has been added for the Microsoft Windows 2000 operating environment. RSC 2.2 does not support Windows 95.
- Sun Fire V480 servers include a new hardware feature, a Locator LED on the system's front and rear panels. RSC software allows you to toggle the state of these LEDs to help identify a particular system that may be located in a rack with other servers.
- Support for a maximum of 16 RSC user accounts has been added. A maximum of 10 users can be logged in at one time. However, the increased number of user accounts does not affect the limitation of five concurrent `telnet` or GUI login sessions per server.

# Before Installing Sun Remote System Control Software

RSC software is included as part of the default installation set for this Solaris Supplement CD. You should install RSC server components on a compatible Solaris server only; you can install the client software on any computer that meets the Solaris or Windows operating environment requirement. You must install and configure the RSC software before you can use RSC.

*Important:* Before upgrading from a previous version of RSC server software or reinstalling the software, log in to the server as superuser and back up your configuration data using the following commands:

```
# rscadm show > remote_filename
# rscadm usershow >> remote_filename
```

Use a meaningful file name that includes the name of the server that RSC controls. After installation, you can refer to this file to restore your configuration settings if necessary. Reverting to a previous version of RSC server software after installing version 2.2 is not recommended. However, if you do revert, you will need to restore your configuration information and also power cycle the server.

You can install the RSC 2.2 server software package, `SUNWrrsc`, on:

- A Sun Fire V480 server running the Solaris 8 2/02 operating environment
- A Sun Fire V880 server running the Solaris 8 7/01 operating environment or another Solaris version that supports the RSC 2.2 product
- A Sun Fire 280R server running the Solaris 8 1/01 operating environment or another Solaris version that supports the RSC 2.2 product
- A Sun Enterprise 250 server running one of the following operating environments:
  - Solaris 2.6
  - Solaris 7
  - Solaris 8

You can install the RSC 2.2 client software packages on:

- Any other computer running the Solaris 2.6, Solaris 7, or Solaris 8 operating environment. The packages are `SUNWrrscj` (GUI) and `SUNWrrscd` (documentation).
- Any computer running one of the following Microsoft Windows operating environments:
  - Windows 98
  - Windows 2000
  - Windows NT 4.0

The file used to install the RSC GUI and documentation for the Microsoft Windows operating environments is `SunRsc.exe`.

- Client computers require Java 2 Standard Edition (J2SE) Runtime Environment Version 1.3.0\_02 or a subsequent 1.3.x version to run RSC 2.2 software. RSC 2.2 software does not run using J2SE Runtime Environment Version 1.2.x. You can download the appropriate version from one of these Web sites:
  - Solaris—<http://www.sun.com/solaris/java>
  - Windows—<http://java.sun.com/j2se/1.3/>

Installation on the Solaris operating environment places the *Sun Remote System Control (RSC) 2.2 User's Guide* in the location `/opt/rsc/doc/locale/pdf/user_guide.pdf`. Installation on the Windows operating environment places the User's Guide in the location `C:\Program Files\Sun Microsystems\Remote System Control\doc\locale\pdf\user_guide.pdf`.

The following sections describe Sun Remote System Control (RSC) 2.2 issues.

## RSC General Issues

This section describes issues that affect RSC running on all platforms (Sun Enterprise 250, Sun Fire 280R, Sun Fire V880, and Sun Fire V480 servers):

### Alert Messages May Be Delayed (BugID 4474273)

If the RSC variables `page_enabled` and `mail_enabled` are set to `true` and multiple alert messages are generated within a short interval, the first message is delivered in a timely fashion but each subsequent message issued during the interval is delayed by 3-4 minutes.

### Keyswitch Position in RSC GUI Is Unknown When RSC Is on Battery Power (BugID 4492888)

When the RSC card is running on battery power, the keyswitch slot in the RSC GUI displays as a gray dot, and the mouse-over text on the keyswitch reads `Current Keyswitch Position Unknown`.

## Wrong Information Provided on `alerts.html` (BugID 4522646)

When configuring the `page_info1` or `page_info2` fields, you may use any digit or the alphanumeric characters `#`, `@`, and `,` (comma) when specifying a pager phone number, but the PIN area may only contain digits (0-9). In the RSC GUI, the online help for this function is incorrect. For more information about how to configure RSC to work with a pager, refer to the *Sun Remote System Control (RSC) 2.2 User's Guide*.

## `rsc-console` Will Switch to Tip Connection During Boot if `diag-switch?` Is Set to `true` (BugID 4523025)

If `diag-switch?` is set to `true` and you use the `bootmode -u` command to reboot your workstation, `rsc-console` will revert to the serial (tip) connection after Solaris restarts, even if you have previously redirected the console to RSC.

If this occurs, manually redirect the console output to RSC again after the reboot operation has completed. Refer to the *Sun Remote System Control (RSC) 2.2 User's Guide* for more information.

## Power On From GUI/CLI Is Allowed, Yet Doesn't Work, With Keyswitch Turned to Off (BugID 4524277)

If the system's state changes from battery power to standby power and the keyswitch is in the off position, the RSC software should generate a warning that you cannot turn the system power back on when you issue a `poweron` command from either the CLI or the GUI. The RSC software should issue this warning. You need to move the keyswitch back into the on position.

If this happens, use the `resetrsc` command.

## RSC `bootmode -u` Command Fails to Toggle the Console (BugID 4525310)

This intermittent problem has been observed on Sun Fire V880 servers running OpenBoot PROM version 4.4.6. Occasionally, the `bootmode -u` command fails to redirect the console to RSC. If this happens, use the `resetrsc` command.

## OBP 4.4.3 Displays ERROR: RSC-Initiated Reset Instead of a Warning Message (BugID 4514863)

On servers running OpenBoot PROM software version 4.4.3, an RSC-initiated system reset produces the following message:

```
ERROR: RSC-initiated Reset
```

This message serves as a warning-level message only; no action is required.

## RSC Restart Error on Japanese Windows 98 Systems

If you install the RSC client on the Japanese version of Microsoft Windows 98, RSC does not start again once you exit from the client and the `javaw stack error` appears, unless you reboot the system. This situation occurs only on the initial version of Windows 98, and does not happen on other versions of Microsoft Windows (95, 98 Second Edition, NT).

Workaround: Download and install the Microsoft IME98 Service Release 1 (IME98-SR1) from the Microsoft Website. The crash does not occur after IME98-SR1 has been installed.

## RSC Issues for Sun Fire 280R, Sun Fire V880, and Sun Fire V480 Servers

This section describes issues that affect RSC running on Sun Fire 280R, Sun Fire V880, and Sun Fire V480 servers.

### Removing and Installing the RSC Card



---

**Caution** – Removing or installing the RSC card while the system has the AC power cord connected could damage your system or your RSC card. Only qualified service personnel should remove or replace the RSC card. Contact your qualified service representative to perform this service operation.

---

*Before you follow the procedures in the *Sun Fire 280R Server Service Manual* or *Sun Fire 880 Server Service Manual* to remove or install the RSC card, perform this procedure to ensure that there is *no AC power present* in the system.*

1. **Shut down and halt the system.**

2. **With the system at the `ok` prompt, turn the keyswitch to the Off position.**  
Standby power is still present in the system at this point.
3. **Disconnect all AC power cords from their back panel receptacles.**  
This ensures that there is no standby power voltage present in the system.
4. **Follow the procedure you require in your service manual.**

## Additional RSC Alerts

RSC generates the following alerts on a Sun Fire 280R or Sun Fire V880 server when the RSC card begins battery use after a power interruption:

```
00060012: "RSC operating on battery power."
```

RSC generates the following alerts when the host system has shut down from RSC. The messages appear in the log history.

```
00040000: "RSC Request to power off host."
```

```
00040029: "Host system has shut down."
```

If you shut down the system using the keyswitch, or by using the OpenBoot PROM `poweroff` command, the above alert 00040029 is the only alert displayed.

These alerts are not documented in the *Sun Remote System Control (RSC) 2.2 User's Guide*.

## Going from Battery to Standby, the Locator LED Will Turn On in the GUI (BugID 4524272; Sun Fire V480 Servers Only)

When the RSC hardware changes state from battery power to standby power, the Locator LED on the Sun Fire V480 appears illuminated in the GUI only. It does not illuminate on the system.

If this situation happens, use the `resetrsc` command.

## RSC Issues for Sun Fire 280R Servers Only

This section describes issues that affect RSC running on Sun Fire 280R servers only. See the *Sun Fire 280R Server Product Notes* for other Sun Fire 280R server issues.



## Soft Reset With `xir` Does Not Work Correctly (BugID 4361396, 4411330)

The `xir` command does not bring the server to the `ok` prompt as expected. This issue may have been resolved for your server type; see your hardware platform release notes.

## Boot Sequence Sometimes Bypasses RSC (BugID 4387587)

In rare instances, the system may bypass the RSC card during startup. To check whether the system booted and is online, use the `ping` command to see if the card is alive, or log in using `telnet` or `rlogin`. If the system is not connected to the network, establish a `tip` connection to the system. (Be sure that console I/O is not directed to the RSC card.) Use the `tip` connection to view boot messages on the troubled system, or reboot the system. For help in diagnosing the problem, see your hardware Owner's Guide.

## False Drive Fault Reported at Power On (BugID 4343998, 4316483)

When you power on the system, it may report a false internal drive fault that is recorded in the Sun Remote System Control (RSC) log history.

If the error is reported by RSC, you should disregard the report if the system boots successfully to the Solaris operating environment. In most cases the erroneous fault does not reappear. You can verify the disk after the boot process by using the `fsck` utility.

---

**Note** – Any disk drive error message reported by the Solaris operating environment is a real disk drive error.

---

If a disk fault is reported at the `ok` prompt and the system fails to boot to the Solaris operating environment, there may be a problem with the disk drive. Test the disk drive with the OpenBoot Diagnostics tests documented in the “Diagnostics, Monitoring, and Troubleshooting” chapter in the *Sun Fire 280R Server Service Manual*.

## Command `rscadm resetrsc` Fails (BugID 4374090)

After a cold restart or after powering on the system, the RSC command `rscadm resetrsc` fails; this is a known condition. You need to reset the host system for the command to function correctly.

There are three ways you can reset the host. Use one of the following commands:

- At the `ok` prompt, execute the `reset-all` command.
- At the RSC command-line interface (CLI) prompt, issue the `reset` command.
- At the Solaris CLI prompt, issue the `reboot` command.

The RSC `rscadm resetrsc` command will now function correctly.

## RSC Issue for Sun Fire V880 Servers Only

This section describes an issue that affects RSC running on Sun Fire V880 servers only.

### Soft Reset With `xir` Does Not Work Correctly (BugID 4361396, 4411330)

The `xir` command does not bring the server to the `ok` prompt as expected. This issue may have been resolved for your server type; see your hardware platform release notes.

## RSC Issues for Sun Enterprise 250 Servers Only

This section describes issues that affect RSC running on Sun Enterprise 250 servers only. See the *Sun Enterprise 250 Server Product Notes* for other Sun Enterprise 250 server issues.

### Increased Number of RSC User Accounts Not Supported

Support for a maximum of 16 RSC user accounts has been added for RSC 2.2. However, Sun Enterprise 250 servers continue to be limited to four RSC user accounts because of hardware limitations.

### Do Not Run OpenBoot PROM `fsock` Command From the RSC Console (BugID 4409169)

Do not issue the `fsock` command from the redirected RSC console.

Reset the system's `input-device` and `output-device` settings to `ttya`. Then reboot the system and access the system through its local console or terminal and execute the OpenBoot PROM `fsck` command directly.

## Do Not Run OpenBoot PROM `boot -s` Command From the RSC Console (BugID 4409169)

The command `boot -s` does not work from the RSC console.

Reset the system's `input-device` and `output-device` settings to `ttya`. Then reboot the system and access the system through its local console or terminal and execute the `boot -s` command directly.

## Change to the `serial_hw_handshake` Variable Requires a System Reboot (BugID 4145761)

In order for changes to the RSC configuration variable `serial_hw_handshake` to take effect, the server must be rebooted. This also affects the Enable Hardware Handshaking check box in the RSC graphical user interface. This limitation is not stated in the documentation.

## Power Supply Alerts Display Incorrect Index in the GUI (BugID 4521932)

In the Sun Enterprise 250, the power supplies are numbered 0 and 1, but the RSC GUI refers to them as Power Supply 1 and Power Supply 2 in the event log and in alerts.

---

# LOMlite 2 Release Notes

## Adding the LOMlite2 Software

1. Insert the Supplemental CD and change to the LOMlite 2.0 software directory:

```
# cd /cdrom/cdrom0/Lights_Out_Management_2.0/Product
```

2. Add the LOMlite 2.0 packages, responding *y* to all questions:

```
# pkgadd -d . SUNWlomm SUNWlomr SUNWlomu
```

3. Verify that the LOMlite 2.0 packages were installed:

```
# pkgchk -v SUNWlomm SUNWlomr SUNWlomu
```

The LOMlite2 software is now installed. Continue by adding LOMlite2 Patch 110208 as described in the next section.

## Adding LOMlite2 Patch 110208

Ensure you have the latest revision of Patch 110208 from SunSolve (revision -13 or later).

---

**Note** – The LOMlite2 software does not function unless this patch is added.

---

1. Confirm the base LOMlite2 firmware version.

Type `#.` to change to the `lom>` prompt, then run `version`.

```
#.  
lom>version  
  
LOM version:          v4.4-LW2+  
LOM checksum:        387e  
LOM firmware part#   258-7939-12  
Microcontroller:     H8S/2148  
LOM firmware build   Aug 30 2001 18:02:40  
Configuration rev.   v1.2  
  
lom>console
```

The LOM firmware version must not be earlier than 4.5.

2. Type `console` at the `lom>` prompt to return to the `#` prompt.

3. Confirm that the device node is present (via PROM 4.2.4):

```
# prtconf -v
OBP 4.2.4 2001/06/13 10:10
# prtconf | grep SUNW,lomv
SUNW,lomv (driver not attached)
```

4. Copy the patch to a temporary directory (/var/tmp).

Confirm that the patch is present:

```
# cd /var/tmp
# ls
110208-13.zip
```

5. Extract the patch:

```
# unzip 110208-13.zip
```

6. Apply the patch:

```
# patchadd 110208-13
# reboot
```

7. Confirm that the patch has been loaded:

```
# modinfo | grep lomv
```

8. To upgrade the firmware, type:

```
# lom -G default
```

When prompted, type **C** to continue.

---

**Note** – This process takes several minutes. Do not turn off the system while the update is progressing.

---

9. Press Return to redisplay the UNIX prompt.

---

**Note** – If the system displays the `ok` prompt, type `go` to return to the UNIX prompt.

---

**10. Check the functionality by running the `lom -a` command:**

```
# lom -a
PSUs:
1 OK

Fans:
1 OK speed 90%
2 OK speed 86%
3 OK speed 75%

LOMlite configuration settings:
serial escape character=#
serial event reporting=default
Event reporting level=fatal, warning & information

Serial security=enabled
Disable watchdog on break=enabled
Automatic return to console=disabled
alarm3 mode=user controlled
firmware version=4.5
firmware checksum=1164
product revision=1.4
product ID=Netra T4
.
<truncated>
.
LOMlite led states:
1      on      Power
2      off     Fault
3      off     Supply A
4      off     Supply B
5      on      PSU ok
6      off     PSU fail
#
```

The software is now installed and the system is ready for use.

---

## Solstice DiskSuite and Alternate Pathing (BugID 4367639)

A segmentation fault error occurs when invoking the Solstice DiskSuite™ 4.1.2 metatool on a Sun Enterprise 6000 system with Alternate Pathing 2.3 or 2.3.1 already installed and configured on a SPARCstorage™ Array 100 or SPARCstorage Array 200.

After invoking the metatool, the following message is displayed:

```
root@[/]>metatool &
[1]      2569
root@[/]>Initializing metatool... Done.
Discovering drives and slices... metatool: Segmentation Fault
```

Workaround: Move /usr/lib/libssd.so.1 and /usr/lib/libap\_dmd.so.1 to /usr/sadm/lib/lvm.

---

## SunFDDI and Diskless Booting (BugID 4390228)

The SunFDDI PCI board (FDDI/P) does not support diskless booting. The SunFDDI SBus board (FDDI/S) supports diskless booting on sun4m and sun4u platforms only.

---

## Multiple Sun GigaSwift Ethernet Cards May Hang System (BugID 4336400, 4365263, 4431409)

Your system may experience heavy CPU usage or may hang if more than two Sun GigaSwift Ethernet cards are installed.

---

## System May Hang When the `cpr` Module Runs (BugID 4466393)

If you are running any version of the Solaris 8 software with an Expert3D or Expert3D-Lite card, you may experience problems after `cpr` runs.

Workaround: Install Patch 108576-15 or greater.

---

## `librt` Objects Do Not Transition to Multi-User Mode (BugID 4479719)

SunVTS may fail in multi-user mode when semaphores are created improperly.

Workaround: Kill and restart `picld` after the machine reaches multiuser mode, but before running SunVTS:

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

---

## Vulnerability in the ToolTalk Database Server Allows Root Access (BugID 4499995)

When the ToolTalk Database Server (`/usr/openwin/bin/rpc.ttdbserverd`) is enabled, remote and local attacks are possible. These attacks can potentially give root access to the system. Attacked systems can be identified by the presence of garbage files in the root directory that begin with an `A`.

Workaround: Remove the `rpc.ttdbserverd` line from the `inetd.conf` file. Disable the service by using the `chmod a-x` command on `/usr/openwin/bin/rpc.ttdbserverd`. Check with your Sun representative about future patches.



---

## Invalid Warning During System Boot (BugID 4519441)

A warning message may appear when booting a Netra ct 800 or Sun Blade™ 100 system which reads:

```
invalid vector intr: number 0x7de, pil 0x0
```

This message is benign and can be ignored.



## AP 2.3.1 on Sun Enterprise Servers

---

---

### AP 2.3.1 on Sun Enterprise Servers

This section contains the release notes for Alternate Pathing (AP) 2.3.1 on Sun Enterprise 3x00, 4x00, 5x00, 6x00, and 10000 servers.

AP enables you to define and control alternate physical paths to peripheral devices, adding increased availability and a level of fault recovery to your server. If a physical path to a device becomes unavailable, an alternate path can be used. For more information, see the *Sun Enterprise Server AP 2.3.1 User Guide* in the AnswerBook2 Alternate Pathing 2.3.1 Collection.

### Future AP Support

AP multipath I/O technology is being retired in favor of the newer, more scalable technologies presented by Sun StorEdge Traffic Manager and IPMP.

These modern technologies present better overall multipath solutions, with refined, user-friendly interfaces that are well integrated with Solaris. IPMP also provides true automatic switching for networks upon error detection.

If you use AP for its I/O multipath capabilities, you are encouraged to unconfigure your AP installations, and begin utilizing these newer technologies for I/O multipath control.

All 3 technologies are available during the Solaris 8 timeframe. However, be advised that AP will no longer be available in Solaris 9.

## Installation Issues

If you are upgrading from Solaris 2.6 or Solaris 7 software to Solaris 8 software and have AP 2.1 or AP 2.2 on your system, you must upgrade to AP 2.3 or AP 2.3.1. The following sections include references to a volume manager because most systems have one installed.

---

**Note** – AP 2.3.1 installation is Solaris operating environment specific. If you have already installed AP 2.3.1 on your system and choose to upgrade your operating system at a later date, you must follow the upgrade procedure to remove the AP 2.3.1 software using `pkgrm` and re-install AP 2.3.1.

---

This section contains an overview of the entire upgrade process, which requires you to use several sections from different publications. You should ensure that you have the following publications before you start the upgrade:

- *Solaris 8 2/02 Release Notes Supplement for Sun Hardware* (available in printed form in your Solaris 8 2/02 Media Kit)
- *Solaris 8 2/02 Sun Hardware Platform Guide* (available in printed form in your Solaris 8 Media Kit or in AnswerBook2 format on the Sun Hardware Supplements CD)
- *Sun Enterprise Server Alternate Pathing 2.3.1 User Guide* (available in AnswerBook2 format on the Sun Hardware Supplements CD in your Solaris 8 Media Kit)
- Your Volume Manager User's Guide
- Your Volume Manager Installation and Product Notes

---

**Note** – Before attempting an upgrade, verify that your volume manager supports the Solaris 8 software.

---



---

**Caution** – You must follow the sequence given here to successfully complete the upgrade.

---

In general, you will perform the following tasks:

- Unconfigure your volume manager.
- Remove the previous version of AP.
- Upgrade to the Solaris 8 operating environment.
- Install AP 2.3.1.
- Install and reconfigure your volume manager.

Specifically, you must perform the following tasks:

1. Read “Performing an Upgrade of AP” in the *Solaris 8 2/02 Sun Hardware Platform Guide*.

2. Commit any uncommitted AP metadevices (see Step 1 in “To Upgrade to AP 2.3.1” in the *Solaris 8 2/02 Sun Hardware Platform Guide*).
3. Unconfigure your volume manager using the documentation provided by the specific vendor.

---

**Note** – With regard to AP, no additional steps need to be taken to do this other than those recommended by the manufacturer to unconfigure the volume manager.

---



---

**Caution** – When the volume manager has been unconfigured and you are instructed to install the new operating environment, stop at that point and remove your previous version of AP. Do *not* install Solaris 8 software at this time.

---

4. Remove the current AP configuration using “Remove the current AP configuration.” of the *Solaris 8 2/02 Sun Hardware Platform Guide*.
5. Upgrade to Solaris 8 using “Upgrade the Solaris operating environment (if applicable) now” in the *Solaris 8 2/02 Sun Hardware Platform Guide*.
6. Upgrade to AP 2.3.1 using instructions in the *Solaris 8 2/02 Sun Hardware Platform Guide*.
7. Install your volume manager according to your manufacturer’s instructions.

When upgrading AP 2.3.1, unless both paths are accessible when you run `ap_upgrade_begin`, `ap_upgrade_finish` completes but is unable to recreate your path groups. No error message appears.

## General Issues

This section contains general issues that involve AP on Sun Enterprise servers. Read this section before you attempt to install or configure AP.

---

**Note** – If you are upgrading to AP 2.3.1 on *all* Sun Enterprise 10000 domains, then you can safely remove the `SUNWapssp` package software from the SSP workstation using `pkgrm`. If, however, any domain will remain at an earlier version of AP, then you must *not* remove the AP software on the SSP workstation. In either case, leaving AP software on SSP workstations has no effect on AP 2.3.1.

---

## Supported Devices

The following devices are supported by the AP software on Sun Enterprise servers:

- Sun SPARCstorage™ Arrays recognized by AP using the `pln(soc)` controllers
- Sun StorEdge A5000 recognized by AP using `sf(socal)` or `fp(qlc)` controllers
- Sun StorEdge T3 recognized by AP using `sf(socal)` or `fp(qlc)` controllers
- Sun Enterprise E3500 internal drives recognized by using `sf(socal)` or `fp(qlc)` controllers
- SunFastEthernet™ 2.0 (`hme`)
- SunFDDI/S 6.0 (`nf`) SAS (Single-Attach Station) and DAS (Dual-Attach Station)
- SCSI-2/Buffered Ethernet FSBE/S and DSBE/S (`le`)
- Quad Ethernet (`qe`)
- Sun Quad FastEthernet™ (`qfe`)
- Sun Gigabit Ethernet 2.0 (`ge`)

The following table lists the devices supported in each release:

**TABLE 4-1** AP Support Matrix

AP Version	Solaris Release	NICs									Disk Controllers	Storage Products
		ge	hme	le	nf	bf	hi	qe	qfe	vge		
2.0	2.5.1		X	X	X	X	X	X	X		pln/soc	SSA
2.0.1	2.5.1		X	X	X	X	X	X	X		pln/soc, sf/socal	SSA, A5000
2.1	2.6	X	X	X	X			X	X	X	pln/soc, sf/soc	SSA, A5000
2.2	7	X	X	X	X			X	X		pln/soc, sf/socal, fp/qlc*	SSA, A5000
* - fp/qlc support for AP 2.2 requires a patch for Solaris 7 (included in Solaris 7 11/99) and for AP 2.2. Refer to <a href="http://www.sunsolve.com">http://www.sunsolve.com</a> for more information.												
† - fp/qlc support requires Solaris 7 11/99 or Solaris 8.												
§ - AP 2.3 has not been optimized for Sun StorEdge T3 support.												

TABLE 4-1 AP Support Matrix

AP Version	Solaris Release	NICs									Disk Controllers	Storage Products
		ge	hme	le	nf	bf	hi	qe	qfe	vge		
2.3	2.6	X	X	X	X			X	X	X	pln/soc, sf/socal	SSA, A5000,
	7	X	X	X	X			X	X		pln/soc, sf/socal, fp/qlct	SSA, A5000, T3§
	8	X	X	X	X				X		pln/soc, sf/socal, fp/qlc	SSA, A5000, T3§
2.3.1	8	X	X	X	X				X		pln/soc, sf/socal, fp/qlc	SSA, A5000, T3
<p>* - fp/qlc support for AP 2.2 requires a patch for Solaris 7 (included in Solaris 7 11/99) and for AP 2.2. Refer to <a href="http://www.sunsolve.com">http://www.sunsolve.com</a> for more information.</p>												
<p>† - fp/qlc support requires Solaris 7 11/99 or Solaris 8.</p>												
<p>§ - AP 2.3 has not been optimized for Sun StorEdge T3 support.</p>												

## SunFDDI and Gigabit Ethernet Devices

AP 2.3.1 validation tests were performed on SunFDDI/S (revision 7.0) and Gigabit Ethernet (revision 2.0). If you install either of these devices, you must use the revision level that was tested, unless a higher revision level exists. In addition, you must install all of the available patches for these devices. Refer to <http://www.sunsolve.sun.com> for more information about the patches.

## Sun StorEdge A3000

The Sun StorEdge A3000 supports failover capabilities that are similar to those provided by AP 2.3.1. Because of this, AP 2.3.1 does not support the Sun StorEdge A3000. See that product's documentation for more information about its failover support.

## Sun StorEdge A5000

AP 2.3.1 supports the Sun StorEdge A5000 for this release.

## Sun StorEdge A7000

AP 2.3.1 does not support the Sun StorEdge A7000 for this release.

## Sun StorEdge T3

AP 2.3.1 supports the Sun StorEdge T3 in a path optimized AP configuration with this release. Path optimization refers to the efficient distribution of I/O traffic for the T3.

## Software Compatibility

The following lists includes the possible combinations of AP and Solaris software you can install on a Sun Enterprise server.

- Solaris 8 with AP 2.3.1 and DR
- Solaris 8 with AP 2.3 and DR
- Solaris 7 with AP 2.3.1 and DR
- Solaris 7 with AP 2.3 and DR
- Solaris 7 with AP 2.2 and DR
- Solaris 2.6 with AP 2.3.1 and DR
- Solaris 2.6 with AP 2.3 and DR
- Solaris 2.6 with AP 2.1 and DR
- Solaris 2.5.1 with AP 2.0.1 and DR (Sun Enterprise 10000 server only)
- Solaris 2.5.1 with AP 2.0 and DR (Sun Enterprise 10000 server only)

---

**Note** – AP does not support DR model 3.0, which runs on Sun Enterprise 10000 domains running the Solaris 8 2/02 operating environment. AP does support DR model 2.0 on Sun Enterprise 10000 domains. For details on the multipathing software compatible with DR model 3.0, refer to the *SSP 3.5 Installation Guide and Release Notes*.

---

## AP Patches

Check the SunSolve website on a regular basis for any AP patches that may be available, and apply the recommended patches:

<http://sunsolve.sun.com>



## Dynamic Reconfiguration (DR) Issues

The DR Attach operation can complete without the controller being immediately accessible to AP. You must verify that the physical device is present before switching to the new controller using `apconfig`.

A Sun Enterprise 10000 server running the Solaris 2.6 operating environment requires Patch 106284-02 for AP 2.3.1 to run correctly with the `dr_daemon`.

## Boot Disk Issues

AP 2.3.1 provides support for only one alternately pathed boot disk plus a mirror disk per domain.

In order to fix inconsistencies in boot recovery behavior, device aliases for the boot disk are not supported.

Boot recovery is architecture generic in AP 2.3.1. Boot recovery works on Sun Fire as well as Starfire platforms.

## IPMP Issues

IPMP/AP path groups are not supported for this release.

## Sun Fibre Channel Port Driver (qlc/fp) Issues

A SENA device that uses the qlc/fp drivers is considered a different physical device than a SENA device that uses the social/sf stack. SENA devices do not support mixed configurations where qlc/fp and social/sf drivers service a single SENA device. Therefore, the two devices cannot be combined in an AP metadvice.

Revising the firmware on a physical SENA device using social/sf drivers to use qlc/fp drivers for your Fibre Channel controllers is the same as replacing the hardware with a different type of controller. (The converse is also true.) You must unconfigure Alternate Pathing on such controllers *before* you revise the firmware. For example:

```
# apdisk -d sf:0
# apdb -C
```

Revise the SENA firmware.

After you have performed the revision, recreate your pathgroups using the new device names, for example:

```
# apdisk -c -pfp:0 -a fp:1
# apdb -C
```



---

**Caution** – If you change firmware without unconfiguring AP, file systems available from the new alternately-pathed controllers may not be accessible. If those file systems are required during boot, your system can become unbootable.

---

## AP Documentation Locations

Documentation for AP 2.0 and 2.0.1 can be found in their respective collections under Hardware -> Enterprise Servers at docs.sun.com.

AP 2.1 and 2.2, however, are in the Hardware -> Solaris on Sun Hardware AnswerBook collection at docs.sun.com.

AP 2.3 and 2.3.1 are in their own collections under Hardware -> Enterprise Servers.

## Known Bugs/RFEs

Panic while switching unplumbed metanetwork. (BugID 4361968)

## Fixed Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been fixed since the AP 2.3 release (Solaris 8). This list does not include all of the fixed bugs.

(RFE) An immediate switch of path using AP after DR configure forces it into a 'T' state. (BugID 4265982)

(RFE) AP handling for individual target failure, FC hubs/fabric, and daisy chaining. (BugID 4276330)

(RFE) Hang on Sun Enterprise 3500 with mirrored internal disk pull out with AP and sds. (BugID 4297492)

Read/write errors during ctrl failover with Sun StorEdge T3 Array partner group or 2x2 expansion. (BugID 4342963)

Multiple ".probe" execution causes LUNs on UNIX host to fail with ENODEV. (BugID 4347014)

ENXIO from Sun StorEdge T3 ONLINE Master immediately after .probe initiated ctrl failure. (BugID 4347016)

## Other Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been discovered regarding AP 2.3.1 and the Solaris 8 operating environment. This list does not include all bugs.

## Other Fixed Bugs

### ssd: Serial Number Should Be Obtained From the Unit Serial Number Page (Bug ID 4295457)

Description: AP depends on Sun Device ID functions; specifically `ddi_dev_id_compare()`. Any device that AP supports must adequately interface with the Sun Device ID. This leads to a direct dependency on the resolution of Sun BugID 4295457. Thus, there is a dependency on three separate patches:

- Patch 105356-15 for Solaris 2.6
- Patch 107458-09 for Solaris 7
- Patch 109524-01 for Solaris 8

Solution: You can obtain these patches from SunSolve at:  
<http://sunsolve.sun.com>

### qfe Driver Does Not Respond With DL\_OK\_ACK To a DL\_ENABMULTI\_REQ Primitive (Bug ID 4241749)

Systems running the Solaris 7 operating environment using `qfe` controllers should install patch 107743-06, to prevent system hangs when switching pathgroups with `qfe` controllers in them.

Solution: You can obtain Patch 107743-06 from SunSolve at:  
<http://sunsolve.sun.com>



## Open Issues for Sun Fire 6800/4810/4800/3800 Systems

---

This chapter describes open issues related to the use of the Solaris operating environment on Sun Fire 6800/4810/4800/3800 systems.

---

### Sun Fire 6800/4810/4800/3800 Systems

This section provides information on using the Solaris operating environment.

#### Displaying System Configuration Information

The `prtdiag` command is one of the Solaris operating environment commands that displays system configuration parameters. The information on this command in the *Sun Hardware Platform Guide* for this operating system release is incorrect. Following is the corrected information.

The Solaris operating environment `prtdiag (1M)` command displays the following information to the domain of your Sun Fire 6800/4810/4800/3800 system:

- Configuration
- Diagnostic
- Total amount of memory (similar to the `prtconf` command)

---

# Dynamic Reconfiguration on Sun Fire 6800/4810/4800/3800 Systems

Dynamic reconfiguration (DR) is supported for Solaris 8 2/02. This section includes open issues for DR on the Sun Fire 6800/4810/4800/3800 systems at the time of this release.

---

**Note** – For information on the system controller firmware that contains DR functionality, refer to the *Sun Fire 6800/4810/4800/3800 Systems Software Release Notes* included with the 5.12.6 firmware release. This firmware and related documentation is included in SunSolve patch 112127-02, which is available on the SunSolve web site (<http://sunsolve.Sun.com>).

---

These release notes for dynamic reconfiguration (DR) on Sun Fire 6800, 4810, 4800, and 3800 systems cover the following topics:

- [“Dynamic Reconfiguration Software Installation Instructions” on page 55](#)
- [“Known DR Limitations” on page 58](#)
- [“Dynamic Reconfiguration Software Bugs” on page 62](#)

## System-Specific DR Support

System-specific DR support on the 6800/4810/4800/3800 systems is shown by the `cfgadm` command. System boards are indicated as class “sbd.” CompactPCI (cPCI) cards are shown as class “pci.” Users of DR through the `cfgadm` interface will see other DR classes as well.

For more information about system-specific problems with DR, see [“Known Dynamic Reconfiguration Bugs” on page 62](#).

To view the classes that are associated with attachment points, run the following command as superuser:

```
# cfgadm -s "cols=ap_id:class"
```

Dynamic attachment points may also be listed by using the `cfgadm` command with the `-a` option. To determine the class of a specific attachment point, add the point as an argument to the above command.

---

# Dynamic Reconfiguration Software Installation Instructions

The following software supports DR on a Sun Fire system: version 8 2/02 of the Solaris operating environment, and version 5.12.6 of the system firmware.

In addition, you have the option of installing the Sun Management Center (SunMC). Refer to the *SunMC 3.0 Software Supplement for Sun Fire* for complete instructions.

---

**Note** – Sun Management Center 3.5 is now bundled with this Solaris release.

---

## Upgrading the System Firmware

An upgrade of the Sun Fire system firmware takes place via an FTP or HTTP connection from an FTP or HTTP server where the firmware image is stored. Refer to the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* for more information.

---

**Note** – Additional information about installing the firmware patch is available in the `README` and `Install.info` files that accompany the patch.

---



---

**Caution** – Do not update the system controller firmware without updating the firmware for all your CPU/Memory boards and I/O assemblies. If the firmware for your CPU/Memory boards and I/O assemblies is different from the system controller firmware, you may not be able to boot your domains.

---

### ▼ To Upgrade the System Firmware:

#### 1. Set up the FTP or HTTP server.

For more information, see Appendix B of the *Sun Fire 6800/4810/4800/3800 Systems Platform Administration Manual* (part number 805-7373-13).

**2. Download the 5.12.6 firmware.**

This firmware and related documentation is included in SunSolve patch 112127-02, which is available on the SunSolve Web site located at:

<http://sunsolve.Sun.COM/pub-cgi/show.pl?target=patches/patch-access>

**3. Copy the patch onto the FTP or HTTP server using a command such as the following:**

```
# cp /patch_location/* /export/ftp/pub/5.12.6
```

**4. Connect to the system controller console (serial port) to monitor the system when you upgrade the firmware (Step 6).**

The prompt for the system controller is:

```
schostname:SC>
```

**5. Shut down all the domains by halting the Solaris operating environment.**

The keyswitch remains in the on position in these domains.

**6. In each domain that you shut down in step 5, set the keyswitch position to standby:**

```
schostname:A> setkeyswitch standby
```

**7. Verify that all the CPU/Memory boards and I/O assemblies are powered on by running the showboards command on the system controller in the platform shell:**

```
schostname:SC> showboards
```

**8. If any CPU/Memory boards or I/O assemblies are not powered on, use the poweron command on the system controller in the platform shell to power on those components:**

```
schostname:SC> poweron component_names
```

**9. Upgrade the firmware by using the flashupdate command on the system controller in the platform shell.**





---

**Caution** – Do not power down the system or reset the system while performing this step.

---

Use the command syntax appropriate to the URL protocol:

```
schostname:SC> flashupdate -f URL all
```

The `flashupdate` command reboots the system controller and upgrades the CPU/Memory boards and I/O assemblies, `scapp`, and RTOS.

---

**Note** – When running `scapp 5.12.5` or higher and `RTOS 18` or higher, the upgrade procedure updates `scapp` and `RTOS` only when the image to be installed is different from the image currently installed.

---

10. After the system controller reboots successfully, connect to each domain console and power off all the CPU/Memory boards and I/O assemblies by setting the keyswitch position to `off`:

```
schostname:A> setkeyswitch off
```

11. Verify that all the CPU/Memory boards and I/O assemblies are powered off by running the `showboards` command on the system controller in the platform shell:

```
schostname:SC> showboards
```

12. If any CPU/Memory boards or I/O assemblies are not powered off, use the `poweroff` command on the system controller in the platform shell to power off those components:

```
schostname:SC> poweroff component_names
```

13. Bring up each domain by setting the keyswitch position to `on`:

```
schostname:A> setkeyswitch on
```

14. After all the domains have been brought up, update the configuration backup of the system controller by using the `dumpconfig` command:

```
schostname:SC> dumpconfig -f URL
```

where *URL* specifies the ftp protocol.

---

## Known DR Limitations

This section contains known DR software limitations of the Sun Fire 6800, 4810, 4800, and 3800 systems.

### General DR Limitations

- If you add a system board to a domain without using DR procedures, such as by running the `addboard` command-line interface (CLI) command on the system controller (SC), you must run the `setkeyswitch off` command and then the `setkeyswitch on` command to bring the board into the system.
- This release of the DR software does not support Sun StorEdge Traffic Manager.
- Before performing any DR operation on an I/O (IBx) board, enter the following command to stop the `vold` daemon:

```
# sh /etc/init.d/volmgt stop
```

After the DR operation has successfully completed, enter the following command to re-start the `vold` daemon:

```
# sh /etc/init.d/volmgt start
```

- On Sun Fire 6800, 4810, 4800, and 3800 systems, DR does not support HIPPI/P, nor SAI/P (bug 4466378), nor the SunHSI/P driver (bug 4496362).
- You must execute the `devfsadm(1M)` command to see any changes that have been made, especially in regard to changes from PCI to cPCI.
- Do not reboot nor reset the system controller (SC) during DR operations. In addition, do not perform a `flashupdate`, which requires a reboot upon completion.

## Limitations Specific to CompactPCI

- You can unconfigure a CompactPCI (cPCI) I/O assembly only if all the cards in the board are in an unconfigured state. If any cPCI card is busy (such as with a plumbed/up interface or a mounted disk), the board unconfigure operation fails with the status “busy.” All cPCI cards should be unconfigured before attempting to unconfigure the cPCI I/O assembly.
- When a multipath disk is connected to two cPCI cards, it is possible to see disk activity across the cards when none is expected. For this reason, make sure that there is no activity on the local side of the resource. This is more likely to occur when attempting to perform DR operations on a cPCI card that shows a busy status, even when there is no activity on the local side of the resource. A subsequent DR attempt may be required.
- When a user lists attachment points using the `cfgadm(1M)` command with the `-a` option, cPCI slots and PCI buses are all listed as attachment points. The `cfgadm -a` command displays an attachment point for a PCI bus as `N0.IB8:pci0`. There are four such attachment points for each cPCI board. The user should not perform DR operations on these, nor on the `sghsc` attachment point (which the `cfgadm -a` command displays as `N0.IB8:sghsc4`), because DR is not actually performed, and some internal resources are removed. However, there is no harm in doing so.
- In order for DR to function properly with cPCI cards, the levers on all cPCI cards that are inserted at Solaris boot time must be fully engaged.

## Procedures for Bringing a cPCI Network Interface (IPMP) Online or Offline

### ▼ To Take a cPCI Network Interface (IPMP) Offline and Remove It

1. Retrieve the group name, test address, and interface index by typing the following command.

```
# ifconfig interface
```

For example, `ifconfig hme0`

2. Use the `if_mpadm(1M)` command as follows:

```
# if_mpadm -d interface
```

This takes the interface offline and causes the failover addresses to be failed over to another active interface in the group. If the interface is already in a failed state, then this step simply marks and ensures that the interface is offline.

3. (Optional) Unplumb the interface.

This step is required only if you want to use DR to reconfigure the interface automatically at a later time.

4. Remove the physical interface.

Refer to the `cfgadm(1M)` man page and the *Sun Enterprise 6800, 4810, 4800 and 3800 Systems Dynamic Reconfiguration User Guide* for more information.

## ▼ To Attach and Bring Online a cPCI Network Interface (IPMP)

● Attach the physical interface.

Refer to the `cfgadm(1M)` man page and the *Sun Enterprise 6800, 4810, 4800 and 3800 Systems Dynamic Reconfiguration User Guide* for more information.

After you attach the physical interface, it is automatically configured using settings in the hostname configuration file (`/etc/hostname.interface`, where *interface* is a value such as `hme1` or `qfe2`).

This triggers the `in.mpathd` daemon to resume probing and detect repairs. Consequently, `in.mpathd` causes original IP addresses to failback to this interface. The interface should now be online and ready for use under IPMP.

---

**Note** – If the interface had not been unplumbed and set to the OFFLINE status prior to a previous detach, then the attach operation described here would not automatically configure it. To set the interface back to the ONLINE status and failback its IP address after the physical attach is complete, enter the following command: `if_mpadm -r interface`

---

## Operating System Quiescence

This section discusses permanent memory, and the requirement to quiesce the operating system when unconfiguring a system board that has permanent memory.

A quick way to determine whether a board has permanent memory is to run the following command as superuser:

```
# cfgadm -av | grep permanent
```

The system responds with output such as the following, which describes system board 0 (zero):

```
N0.SB0::memory connected configured ok base address 0x0, 4194304
KBytes total, 668072 KBytes permanent
```

Permanent memory is where the Solaris kernel and its data reside. The kernel cannot be released from memory in the same way that user processes residing in other boards can release memory by paging out to the swap device. Instead, `cfgadm` uses the copy-rename technique to release the memory.

The first step in a copy-rename operation is to stop all memory activity on the system by pausing all I/O operations and thread activity; this is known as *quiescence*. During quiescence, the system is frozen and does not respond to external events such as network packets. The duration of the quiescence depends on two factors: how many I/O devices and threads need to be stopped; and how much memory needs to be copied. Typically the number of I/O devices determines the required quiescent time, because I/O devices must be paused and unpaused. Typically, a quiescent state lasts longer than two minutes.

Because quiescence has a noticeable impact, `cfgadm` requests confirmation before effecting quiescence. If you enter:

```
# cfgadm -c unconfigure N0.SB0
```

The system responds with a prompt for confirmation:

```
System may be temporarily suspended, proceed (yes/no)?
```

If you are using SunMC to perform the DR operation, a pop-up window displays this prompt.

Enter **yes** to confirm that the impact of the quiesce is acceptable, and to proceed.

---

# Dynamic Reconfiguration Software Bugs

This section contains the synopses and Sun BugID numbers of the more important bugs that have been discovered during testing of DR. This list does not include all bugs.

## Known Dynamic Reconfiguration Bugs

### cryptorand Exited After Removing CPU Board With Dynamic Reconfiguration (BugID 4456095)

Description: If a system is running the `cryptorand` process, which is found in the SUNWski package, an unconfigure of memory, such as part of a CPU/Memory (SB) board disconnect, causes `cryptorand` to close with messages recorded in `/var/adm/messages`. This action denies random number services to secure sub-systems, and any memory present when `cryptorand` is started should not be unconfigured.

The `cryptorand` process supplies a random number for `/dev/random`. After `cryptorand` is started, the amount of time before `/dev/random` becomes available depends on the amount of memory in the system. It takes about two minutes per GB of memory. Applications that use `/dev/random` to get random numbers may experience temporary blockage. It is not necessary to restart `cryptorand` if a CPU/memory board is added to a domain.

Workaround: If a CPU/memory board is removed from the domain, restart `cryptorand` by entering the following command as superuser:

```
# sh /etc/init.d/cryptorand start
```

### SBM Sometimes Causes System Panic During DR Operations (BugID 4506562)

Description: A panic may occur when a system board that contains CPUs is removed from the system while Solaris Bandwidth Manager (SBM) is in use.

Workaround: Do not install SBM on systems that will be used for DR trials, and do not perform CPU system board DR operations on systems with SBM installed.

## DR Hangs During Configure Operation With IB Board With `vxdmpadm policy=check_all` (BugID 4509462)

Description: A DR configure operation hangs with an IBx (I/O) board after a few successful iterations. This situation occurs when the DR operation is executed concurrently with the DMP daemon that is implementing the policy `check_all` with a time interval.

Workaround: To avoid the deadlock between the DMP daemon and system board DR, enter the following command before performing DR operations. This command stops and re-starts the DMP daemon.

```
# /usr/sbin/vxdmpadm stop restore
```

## Unable to Disconnect SCSI Controllers Using DR (BugID 4446253)

Description: When a SCSI controller is configured but not busy, it cannot be disconnected using the DR `cfgadm(1M)` command.

Workaround: None.

## `cfgadm_sbd` Plugin in Multi-Threaded Environment Is Broken (BugID 4498600)

Description: When a multi-threaded client of the `cfgadm` library issues concurrent `sbd` requests, the system may hang.

Workaround: None. Currently there are no existing applications implementing multithreaded usage of the `cfgadm` library.

## DR Operations Hang After a Few Loops When CPU Power Control Is Also Running (BugID 4114317)

Description: When multiple concurrent DR operations occur, or when `psradm` is run at the same time as a DR operation, the system can hang because of a mutex deadly embrace.

Workaround: Perform DR operations serially (one DR operation at a time); and allow each to complete successfully before running `psradm`, or before beginning another DR operation.

## SC Console Bus ERROR Seen While SNMP Enabled and Running DR Suite (BugID 4485505)

Description: A console bus error message is occasionally generated during SNMP get operations on the `cpuModDescr` object. This occurs infrequently, and only when SunMC is monitoring a system. When the message does occur, `unknown` is returned to SunMC as the value of the `cpuModDescr` object.

Workaround: The only workaround is to not use SunMC. However, the message is harmless, and the problem occurs rarely, so it is safe simply to ignore it. The only risk is that the SunMC GUI may occasionally display the wrong value for `cpuModDescr`.

## System May Panic When `send_mondo_set` Times Out (BugID 4518324)

A Sun Fire system may panic if one or more of the CPU boards are sync paused during a DR operation. Sync pause is required to attach or detach boards. If there are outstanding `mondo` interrupts, and for any reason the SC is not able to complete sync pause within the one-second `send_mondo_timeout` limit, the system panics.



## Sun Midrange Systems Open Issues

---

This chapter contains the latest information for the Sun Enterprise systems running the Solaris 8 operating environment. These include the Sun Enterprise 6500, 6000, 5500, 5000, 4500, 4000, 3500, and 3000 systems.

The Solaris 8 operating environment includes support for the CPU/memory boards and most I/O boards in the systems mentioned above.

---

## Dynamic Reconfiguration of Sun Enterprise 6x00, 5x00, 4x00, and 3x00 Systems

These release notes provide the latest information on Dynamic Reconfiguration (DR) functionality for Sun Enterprise 6x00, 5x00, 4x00, and 3x00 systems running the Solaris 8 2/02 operating environment from Sun Microsystems. For more information on Sun Enterprise Server Dynamic Reconfiguration, refer to the *Dynamic Reconfiguration User's Guide for Sun Enterprise 3x00/4x00/5x00/6x00 Systems*.

The Solaris 8 2/02 operating environment includes support for CPU/memory boards and most I/O boards in Sun Enterprise 6x00, 5x00, 4x00, and 3x00 systems.

# Supported Hardware

Before proceeding, ensure the system supports dynamic reconfiguration. If you see the following message on your console or in your console logs, the hardware is of an older design and not suitable for dynamic reconfiguration.

```
Hot Plug not supported in this system
```

Supported I/O boards are listed in the “Solaris 8” section on the following Web site:

<http://sunsolve5.sun.com/sunsolve/Enterprise-dr>

I/O board Type 2 (graphics), Type 3 (PCI), and Type 5 (graphics and SOC+) are not currently supported.

## Firmware Notes

### FC-AL Disk Arrays or Internal Drives

For Sun StorEdge A5000 disk arrays or for internal FC-AL disks in the Sun Enterprise 3500 system, the firmware version must be ST19171FC 0413 or a subsequently compatible version. For more information, refer to the “Solaris 8” section at the following web site:

<http://sunsolve5.sun.com/sunsolve/Enterprise-dr>

### PROM Updates for CPU and I/O Boards

Users of Solaris 8 2/02 software who wish to use Dynamic Reconfiguration must be running CPU PROM version 3.2.22 (firmware patch ID 103346-xx) or a subsequently compatible version. This firmware is available from the Web site. See [“How to Obtain Firmware” on page 67](#).

Older versions of the CPU PROM may display the following message during boot:

```
Firmware does not support Dynamic Reconfiguration
```



---

**Caution** – CPU PROM 3.2.16 and earlier versions do not display this message, although they do not support dynamic reconfiguration of CPU/memory boards.

---

- To see your current PROM revision, enter `.version` and banner at the ok prompt.

Your display will be similar to the following:

```
ok .version
Slot 0 - I/O Type 1 FCODE 1.8.22 1999/xx/xx 19:26 iPOST 3.4.22 1999/xx/xx 19:31
Slot 1 - I/O Type 1 FCODE 1.8.22 1999/xx/xx 19:26 iPOST 3.4.22 1999/xx/xx 19:31
Slot 2 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 3 - I/O Type 4 FCODE 1.8.22 1999/xx/xx 19:27 iPOST 3.4.22 1999/xx/xx 19:31
Slot 4 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 5 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 6 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 7 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 9 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 11 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 12 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
Slot 14 - CPU/Memory OBP 3.2.22 1999/xx/xx 19:27 POST 3.9.22 1999/xx/xx 19:31
ok banner
16-slot Sun Enterprise E6500
OpenBoot 3.2.22, 4672 MB memory installed, Serial #xxxxxxx.
Ethernet address 8:0:xx:xx:xx:xx, Host ID: xxxxxxxx.
```

## How to Obtain Firmware

For information about updating your firmware, refer to the “Solaris 8” section at the following Web site:

<http://sunsolve5.sun.com/sunsolve/Enterprise-dr>

At this site, there is information on how to:

- Download the DR-capable PROM firmware
- Upgrade the PROM

If you cannot use the Web site, contact your Sun support service provider for assistance.

# Software Notes

## Enabling Dynamic Reconfiguration

In the `/etc/system` file, two variables must be set to enable dynamic reconfiguration and an additional variable must be set to enable the removal of CPU/memory boards.

1. **Log in as superuser.**
2. **To enable dynamic reconfiguration, edit the `/etc/system` file and add the following lines to the `/etc/system` file:**

```
set pln:pln_enable_detach_suspend=1
set soc:soc_enable_detach_suspend=1
```

3. **To enable the removal of a CPU/memory board, add this line to the `/etc/system` file:**

```
set kernel_cage_enable=1
```

Setting this variable enables the memory unconfiguration operation.

4. **Reboot the system to put the changes into effect.**

## Quiesce Test

On a large system, the `quiesce-test` command (`cfgadm -x quiesce-test sysctrl0:slotnumber`) may run as long as a minute or so. During this time no messages are displayed if `cfgadm` does not find incompatible drivers. This is normal behavior.

## Disabled Board List

If a board is on the disabled board list, an attempt to connect the board may produce an error message:

```
# cfgadm -c connect sysctrl0:slotnumber
cfgadm: Hardware specific failure: connect failed: board is
disabled: must override with [-f][-o enable-at-boot]
```

- To override the disabled condition, use the force flag (-f) or the enable option (-o enable-at-boot) with the `cfgadm` command:

```
# cfgadm -f -c connect sysctrl0:slotnumber
```

```
# cfgadm -o enable-at-boot -c connect sysctrl0:slotnumber
```

- To remove all boards from the disabled board list, set the `disabled-board-list` variable to a null set with the system command:

```
# eeeprom disabled-board-list=
```

- If you are at the OpenBoot prompt, use this command instead of the above to remove all boards from the disabled board list:

```
OK set-default disabled-board-list
```

For further information about the `disabled-board-list` setting, refer to the section “Specific NVRAM Variables” in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* manual in the Solaris on Sun Hardware Collection AnswerBook set in this release.

## Disabled Memory List

For information about the OpenBoot PROM `disabled-memory-list` setting, refer to the section “Specific NVRAM Variables” in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems* in the Solaris on Sun Hardware Collection AnswerBook set in this release.

## Unloading Detach-Unsafe Drivers

If it is necessary to unload detach-unsafe drivers, use the `modinfo(1M)` line command to find the module IDs of the drivers. You can then use the module IDs in the `modunload(1M)` command to unload detach-unsafe drivers.

## Interleaved Memory

A memory board or CPU/memory board that contains interleaved memory cannot be dynamically unconfigured.

To determine if memory is interleaved, use the `prtdiag` command or the `cfgadm` command.

To permit DR operations on CPU/memory boards, set the NVRAM `memory-interleave` property to `min`.

For related information about interleaved memory, see [“Memory Interleaving Set Incorrectly After a Fatal Reset \(BugID 4156075\)”](#) on page 71 and [“DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory \(BugID 4210234\)”](#) on page 71.

## Self-Test Failure During a Connect Sequence

If the error `“cfgadm: Hardware specific failure: connect failed: firmware operation error”` is displayed during a DR connect sequence, remove the board from the system as soon as possible. The board has failed self-test, and removing the board avoids possible reconfiguration errors that can occur during the next reboot.

If you want to immediately retry the failed operation, you must first remove and reinsert the board, because the board status does not allow further operations.

## Known Bugs

The following list is subject to change at any time. For the latest bug and patch information, refer to:

<http://sunsolve5.sun.com/sunsolve/Enterprise-dr>.

### `cfgadm -v` Not Working Properly (BugID 4149371)

The memory test should give occasional indications that it is still running. During a long test, the user cannot easily determine that the system is not hanging.

Workaround: Monitor system progress in another shell or window, using `vmstat (1M)`, `ps (1)`, or similar shell commands.

## Memory Interleaving Set Incorrectly After a Fatal Reset (BugID 4156075)

Memory interleaving is left in an incorrect state when a Sun Enterprise x500 server is rebooted after a Fatal Reset. Subsequent DR operations fail. The problem only occurs on systems with memory interleaving set to min.

Workarounds: Two choices are listed below.

- **To clear the problem after it occurs, manually reset the system at the OK prompt.**
- **To avoid the problem before it occurs, set the NVRAM `memory-interleave` property to `max`.**

This causes memory to be interleaved whenever the system is booted. However, you may find this option to be unacceptable, as a memory board containing interleaved memory cannot be dynamically unconfigured. See [“DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory \(BugID 4210234\)”](#) on page 71.

## vmstat Output Is Incorrect After Configuring Processors (Bug ID 4159024)

vmstat shows an unusually high number of interrupts after configuring CPUs. With vmstat in the background, the interrupt field becomes abnormally large (but this does not indicate a problem exists). In the last row in the example below, the interrupts (in) column has a value of 4294967216:

#	procs			memory				page					disk					faults				cpu	
r	b	w	swap	free	re	mf	pi	po	fr	de	sr	s6	s9	s1	--	in	sy	cs	us	sy	id		
0	0	0	437208	146424	0	1	4	0	0	0	0	0	1	0	0	50	65	79	0	1	99		
0	0	0	413864	111056	0	0	0	0	0	0	0	0	0	0	0	198	137	214	0	3	97		
0	0	0	413864	111056	0	0	0	0	0	0	0	0	0	0	0	286	101	200	0	3	97		
0	0	0	413864	111072	0	11	0	0	0	0	0	0	1	0	0	4294967216	43	68	0	0	100		

Workaround: Restart vmstat.

## DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory (BugID 4210234)

Cannot unconfigure a CPU/memory board that has interleaved memory.

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, it is necessary to first unconfigure the memory. However, if the memory on the board is interleaved with memory on other boards, the memory cannot currently be unconfigured dynamically.

Memory interleaving can be displayed using the `prtdiag` or the `cfgadm` commands.

Workaround: Shut down the system before servicing the board, then reboot afterward. To permit future DR operations on the CPU/memory board, set the NVRAM `memory-interleave` property to `min`. See also [“Memory Interleaving Set Incorrectly After a Fatal Reset \(BugID 4156075\)” on page 71](#) for a related discussion on interleaved memory.

## DR: Cannot Unconfigure a CPU/Memory Board That Has Permanent Memory (BugID 4210280)

To unconfigure and subsequently disconnect a CPU board with memory or a memory-only board, it is necessary to first unconfigure the memory. However, some memory is not currently relocatable. This memory is considered permanent.

Permanent memory on a board is marked “permanent” in the `cfgadm` status display:

```
# cfgadm -s cols=ap_id:type:info
Ap_Id Type Information
ac0:bank0 memory slot3 64Mb base 0x0 permanent
ac0:bank1 memory slot3 empty
ac1:bank0 memory slot5 empty
ac1:bank1 memory slot5 64Mb base 0x40000000
```

In this example, the board in slot3 has permanent memory and so cannot be removed.

Workaround: Shut down the system before servicing the board, then reboot afterward.

## `cfgadm` Disconnect Fails When Running Concurrent `cfgadm` Commands (BugID 4220105)

If a `cfgadm` process is running on one board, an attempt to simultaneously disconnect a second board fails.



A `cfgadm` disconnect operation fails if another `cfgadm` process is already running on a different board. The message is:

```
cfgadm: Hardware specific failure: disconnect failed: nexus error
during detach: address
```

Workaround: Do only one `cfgadm` operation at a time. If a `cfgadm` operation is running on one board, wait for it to finish before you start a `cfgadm` disconnect operation on a second board.

## Cannot Drain and/or Detach Sun Enterprise Server Boards That Host QFE Cards (BugID 4231845)

A server configured as a boot server for Solaris 2.5.1-based Intel platform clients has several `rpld` jobs running, whether or not such devices are in use. These active references prevent DR operations from detaching these devices.

Workaround: Perform a DR detach operation:

1. **Remove or rename the `/rplboot` directory.**
2. **Shut down NFS services with this command:**

```
# sh /etc/init.d/nfs.server stop
```

3. **Perform the DR detach operation.**
4. **Restart NFS services with this command:**

```
# sh /etc/init.d/nfs.server start
```



# Sun Enterprise 10000 Release Notes

---

This chapter contains the release notes for the following features on the Sun Enterprise 10000 server: SSP 3.5, dynamic reconfiguration (DR), InterDomain Networks (IDNs), and the Solaris operating environment on Sun Enterprise 10000 domains.

---

## SSP 3.5 Open Issues

For an overview of updated functionality in SSP 3.5, including open and fixed bugs, refer to the *SSP 3.5 Installation Guide and Release Notes*.

Check the SunSolve website on a regular basis for the SSP patches available for SSP 3.5:

<http://sunsolve.Sun.com>

If you need to install SSP software patches, be sure to install the patches on both the main and spare SSP, as explained in the *SSP 3.5 Installation Guide and Release Notes*.

---

**Note** – For the Solaris 8 2/02 release, be aware that SSP Patch 112178-01 has been applied to the SSP 3.5 software. This patch fixes bug 4505031, which involves the repeated display of a prompt that asks whether the system is to be configured as an SSP for the Sun Enterprise 10000 server. This prompt appears after the installation of the Solaris operating environment. The patch does not affect basic SSP 3.5 software functionality.

---

## machine\_server Memory Leaks during multiple hpost Operations (Bug ID 4493987)

Memory leaks related to the `machine_server` daemon can occur after multiple `hpost` processes.

Workaround: If SSP performance is affected by this memory leak, stop and start SSP daemons. As superuser on the main SSP, type:

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

## showdevices Does Not Display Base Memory Address for System Board (Bug ID 4495747)

This bug causes the `showdevices` command to display incorrect memory base address information. See also BugID 4497243.

Workaround: Use `rcfgadm` along with the `-av` options to display memory base address information.

---

# Dynamic Reconfiguration

Release notes and other technical information in this section apply only to the Solaris 8 2/02 version of the Sun Enterprise 10000 dynamic reconfiguration (DR) feature.

## General Issues

This section contains general issues that involve DR on the Sun Enterprise 10000 server. You should read this section before you attempt to install or configure DR.

## DR and Bound User Processes

For Solaris 8 2/02, DR no longer automatically unbinds user processes from CPUs that are being detached. Users are now required to perform this operation themselves before initiating a detach sequence. The drain operation fails if CPUs are found with bound processes.

### Problem with `oprom_checknodeid()` during DR (4474330)

A panic can occur under certain circumstances when the `/dev/openprom` interface accesses the PROM device tree after a DR disconnect. The `openprom` driver caches node information that can become invalid after a DR disconnect. As a result, OpenBoot PROM can be passed a bad node address.

Workaround: To minimize the possibility of encountering this situation, discontinue using applications, such as `prtconf`, that use the `/dev/openprom` interface during or immediately before or after a DR disconnect operation. Note that `picld(1M)` uses the `/dev/openprom` driver.

### QFE Fails to Resume After DR Detach (4499428)

After the `qfe` driver is suspended during a DR operation quiesce of the Solaris operating environment, the `qfe` driver might not resume correctly. This results in a loss of network connectivity. If this condition occurs, the domain will still be accessible through the network console from the SSP.

Workaround: Reset the `qfe` device by executing the following sequence of commands from the network console:

```
# ifconfig qfe_device down
# ifconfig qfe_device up
```

Where `qfe_device` is the affected `qfe` device, e.g. `qfe0`.

### Enabling DR 3.0 Requires an Extra Step in Certain Situations (Bug ID 4507010)

If you upgrade or perform a fresh install of the Solaris operating environment on a domain before you upgrade the SSP to SSP 3.5, the domain will not be properly configured for DR 3.0.

Workaround: Run the following command as superuser on the domain, after the SSP has been upgraded to SSP 3.5. This workaround is not necessary until DR 3.0 is enabled on the domain.

```
# devfsadm -i ngdr
```

---

## InterDomain Networks (IDN)

### General Issues

For a domain to become part of an IDN, all boards in that domain that have active memory must have at least one active CPU.

---

## Solaris Operating Environment

This section contains general issues, known bugs, patches, and notes about the Solaris 8 2/02 operating environment on the Sun Enterprise 10000 server.

### General Issues

Alternate Pathing (AP), dynamic reconfiguration (DR), and InterDomain Networks are supported in the Solaris 8 2/02 release.

---

**Note** – If you intend to use DR model 3.0 on a Sun Enterprise 10000 domain, you must install SSP 3.5 on your System Service Processor before you begin the fresh install or upgrade of the Solaris 8 2/02 operating environment on that domain. SSP 3.5 supports the Solaris 8 2/02 operating environment on Sun Enterprise 10000 domains.

---



---

**Caution** – Do not use the Solaris 8 2/02 Installation CD to install or upgrade the Solaris operating environment on Sun Enterprise 10000 domains. Begin installation from the Solaris 8 2/02 Software 1 of 2 CD, as explained in the *SSP 3.5 Installation Guide and Release Notes*.

---

## Solaris 8 2/02 and Boot-Disk Partition Sizes

If you are upgrading the operating environment from Solaris 2.6 to Solaris 8 2/02 and you used the partition layout suggested in the *SMCC Hardware Platform Guide Solaris 2.6*, the partitions may not be large enough for the upgrade. For instance, the `/usr` partition must be at least 653 megabytes. If `/usr` is smaller than the size needed to perform the upgrade, `suninstall` uses the Dynamic Space Reallocation (DSR) mode to reallocate the space of the disk partitions.

DSR may calculate a partition layout which is not acceptable for some systems. For instance, DSR may select partitions that appear to DSR as being unused (non-UFS partitions which may contain raw data or other types of file systems). If DSR selects a used partition, data loss may occur. Therefore, you must know the current status of the partitions DSR wants to use before you allow DSR to continue with the reallocation of the disk partitions.

After DSR presents an acceptable layout and you choose to proceed with the reallocation, DSR adjusts the affected file systems, and the upgrade continues. However, if you cannot constrain the layout so that it is acceptable for your needs, then you may need to manually repartition the boot device, or you may have to perform a fresh install.

## OpenBoot PROM Variables

Before you perform the `boot net` command from the OpenBoot PROM prompt (`ok`), you must verify that the `local-mac-address?` variable is set to *false*, which is the factory default. If the variable is set to *true*, you must ensure that this value is an appropriate local configuration.



---

**Caution** – If `local-mac-address?` is set to *true*, it may prevent the domain from successfully booting over the network.

---

In a `netcon(1M)` window, you can use the following command at the OpenBoot PROM prompt to display the values of the OpenBoot PROM variables:

```
ok printenv
```

## ▼ To Set the `local-mac-address?` Variable

1. If the variable is set to `true`, use the `setenv` command to set it to `false`.

```
ok setenv local-mac-address? false
```