Solaris 7 11/99

Includes Additional Release Notes and
End-of-Support Statements for the Solaris 7 11/99
Operating Environment Running on Sun Hardware
Products

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Contents

Late-Breaking News

This manual provides the following information:

■ Late-breaking news (this chapter)

■ End-of-support statements (Chapter 2)

■ Open issues (Chapter 3)

■ Sun™ Enterprise™ 10000 server issues (Chapter 4)

■ Sun Enterprise 3x00, 4x00, 5x00, and 6x00 server issues (Chapter 5)

This manual supplements the *Solaris 7 11/99 Sun Hardware Platform Guide* and the *Solaris 7 11/99 Release Notes.*

Release Notes Update

This section covers issues that were discovered after these release notes were printed.

SunFDDI 6.0 on the Sun Enterprise 10000 Server

The tcp_rexmit_interval_max parameter value shown in the example on page 9 of the SunFDDI6.0 on the Sun Enterprise 10000 Server document is incorrect. This value should be 60000 not 6000. The corrected example is shown below:

```
# ndd -set /dev/tcp tcp_rexmit_interval_max 60000
```

WorkShop 5

WorkShop 5 is included as try-and-buy in the Solaris media kits. There may be new patches recommended for WorkShop. These patches can be downloaded from:

`http://access1.sun.com/workshop/.*`

Service Contract Upgrades to the Solaris 7 11/99 Operating Environment

You may have received a Solaris^{TM} Server Media Kit to upgrade systems to the Solaris 7 11/99 operating environment. Please note that your service contract entitles you to use only those products that apply to your original Solaris operating environment license.

Unbundled Product Support

If you are upgrading from an existing version of Solaris and have installed unbundled products, either from Sun or from a different company, you must ensure that all those products are supported on Solaris 7 11/99 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 7 11/99 operating environment.

- Acquire and install a new version of the unbundled product, which is supported on the Solaris 7 11/99 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 7 11/99 operating environment. See the unbundled product documentation for more details.

- Remove the unbundled product prior to upgrading to the Solaris 7 11/99 operating environment.

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

`http://sunsolve.sun.com/sunsolve/pubpatches/patches.html`

Documents on the Software Supplement for the Solaris 7 11/99 Operating Environment for Sun Computer Systems CD

Table 1-1 lists the documents available on the Supplement CD:

TABLE 1–1   Documents on the Supplement CD

Path	Comment
`Docs/HWPG/EOS.html`	List of future end-of-support peripheral products
`Docs/HWPG/HWPG_en.ps`	*Solaris 7 11/99 Sun Hardware Platform Guide*
`Docs/ShowMeTV1.3/` `UserGuide/UG_en.ps`	*ShowMe TV 1.3 User's Guide*
`Docs/README_en.html/`	Readme file for Solaris 7 11/99 Sun Computer Systems Supplement CD
`Docs/E10K_SunFDDI/` `SunFDDI6e10k.ps`	Information on using SunFDDI^{TM} 6.0 on the Sun Enterprise 10000 system
Docs/SSP3.2/ENTSSPREFMAN.ps	Man pages for SSP 3.2
Docs/SSP3.2/SSPinstall.ps	Installation manual for SSP 3.2
Docs/SSP3.2/ssp.ps	User manual for SSP 3.2
Docs/SunForum2.0/UserGuide/ SunForumUserGuide.ps	User guide for SunForum 2.0

Note - The `_en` indicates an English language document. Other languages may be indicated, depending on locale.

The Supplement CD also contains other documentation in AnswerBook^{TM} packages and in man page packages. The documentation in AnswerBook packages can only be read through the AnswerBook2^{TM} 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 7 11/99 Sun Hardware Platform Guide* for details on installing these packages from the Supplement CD.

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 7 11/99 operating environment. Systems that can only run the 32-bit mode (such as those in the sun4c, sun4d, and sun4m platform groups) do not require updated firmware to run Solaris 7 11/99 software.

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

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

See the *Solaris 7 11/99 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 wriststrap, send e-mail to `strap@eng.sun.com`

Flash PROM Update Multimedia AnswerBook CD

This CD provides video clips that illustrate how to perform steps involving hardware that are part of the procedures for updating the Flash PROM on some sun4u systems.

The video clips on this CD can be accessed several ways. Some software products are present on this CD to facilitate viewing of the videos directly from the CD. Do not use the AnswerBook2 server software or the ShowMe TV software on this CD to install these products permanently on a system. Instead, use the Solaris 7 11/99 Documentation CD to install AnswerBook2 server software and use the Supplement CD to install ShowMe TV software.

Note - The video clips on the Flash PROM Update Multimedia AnswerBook CD have English language audio tracks. The volume level for the audio tracks is set to minimum. If you want to hear the English language audio track, you must adjust the audio level.

End-of-Support Products

This chapter contains a list of the end-of-support products for the Solaris 7 release, including the Solaris 7 11/99 release.

End-of-Support Products

The following hardware and software products are no longer supported in this Solaris 7 11/99 release. For more information, contact your authorized Sun support provider.

Network Devices — BEC Device and `be` Driver

The BEC device and `be` driver are not supported in the Solaris 7 11/99 release.

Graphics Devices—Discontinued Frame Buffers

The following frame buffers are not supported in the Solaris 7 11/99 release.

- MG1 (`bwtwo`)
- MG2 (`bwtwo`)
- CG2 (`cgtwo`)
- CG4 (`cgfour`)
- TC (`cgeight`)
- ZX (`leo`)
- TZX (`leo`)

PEX Graphics Library

The Solaris PEX™ graphics library and server extension are no longer supported in this Solaris 7 11/99 release.

Future End-of-Support Products

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

Sun4c-based Systems

The following sun4c architecture systems and servers based on these systems may no longer be supported in future releases:

SPARCstation™ SLC, SPARCstation ELC, SPARCstation IPC, SPARCstation IPX, SPARCstation 1, SPARCstation 1+, and SPARCstation 2

Note - All hardware options (such as SCSI devices) and supported configurations that are dependent upon the sun4c architecture may no longer be supported in future releases. A list of these options is included in the Supplement CD /docs directory in the file named EOS.html.

SPARCstation Voyager

SPARCstation Voyager™ systems may no longer be supported in future releases.

SPARC Xterminal 1

SPARC™ Xterminal 1™ systems may no longer be supported in future releases.

Open Issues

StarOffice Support

Sun's StarOffice Knowledge Database is the current customer support resource for StarOffice 5.1. For more information, refer to:

```
http://www.sun.com/products/staroffice/support.html
```

Spanish Server `installt.html` File References ODBC 2.11 (4278257)

The "Co-Packaged Software Topics: Contents" page of the Spanish (only) Server Web Start installation process contains a reference to ODBC 2.11. If you click on the ODBC 2.11 link, you receive the following error message:

```
File not found
```

ODBC 2.11 is not co-packaged with the Solaris 7 11/99 software release, and the reference should not appear on the page.

Workaround: Ignore the reference to ODBC 2.11 and do not click on the link.

Prestoserve 2.4.2 — Patch Required

The Prestoserve 2.4.2 release will not function properly with the Solaris 7 11/99 software environment if the following workaround is not implemented. Here is a partial list of some of the platforms and hardware options that may be affected:

- Ultra 1 Creator Model 170E
- Ultra 1 Creator3D Model 170E
- Sun Enterprise 1 Model 170E
- SunSwift™ SBus Adapter Card

To Install the Prestoserve Patch

If you installed the Prestoserve 2.4.2 software and are using a platform or hardware option listed above, you must take the following steps to provide compatibility:

1. **Edit the** `/etc/system` **file by adding the following information:**

```
set fas:fas_enable_sbus64 = 0
```

2. **Reboot your system.**

Caution - Failure to reboot your system can corrupt data.

A Prestoserve patch (#103043-08) that automatically adds the above information to the `/etc/system` file is available. If you prefer to make this change using the Prestoserve patch, contact your authorized Sun support provider. If you edit the `/etc/system` file as described above, you do not need the Prestoserve patch.

To Install the Prestoserve Patch on an Ultra 2 System

If you installed the Prestoserve 2.4.2 software and are using an Ultra 2 platform (200MHz or 300MHz), you must take the following steps to provide compatibility:

1. **Edit the** `/etc/system` **file by adding the following information:**

```
set fas:fas_enable_sbus64 = 0
```

2. **Reboot your system.**

3. **Use** `pkgadd` **to add the** `SUNWprsto` **package.**

4. **Add the Prestoserve patch (103043-08).**

Note - If the above steps are not followed, your Ultra 2 system may panic.

Booting From Partitions Greater Than 2 Gbytes (1234177)

Due to PROM limitations, all sun4c, sun4d, and sun4m architectures will not boot from partitions greater than 2 Gbytes. These systems will 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 sun4c, sun4d, and sun4m systems with large root disks (4 Gbytes and greater).

SunFDDI Adapters Cannot Boot Sun4d Diskless Clients (4144414)

Sun4d diskless clients cannot be booted using SunFDDI™ adapters (FDDI/S 6.0 or FDDI/P 2.0) installed in servers running the Solaris 7 11/99 operating environment.

If you intend using a Sun4d as a diskless client, deploy it in an ethernet section of your network.

Serial Parallel Controller Driver and Dynamic Reconfiguration

The Serial Parallel Controller driver does not support Dynamic Reconfiguration (4177805).

ISDN — Supported in 32-bit Mode Only

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

SunScreen SKIP 1.1.1 Not Supported in Solaris 7 11/99 Operating Environment

If you have the SunScreen™ SKIP 1.1.1 software currently installed on your system, you should remove the SKIP packages before installing or upgrading to the Solaris 7 operating environment. The packages you should remove are:

- `SICGbdcdr`
- `SICGc3des`
- `SICGcdes`
- `SICGcrc2`
- `SICGcrc4`
- `SICGcsafe`
- `SICGes`
- `SICGkdsup`
- `SICGkeymg`
- `SICGkisup`

Solstice SyMON Not Supported in Solaris 7 11/99 Operating Environment

If you have Solstice™ SyMON™ currently installed on your system, you should remove the SyMON packages before installing or upgrading to the Solaris 7 11/99 operating environment. The packages you should remove are:

- `SUNWsyc`
- `SUNWsye`
- `SUNWsym`
- `SUNWsyrt`
- `SUNWsys`
- `SUNWsyu`
- `SUNWsyua`
- `SUNWsyub`
- `SUNWsyuc`
- `SUNWsyud`
- `SUNWsyue`
- `SUNWsyuf`

ShowMe TV 1.3 Known Problems

Software

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 1.2.1. Here is a list of 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 can not switch between CIF and QCIF H.261 streams (that is. regular resolution, or 352x288 size frames, and low resolution,or 176x244 size frames) on non-Ultra systems.

- 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 and/or the hostname contain 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 (bug id# 4210702).

SunVTS 3.4 Issues

The following issues apply to the SunVTS™ 3.4 product.

New Features for This Release

The following new tests were added to SunVTS 3.4:

- `dvdtest`—tests DVD devices.
- `dpttest`—tests the Sun StorEdge™ PCI SCSI Hardware RAID adapter card.
- `cputest`—tests specific aspects of the SPARC processor datapath functionality.

SunVTS OPEN LOOK User Interface Support

The SunVTS OPEN LOOK user interface may not support the latest SunVTS features. For full feature support, use the SunVTS CDE or TTY interface. The SunVTS OPEN LOOK user interface will be sustained, but not enhanced, as long as OPEN LOOK is supported in the Solaris environment.

Possible Installation Problems

There are three possible installation problems that you might encounter when you attempt to install SunVTS with an installation program other than the `pkgadd` command.

Using Web Start 1.0 (4268929)

The installation fails on some systems when installing SunVTS with Web Start 1.0. The SunVTS `diag` device driver does not install properly and the installation fails.

Workaround: Use the `pkgadd` command to install SunVTS as described in the *SunVTS 3.4 User's Guide*.

Using Web Start 2.0 (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 3.4 User's Guide*.

Fixed Installation Directory with Web Start 2.0 (4243921)

When you attempt to install SunVTS using Web Start 2.0 you are not able to change the directory where SunVTS is installed. SunVTS will be installed in `/opt`.

Workaround: Use the `pkgadd -a none` command to install SunVTS in the directory of your choice as described in the *SunVTS 3.4 User's Guide*.

Running SunVTS Online Diagnostics Through Sun Enterprise SyMON

The SunVTS 3.4 online diagnostics feature (`SUNWodu`) is not accessible through the SyMON interface.

Instead, you can start SunVTS so it will run safely in an online environment by using the `vtsui.online` command.

For example:

```
# /opt/SUNWvts/bin/vtsui.online -h hostname
```

For more information about running SunVTS software in an online or offline environment, refer to the *SunVTS 3.4 User's Guide*.

StorEdge-A5XXX Device Group Changes

As of SunVTS 3.3, the way that StorEdge™ A5XXX devices are grouped in the SunVTS System Map (for logical mapping) changed. Prior to version 3.3, the enclosure was grouped under the `SENA(n)` group and the disks were grouped under the `SCSI-Devices` group. Now the enclosure and disks are both grouped under the `StorEdge-A5XXX_enclosure_name` group.

Disk Test (`disktest`) Mounting Issues

As of SunVTS 3.0 software, SunVTS `disktest` by default does not mount any mountable partitions. To have SunVTS software mount all partitions that contain a file system, set the environment variable BYPASS_FS_PROBE to 0 (zero), then start SunVTS software. For more details, refer to the `disktest` chapter in the *SunVTS 3.4 Test Reference Manual.*

Disk Test (`disktest`) Option File Note

Loading an option file that was created when BYPASS_FS_PROBE was set to 0 (zero) might not work if the BYPASS_FS_PROBE environment variable is no longer set to 0 (zero). Testing may fail with the following error:

```
SUNWvts.disktest.8088 07/24/98 15:47:22 disktest c0t0d0
FATAL: "Couldn't get file system information on /disktest_c0t0d0s0, statvfs()
system call failure error: No such file or directory.
```

This error is caused when SunVTS software expects to use the predefined mount point names (/disktest_c*n*t*n*d*n*s*n*) that are created when BYPASS_FS_PROBE is set to 0 (zero), but these mount points do not exist while BYPASS_FS_PROBE is not set to 0 (zero).Workaround: Create two separate option files for the two different states of the BYPASS_FS_PROBE environment variable.

Physical Configuration Mapping Support

The Physical Mapping function is only supported on the systems where the `configd` program is supported. The `configd` program only supports Ultra Enterprise™ server and Ultra Desktop systems. The `configd` package must be installed at the default installation base directory.

To display physical mapping, click the physical mapping button in the SunVTS interface. This will result in a re-mapping of the entire set of testable devices and test settings. Changing the logical and physical view during a test session is not recommended because the previous system and test status will be reset.

The SunVTS User Interface Disappears (4122829)

In some cases, the SunVTS user interface disappears during a SunVTS test session. The SunVTS kernel is still active and the test session may continue to run.

Workaround: Restart the SunVTS user interface.

For example (starting the SunVTS *CDE* user interface):

```
# /opt/SUNWvts/bin/vtsui
```

Some Devices Not Displayed Under Physical Mapping (4228489)

Certain devices that appear under logical mapping are not displayed under physical mapping; therefore, these devices are not selectable for testing.

Workaround: Use logical mapping for testing such devices.

The `enatest` and `socaltest` Cannot Run at the Same Time (4065417)

When the SunVTS `enatest` is run concurrently with the `socaltest`, the `enatest` may fail.

Workaround: Do not select `socaltest` when `enatest` is selected and vice-versa.

The `socaltest` FATAL: Failed `ioctl` `FCIO_DIAG_XRAM` (4065420)

When the SunVTS `socaltest` is run concurrently with `disktest`, the `socaltest` may fail.

Workaround: Do not select `socaltest` when `disktest` is selected and vice-versa.

The `socaltest` Can Fail Under Heavy System Load (4213518)

Running `socaltest` with heavy system load might cause resource limitations that cause this test to fail.

Workaround: Do not run `socaltest` with a large number of instances and concurrency.

`dpttest` Test

Sun currently only supports 64 megabytes of cache on the SRC/P hardware RAID card. Therefore, if you chose to select a memory amount to check under DPTTEST, set the Check Memory item to 64M.

PCMCIA Issues

The following bugs have been filed against PCMCIA:

If the PC ATA (`pcata`) module is `modunloaded` the system will appear to hang (4096137)

Description: 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 will appear to hang. Sometimes removing the card will bring the system back.

Workaround: none

When Booting Solaris 7 11/99 operating environment initially with 64-bit kernel the device `/dev/term/pc0`, PC card serial driver, may not get created (4162969)

Description: When booting the Solaris 7 11/99 operating environment initially with 64-bit kernel, the `/dev/term/pc0` hardware device node for PC card serial device may not be created.

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

PC File Viewer Issues

Install in the `/opt` Directory

The *Solaris 7 11/99 Sun Hardware Platform Guide* provides installation instructions that may indicate that PC file viewer can be installed in a directory other than the default directory. PC file viewer *must* be installed in the default (`/opt`) directory.

Known Bugs

- Backdrop image is not displayed in PowerPoint97 document (4159447)

- Cannot display nonstandard fonts in PowerPoint97 (4159448)

- Excel graph/table in PowerPoint97 document is not displayed (4159449)

- Can not display scaled font, colored text, italic-underlined text in PowerPoint97 (4159450, 4159451, 4159452)

- Copy and Paste of certain files into a text editor results in * (asterisks) instead of actual text (4165089)

- Searching does not work for multibyte (tch, ko) in PC file viewer (4151774)

- Wrong string is reversed in PC file viewer search on Japanese locales (4171815)

- Cannot display TCH Word95 saved in Word97 or PowerPoint97 formats in `zh.TW.BIG5` locale (4150413)

Sun Remote System Control (RSC) Release Notes

What's New in This Version

This version of Sun Remote System Control (RSC) includes bug fixes and a new environment variable, *tpe_link_test*. In addition, the RSC device Internet address has been added to email and pager alert messages.

If you have already installed a previous version of Remote System Control, back up your RSC configuration before installing this version, following the directions in Chapter 2 of the *RSC User's Guide*, and then restore them after installation when you run the RSC configuration script.

The *tpe_link_test* variable enables 10BASE-T Ethernet link integrity tests when set to true, the default. If you are using RSC in a hub that does not support Ethernet link integrity tests or that has them disabled, set this variable to false. Changes to this variable take effect after the next RSC reset. The *tpe_link_test* variable behaves similarly to the *tpe-link-test?* OBP environment variable, which is available on some SPARC platforms.

RSC and the local hub should have Ethernet link integrity tests enabled or disabled consistently. If this setting is not consistent, communication may not be possible.

Hardware and Software Configurations Supported for RSC

Supported Server

Sun Enterprise 250 server only, running the Solaris 7 or Solaris 2.6 5/98 operating environment.

The Sun Enterprise 250 flash PROM must be updated to version 3.7.7 or later before installing the RSC software. Failing to do so may cause server and RSC malfunctions. For update instructions and a downloadable image, see the Sun Enterprise 250 Supplement Web page at `http://sunsolve2.Sun.COM/sunsolve/E250/flash.html`. If you install RSC from the Sun Enterprise 250 Supplement CD, you can update the flash PROM as part of the installation process.

Supported GUI Clients

Sun JDK™ version 1.1.6 or a subsequent compatible version is required for GUI support on systems running the Solaris operating environment, and is included in the base Solaris 7 operating environment and the Sun Enterprise 250 Supplement CD.

Supported CLI Clients

- ASCII character terminals
- Systems running ASCII terminal emulation software
- Systems with Telnet client software

Ethernet Support

RSC is designed to function in a 10BASE-T network, and the RSC Ethernet port should be connected to a hub operating at 10 Mbps. If RSC does not respond to an Ethernet request, the first thing to check is that connection is to a 10BASE-T hub.

Uninterruptible Power Supply (UPS)

An American Power Conversion SmartUPS 1000 with PowerChute plus 4.2.2 software was used for testing.

Paging Support

RSC paging requires that the customer's paging service adhere to the TAP protocol. Paging services in the Americas and Europe generally are TAP-compliant, but this is not necessarily so in other locales.

Testing RSC Paging

Due to the many variables associated with paging, Sun Microsystems strongly recommends that you test the RSC paging mechanism to insure that your configuration options are set correctly.

The easiest way to test that all the components associated with RSC paging are functioning properly is to use the `rscadm send_event -c` command. This command can be invoked from a UNIX shell and will initiate an RSC alert. If the RSC `page_enabled` flag is set to true, this alert will send a page to the recipients specified by the *page_info1* and *page_info2* environment variables.

If RSC fails to send a page, a message similar to the following will be added to the event log:

```
THU AUG 27 22:31:09 1998 sst4828: 00060006: "Failed to send page
alert for recent event"
```

If RSC successfully transmits a page, no error message is added to the event log.

RSC can fail to send a page notification for the following reasons:

- It failed to communicate with the modem.
- It failed to contact the paging service specified by the *page_info1* or *page_info2* variable.
- A failure occurred while RSC was communicating with the paging service TAP server.

When a page fails, check that the following conditions are met:

1. The modem dip switch and software configuration variables are set correctly.

2. All the RSC page_variables (*page_info1*, page_info2, *page_init1*, *page_init2, page_baud1*, and *page_baud2*) are set correctly and match the settings for your paging service.

3. Your paging service supports the TAP protocol. Check with the paging service to insure that you have the proper phone number and modem configuration parameters.

4. Attempt to connect with the paging service manually. Refer to the "Troubleshooting Modem Problems" section in Appendix B of the *RSC User's Guide* for instructions on manually connecting to a TAP paging service.

Troubleshooting

In some cases, it might be desirable to extend the pause period to allow the modem to recognize the dial tone of the phone line. This can be accomplished on most modems by increasing the value in the S8 register. See documentation that came with your modem for more details.

Copyright Notices

The following copyright information may not have been included in the appropriate documents.

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Netscape Communicator Notices

Sun Enterprise 10000 SSP Notices

Documentation Errata

The following errors in various documents have been reported.

Platform Notes: The hme SunFastEthernet Device Driver Guide

The *Platform Notes: The hme SunFastEthernet Device Driver Guide* lists the wrong default value for the `adv_10fdx_cap` parameter. The correct default value for this parameter is 1 for 10Mbit/sec full-duplex capable.See bug Id 4217150 for more information.

Sun Enterprise 10000 Release Notes

This chapter contains the Solaris operating environment on the Sun Enterprise 10000 server release notes, the Alternate Pathing (AP) release notes, and Dynamic Reconfiguration (DR), and the InterDomain Network (IDN).

Alternate Pathing

Alternate Pathing (AP) 2.2 is the first release of AP that is supported on Sun Enterprise 10000 domains running the Solaris 7 11/99 operating environment.

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 Alternate Pathing 2.2 User's Guide* in the Solaris 7 11/99 on Sun Hardware Collection AnswerBook.

Note - At the time of this printing, AP 2.2 is not compatible with any version of Sun Enterprise Volume Manager™ (SEVM).

Installation Issues

If you are upgrading from Solaris 2.5.1 or 2.6 to Solaris 7 11/99 and have AP 2.0 or 2.1 and Solstice™ DiskSuite™ 4.0 or 4.1 (SDS) on your system, you must upgrade to AP 2.2 and SDS 4.2. This section contains an overview of the entire process, which requires you to use several sections from different publications. You must ensure that you have the following publications before you start the upgrade:

- *Solaris 7 11/99 Release Notes Supplement for Sun Hardware* (available in printed form in your Solaris 7 11/99 Media Kit)

- *Solaris 7 11/99 Sun Hardware Platform Guide,* (available in printed form in your Solaris 7 11/99 Media Kit or in AnswerBook2 format on the Sun Hardware Supplements CD)

- *Sun Enterprise Server Alternate Pathing User's Guide* (available in AnswerBook2 format on the Sun Hardware Supplements CD in your Solaris 7 11/99 Media Kit)

- *Solstice DiskSuite 4.2 User's Guide* (available in AnswerBook2 format from `http://docs.sun.com` or from your SDS Media Kit)

- *Solstice DiskSuite 4.2 Installation and Product Notes* (available in AnswerBook2 format from `http://docs.sun.com` or from your SDS Media Kit)

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

In general, you will perform the following tasks:

- Unconfigure SDS 4.0 or 4.1.

- Remove AP 2.0 or 2.1.

- Upgrade to Solaris 7 5/99.

- Install AP 2.2.

- Install and reconfigure SDS 4.2.

Specifically, you must perform the following tasks:

1. Read "Performing an Upgrade of AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide.*

2. Commit any uncommitted AP metadevices (see Step 1 in "To Upgrade AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

3. Deconfigure SDS (see steps 1 through 8 in "How to Convert to DiskSuite 4.2 on SPARC Systems Running DiskSuite 4.0 or 4.1" in the *Solstice DiskSuite 4.2 Installation and Product Notes*).

Caution - Do not install Solaris 7 11/99 at this time.

4. Perform steps 3 through 5 in "To Upgrade AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

Note - For this release, you must remove the SUNWapap package as part of Step 3a in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide.*

5. Upgrade to Solaris 7 11/99 (see Step 6 in "To Upgrade AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

6. Follow steps 6 through 9 in "To Upgrade AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

7. Install SDS 4.2, then restore it (see Step 10 in "To Upgrade AP" in "Alternate Pathing 2.2 on the Sun Enterprise 10000" in the *Solaris 7 11/99 Sun Hardware Platform Guide* and steps 10 through 16 in "How to Convert to DiskSuite 4.2 on SPARC Systems Running DiskSuite 4.0 or 4.1" in Chapter 1 of the *Solstice DiskSuite 4.2 Installation and Product Notes*).

General Issues

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

Supported Devices

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

- SPARCstorage™ Arrays recognized by AP using the `pln`, `soc`, and `ssd` ports
- Sun™ StorEdge™ A5000 recognized by AP using `sf`, `soc`, and `ssd` ports
- SunFastEthernet™ 2.0 (`hme`)
- SunFDDI™ 5.0 (`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 GigabitEthernet 2.0 (`ge`)

The following table lists which network devices are supported in which releases:

TABLE 4–1 Supported Network Devices

	AP 2.0	AP 2.1	AP 2.2
Solaris 2.5.1	`hme, le, nf, bf, hi,` `qe, qfe`	N/A	N/A
Solaris 2.6 (5/98)	N/A	`ge, hme, le, nf, qe,` `qfe, vge`	N/A
Solaris 7 11/99	N/A	N/A	`ge,hme, le, nf, qe,` `qfe`

SunFDDI Devices

AP 2.2 validation tests were performed on SunFDDI (revision 6.0). If you install this device, 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 this device. 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. Because of this, AP does not support the Sun StorEdge A3000. See that product's documentation for more information about its failover support.

Sun StorEdge A5000

AP supports the Sun StorEdge A5000 for this release.

Sun StorEdge A7000

AP 2.2 does not support the Sun StorEdge A7000 for this release.

Software Compatibility

The following figures show the possible combinations of SSP, AP, and Solaris software you can install on a Sun Enterprise server. Note that the Sun Enterprise 10000 can have any combination of domains with the operating environment and

software listed on the right of the figures. The version of the Solaris operating environment on the SSP and the version on the domain do not need to match.

Note - In the following figures, "base only" means no AP and no DR, unless otherwise noted. Mainly, "base only" refers to a domain that has only the Solaris operating environment installed. In addition, some of the scenarios below are possible only if you install a patch, or a set of patches, on the SSP or on the domain. For more information about what patch, or patches, refer to the patch descriptions at `http://sunsolve.sun.com`.
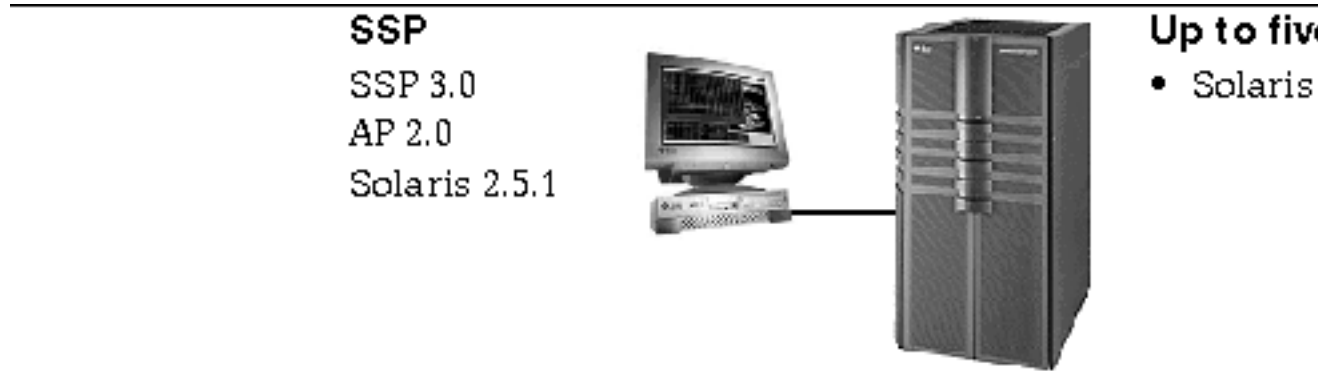
Figure 4–1   SSP 3.0, AP 2.0, and Solaris 2.5.1 on the Sun Enterprise 10000
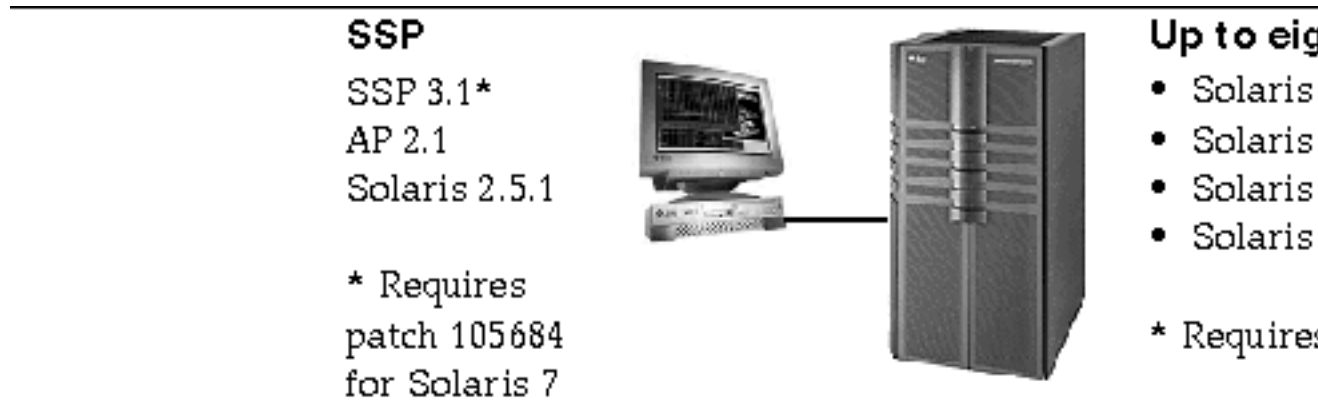
Figure 4–2   SSP 3.1, AP 2.1, Solaris 2.5.1, Solaris 2.6 3/98, Solaris 2.6 5/98, and Solaris 7 on the Sun Enterprise 10000

SSP

SSP 3.1*

AP 2.2

Solaris 2.5.1

* Requires
patch 105684
for Solaris 7

Up to eig

- Solaris
- Solaris
- Solaris
- Solaris
- Solaris
- Solaris
- Solaris

* Require

Figure 4–3 SSP 3.1, AP 2.2, AP 2.1, Solaris 2.5.1, Solaris 2.6 3/98, Solaris 2.6 5/98, Solaris 7, Solaris 7 3/99, Solaris 7 5/99, and Solaris 7 11/99 on the Sun Enterprise 10000

Known Bugs

There are no known bugs in this release of AP.

Fixed Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been fixed since the AP 2.1 release (Solaris 2.6 5/98). This list does not include all of the fixed bugs.

4126743 – AP disk autofailover hangs on simultaneous multi-pathgroup failures (this bug was fixed by BugID 4136249).

4126897 – Domain panics when there are no AP database and metadevice entry in /etc/vfstab.

4136249 – I/O's to SEVM RAID volumes hang after AP autofailover.

4141438 – mhme interface hangs under heavy use of network.

4143514 – FDDI with AP hangs with heavy use of network.

4147674 – AP causes ifconfig to hang on a mutex.

4153152 – `apconfig` works as an ordinary user.

4161396 – AP 2.x needs capability to work with GEM.

4163270 – `netstat` of network ap network meta interface shows no tallies.

4166620 – `snoop` of AP meta network interface stops snooping after switch.

4170818 – If you run the $<callouts nadb macro, or fm2's "callout ts" command, you see thousands of qenable timeouts in the timeshare callout table.

4180055 – Accessing an AP'd metadisk with a failed active alternate panics.

4180702 – Messages from `swap.c` are not internationalized.

4183581 – `apboot` *disk* causes coredump when *disk* is the same as the current boot disk.

4185154 – GigabitEnthernet stress test hangs.

4188418 – It is possible for a hard disk error to go undetected by Veritas [SEVM].

4195441 – AP2.0 `ap_daemon` doesn't communicate with AP2.2.

4226867 – ap_reboot_host fails for photon in mixed AP versions.

4228731 – Non-existent network interfaces not marked as detached after reboot.

Dynamic Reconfiguration

Release notes and other technical information in this section apply only to the Solaris 7 11/99 version of Sun Enterprise 10000 Dynamic Reconfiguration (DR).

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-max-mem` Utility

The way `dr-max-mem` is used has changed since the Solaris 2.5.1 release. Please see the appropriate section of the Solaris 7 11/99 version of the *Sun Enterprise 10000 Dynamic Reconfiguration User's Guide* for a detailed description of this important OBP variable.

DR and Bound User Processes

For Solaris 7 11/99, 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   DR Detach sequence. The DR Drain operation   will fail if CPUs are found with bound processes.

Nonpageable Memory Location

For Solaris 7 11/99, the location of nonpageable   memory (that is, OBP and kernel memory), the kernel cage, resides   in the highest physical address space, which generally   is on the highest-numbered system board in the domain.   The direction of growth of this area is from   highest to lowest physical addresses. Exceptions   to this rule do exist. Always use `drshow`(1M) to   verify a board's memory state.

Kernel Cage Location

For Solaris 7 11/99, the location of the kernel cage changed from the lowest numbered system board(s) to the highest numbered board(s). However, some customers require the kernel cage to be located on the lowest numbered system board. If you have this requirement, you can apply Patch 105873-08, as a minimum level, on the SSP to change the location of the cage. Refer to the Patch README file for instructions on how to install the patch. You can obtain the patch from `http://sunsolve.corp.sun.com` or from your local service provider.

DR and Tape Drives

For Solaris 7 11/99, the `st` driver, which has been considered DR unsafe in the past, is now DR safe. The driver now waits for existing I/O requests to complete before the drive is suspended.

DR and SunFDDI

If your Sun Enterprise 10000 server contains any SunFDDI™ SBus Adapter 5.0 interfaces and you plan to use DR, you must install Sun Patch 104572-05, or the highest revision level available. You can obtain this patch at the following Web site:

■ `http://sunsolve.corp.sun.com`

DR and the Sun StorEdge A3000

Dynamic Reconfiguration of Sun™ StorEdge™ A3000 arrays on the Sun Enterprise 10000 running Solaris 2.6 requires RAID Manager 6.01.00, or later, for correct operation.

DR and the Sun StorEdge A5000

DR will be supported on systems configured with Sun StorEdge A5000 devices and the latest StorEdge A5000 patch. Contact your service provider for more information on how to obtain the patch.

For I/O boards connected to the A5000, you must ensure that the FC-AL disk firmware version is ST19171FC 0413 or newer version. For more information, refer to the following Web site:

■ `http://sunsolve2.Sun.COM/sunsolve/Enterprise-dr/`

DR and `pln` and `soc` Drivers

If you are using `pln` and/or `soc` drivers on your server, you must ensure that the parameters are properly set in the `/etc/system` file. The file should include the following two entries, exactly as the appear in the example.

```
set pln:pln_enable_detach_suspend=1
```

```
set soc:soc_enable_detach_suspend=1
```

Known Bugs

This section contains the known bugs in the Sun Enterprise 10000 DR feature of the Solaris 7 11/99 release.

DR Abort Detach May Not Resume All Detached Disks (4010910)

If a DR detach operation fails to detach an `sd` device and the controller has `sd` devices that have already been detached, the abort-detach operation does not resume (that is, re-attach) those devices that share the same controller instance and that have already been detached. This situation rarely occurs. The most likely time for it to happen is if the disk drive firmware is locked up.

Workaround: None

`dr_daemon` Does Not Find Veritas Device Usage (4011123)

Veritas software usage of disks is not displayed by DR applications in their device-usage displays.

Workaround: None

`disks`(1M) Command Preens Controller Entries and Corrupts the Sun StorEdge A3000 Device Tree (4096048)

The Solaris `disks`(1M) command preens or deletes symbolic link entries when disk devices are no longer present in an Enterprise 10000 domain. If you have dynamically reconfigured the devices so that they are no longer present, the Symbios-managed device tree and the Solaris-managed device tree can become inconsistent.

Workaround: You must obtain the proper patch from SunSolve or from your service representative. This patch contains fixes that ensure persistent node names under the Solaris operating environment when StorEdge A3000 devices are dynamically reconfigured out of a given Enterprise 10000 domain. The patch ensures that when the same array is brought back into the domain, it inherits the same node name it originally had, thereby maintaining data availability without having to modify system mount points or user application configurations. You must ensure that you do not perform reconfiguration reboot operations (`boot -r`) in a domain when A3000 devices are present on the system boards.

DR Operation Fails Due to an Incompatibility with the DMP Feature in SEVM (4215683)

DR and the DMP feature in Sun Enterprise Volume Manager (SEVM) are not compatible. If any disks are under DMP control, they cannot be detached.

Workaround: None

Cannot Drain and/or Detach Sun Enterprise Server System Boards that Host QFE Cards (4231845)

The configuration of a boot server for Solaris 2.5.1-based x86 clients results in the execution of `rpld` daemons. These daemons maintain an active (open) reference to all network devices, whether or not such devices are in use. These active references prevent DR operations from detaching these devices.

Workaround: Remove or rename the `/rplboot` directory, then shut down and restart NFS with these commands:

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

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

StorEdge A3000 Daemon Cannot Be Suspended (4100212)

The presence of StorEdge A3000 daemons (`rdaemon`) prevent a DR Detach operation from completing if the operating environment must be quiesced (that is, suspended and resumed) to detach non-pageable memory.

Workaround: Temporarily disable the daemon before the DR operation, then restart the daemon after the DR operation by using the following command:

```
# sh /etc/rc2.d/S90amon stop
```

```
# sh /etc/rc2.d/S90amon start
```

Unable to Drain Sysboards in Solaris 7 and dr_daemon Segmentation Faults (4229238)

After numerous iterations through a failure handling condition within the DR daemon, the daemon can encounter a segmentation violation (that is, a core dump). Note that this condition occurs during an error handling flow (that is, a DR operation failure).

Workaround: Restart the DR applications on the SSP.

Bugs Fixed

The following important bugs have been fixed since the last release of DR. This list does not include minor bugs, nor does it include those bugs that were fixed in patches.

4083412 – `socal` and `sf` need to support DETACH/SUSPEND/RESUME

4090750 – DR panics during detach when `dr-max-mem` set is high.

4067860 -- `SUNWcsr` on upgrading from Solaris 2.5.1 8/97 to Solaris 2.6 5/98 creates duplicate majors in `name_to_major`.

4131197 – `dr_daemon` core dumps with Solaris 2.6 5/98 release.

4133607 – DR operations with `mem_board_interleave_ok` cause problems.

4134357 – `availrmem` is not being reduced during Sun Enterprise 10000 memory detach.

4135366 – Sun StorEdge A3000 patch has been changed.

4136544 – Getting "flusher thread" hang during DR drain with official -20 KU patch.

InterDomain Networks

InterDomain Networks (IDNs) are internal, high-speed, hardware connections that enable dynamic system domains (referred to as *domains* in this chapter) on the Sun Enterprise 10000 server to communicate with each other as though they are

communicating over a standard network. For more information, refer to the *Sun Enterprise 10000 InterDomain Networks User Guide* in the SSP 3.2 AnswerBook2™ collection.

General Issues

This section contains general issues about the IDN feature. Read this section before you attempt to configure an IDN.

Software Support

To use IDNs, the SSP must be running SSP version 3.2.

`idn.conf`(4) File

IDNs are initialized on the domain by using the `idn.conf`(4) file. Each domain must have an `idn.conf`(4) file to be a member of an IDN. This file is used to instantiate each instance of the driver and to initialize multiple parameters that can affect the performance and behavior of the IDN. You must ensure that the values of the parameters are within the allowed ranges of the values. Refer to the *Sun Enterprise 10000 InterDomain Networks User Guide* in the SSP 3.2 AnswerBook2™ collection for more information about the `idn.conf`(4) parameters.

⚠ **Caution -** Values outside of the allowed range can result in panics occurring on the domain after the domain is rebooted. If the domain panics, the event detector daemon detects the panic and reboots the domain, causing the domain to panic again. Thus, the domain cannot be rebooted if the `idn.conf`(4) file contains an incorrect value. Sun Microsystems suggests that any `/etc/hostname.idn`*X* file be removed to prevent automatic loading of the IDN driver upon reboot.

OpenBoot™ PROM

Be aware of the following issues with the `idn-smr-size` variable and with breaking to the OpenBoot PROM (OBP) prompt on the Sun Enterprise 10000 server.

`idn-smr-size` *Variable*

The OBP variable for the IDN feature, `idn-smr-size`, is present in Solaris 2.6. If Solaris 2.6 is installed on a domain, do not set the value to any other value other than zero (the default value). The IDN feature is not supported in the Solaris 2.6 operating environment.

OBP Environment

Before you break to the OBP prompt, unlink the domain from its IDN by using the `domain_unlink`(1M) command. Do not break to OBP while the domain is linked to an IDN.

Known Bugs

The following is a list of bugs that are known to exist in this release of the IDN feature.

VerExec Error Occurs When a Solaris 2.6 Domain Is Rebooted From OBP (4254715)

Errors that are related to the IDN feature can occur on domains running the Solaris 2.6 operating environment. Some messages can be safely ignored; however, some messages are related to setting the OBP variable `idn-smr-size` to a value other than zero.

Workaround: The Solaris 2.6 operating environment does not support the IDN feature. Do not change the default value of `idn-smr-size` on domains that are running the Solaris 2.6 operating environment.

IDN Driver Can Panic if `idn_slab_mintotal` Is Set to a Value Other Than Zero (4273317)

Parameter values set outside of the allowed range can result in panics occurring on the domain. You must ensure that you use a value that is within the allowed range of values.

The following is a list of parameters that can cause a panic if the value set in the `idn.conf`(4) file is outside of the allowed range.

- `idn_slab_mintotal`
- `idn_slab_bufcount`
- `idn_smr_bufsize`

Workaround: No workaround exists for this bug. The domain will continue to panic because of the incorrect values in the `idn.conf`(4) file any time the IDN driver is loaded. You must ensure that you use values that are within the allowed range.

Setting `idn_protocol_nservers` Value to the Minimum Value of One Causes Panic (4275051)

Setting the `idn.conf`(4) parameter `idn_protocol_nservers` to one can cause the domain to panic. The `idn.conf`(4) parameters are initialized when the domain is rebooted and the IDN driver is loaded. If the domain panics, the event detector daemon reboots the domain, and the domain panics again, causing an unrecoverable error.

Workaround: Do not set this parameter to one. If this error occurs, reboot the domain to single-user mode and remove the `/etc/hostname.idn`*X* file to prevent the IDN driver from being automatically loaded at reboot.

Remote Domain Reporting Master Domain Without CPU ID (4275420)

Certain combinations of CPU IDs and domain IDs in a domain responding to a connect request can cause incorrect information being sent in the connect request.

Workaround: None

IDN Driver Does Not Implement MIB-II Kernel Statistics (4276084)

The IDN driver does not implement MIB-II kernel statistics for this release. Thus, network management tools that display MIB-II kernel statistics will not be able to display statistics about IDNs.

Workaround: No workaround exists for this bug. It will not be fixed in this release.

Setting `idn_msgwait_nego` to the Minimum Value (1 Second) Can Cause IDN Operations to Fail (4277617)

Setting the `idn.conf`(4) parameter `idn_msgwait_nego` to 1 second can cause IDN operations to fail. The `idn.conf`(4) parameters are initialized when the domain is rebooted. If this error occurs, you must reset the value and reboot the domain before you can execute IDN operations.

Workaround: Do not set this parameter to one. This bug will not be fixed in this release.

Patches

This section contains a list of patches that should be applied before you attempt to set up an IDN.

108317-01

Description:
```
IDN driver can will panic if property (idn_slab_mintotal) set out of range
```
Bugs fixed: 4273317, 4275051, 4275420

Note - You must go to the SunSolve web site to obtain this patch.

Documentation Errata

This section contains descriptions of errors in the publications that were found after the release of the IDN feature.

domain_link(1M) and domain_unlink(1M)

The domain_link(1M) and domain_unlink(1M) man pages should have included a note that instructs users to use the proper domain name for the SUNW_HOSTNAME variable when they are linking or unlinking domains. The domain must support the IDN feature. The IDN user guide includes this information.

IDN Parameter Values

Some of the parameter values given in "Configuring InterDomain Networks" in the *Sun Enterprise 10000 InterDomain Networks User Guide* are incorrect. The following table contains the proper values.

TABLE 4–2   Corrections to IDN Parameter Values

Parameter	Minimum	Maximum	Default
idn_awolmsg_interval	0	3600	60
idn_hiwat	1024	1048576	262144
idn_lowat	1	524288	1

TABLE 4–2 Corrections to IDN Parameter Values *(continued)*

Parameter	Minimum	Maximum	Default
idn_msgwait_cfg	1	300	40
idn_msgwait_cmd	1	300	40
idn_msgwait_con	1	300	20
idn_msgwait_nego	1	300	20
idn_netsvr_spin_count	0	10000	500
idn_netsvr_wait_min	0	3000	40

idn.conf *(4) File Parameters*

Some of the parameter descriptions in "Configuring InterDomain Networks" in the *Sun Enterprise 10000 InterDomain Networks User Guide* state that the parameter can be changed at any time or that the domain must be unlinked from the IDN before the parameter can be changed. This information is incorrect. All idn.conf(4) file parameters can be changed while the domain is linked to the IDN; however, the domain must be rebooted before the values take affect.

The value of the idn_smr_bufsize parameter must be a power of two.

The idn.conf(4) file parameter table includes the idn_modunloadable parameter. This parameter is an ndd(1M) parameter. It is not an idn.conf(4) parameter.

The description of the idn.conf(4) parameter idn_smr_size is incorrect. The description should state that the size of the shared memory region (SMR) is limited by the value of the OBP variable idn-smr-size. The size of the SMR is determined by the minimum value of the idn-smr-size variable and by the minimum value of the idn_smr_size parameter. If idn-smr-size is set to zero, the OBP variable overrides the value of the idn.conf(4) parameter.

Solaris Operating Environment

This section contains general issues, known bugs, patches, and notes about the Solaris 7 11/99 release on the Sun Enterprise 10000 server.

General Issues

Upgrades from Solaris 2.3 or Solaris 2.4 to Solaris 7 11/99 are not supported.

Note - Before beginning the fresh install or upgrade procedures for the Solaris operating environment on the Sun Enterprise 10000 server, you must install the SSP patches described in the Sun Enterprise 10000 SSP Installation Guide and Release Notes, unless you have upgraded the SSP operating environment to SSP 3.1.1 or SSP 3.2.

Solaris 7 11/99 and Boot-Disk Partition Sizes

If you are upgrading the operating environment from Solaris 2.6 to Solaris 7 11/99 and if 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 will adjust the affected file systems, and the upgrade will continue. 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.

Solaris 7 11/99 and Driver Variables

For Solaris 7 11/99, you must enable the `soc` and `pln` drivers in `/etc/system` before you attempt to detach a system board that hosts these drivers. Use the following syntax to enable the drivers:

```
set pln:pln_enable_detach_suspend=1
```

```
set pln:pln_enable_detach_suspend=1
```

SunFDDI

SunFDDI™ is not supported on the Sun Enterprise 10000 server.

SunATM 4.0 Update 1

SunATM™ 4.0 Update 1 is not supported on the Sun Enterprise 10000 server.

Known Bugs

This section contains the bugs known to exist in the Solaris 7 11/99 release.

4231845 – Cannot Detach System Board if the `in.rarpd` Daemon is Running and `/rplboot` Exists

For Solaris 7 11/99 Beta, the `qec` and `qe` drivers are not compatible with DR or AP 2.2.

Workaround: None

Fixed Bugs

This section lists important bugs that have been fixed. Minor bugs are not included. Each entry includes a 7-digit BugID assigned by Sun to aid in bug-tracking and a one-line description of the bug.

4110199 – `/etc/init.d/cvc` Implementation, Packaging Inconsistent

Documentation Errata

This section contains errors in the documentation that pertains to the Solaris operating environment on the Sun Enterprise 10000 server.

OBP Variables

Before you perform the `boot net` command from the OBP prompt (`ok`), you must verify that the `local-mac-address?` variable is set to *false*, which is the factory default. If it 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 OBP prompt to display the values of the OBP 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**

Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 Systems Open Issues

AP on Sun Enterprise Servers

This section contains the release notes for Alternate Pathing (AP) 2.2 on all Sun Enterprise servers, except the Sun Enterprise 10000. See "AP on the Sun Enterprise 10000" for information about the Enterprise 10000 server.

Note - AP 2.2 is the first release of AP that supports Solaris 7 11/99.

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 User's Guide* in the Solaris 7 11/99 on Sun Hardware Collection AnswerBook2™.

Note - At the time of this printing, AP 2.2 Beta is not compatible with any version of Sun Enterprise Volume Manager™ (SEVM).

Installation Issues

If you are upgrading from Solaris 2.6 to Solaris 7 11/99 and have AP 2.1 and Solstice™ DiskSuite™ 4.0 or 4.1 (SDS) on your system, you must upgrade to AP 2.2 and SDS 4.2. This section contains an overview of the entire 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 7 11/99 Release Notes Supplement for Sun Hardware* (available in printed form in your Solaris 7 11/99 Media Kit)

- *Solaris 7 11/99 Sun Hardware Platform Guide*, (available in printed form in your Solaris 7 11/99 Media Kit or in AnswerBook2 format on the Sun Hardware Supplements CD)

- *Sun Enterprise Server Alternate Pathing User's Guide* (available in AnswerBook2 format on the Sun Hardware Supplements CD in your Solaris 7 11/99 Media Kit)

- *Solstice DiskSuite 4.2 User's Guide* (available in AnswerBook2 format from `http://docs.sun.com` or from your SDS Media Kit)

- *Solstice DiskSuite 4.2 Installation and Product Notes* (available in AnswerBook2 format from `http://docs.sun.com` or from your SDS Media Kit)

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

In general, you will perform the following tasks:

- Unconfigure SDS 4.0 or 4.1.

- Remove AP 2.1.

- Upgrade to Solaris 7 11/99.

- Install AP 2.2.

- Install and reconfigure SDS 4.2.

Specifically, you must perform the following tasks:

1. Read "Performing an Upgrade of AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide*.

2. Commit any uncommitted AP metadevices (see Step 1 in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

3. Deconfigure SDS (see steps 1 through 8 in "How to Convert to DiskSuite 4.2 on SPARC Systems Running DiskSuite 4.0 or 4.1" in the *Solstice DiskSuite 4.2 Installation and Product Notes*).

⚠️ **Caution -** Do not install Solaris 7 11/99 at this time.

4. Remove the current AP configuration (see Step 3 in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

5. Upgrade to Solaris 7 11/99 (see Step 4 in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

6. Upgrade to AP 2.2 (see Step 5 in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide*).

7. Install SDS 4.2, then restore it (see Step 6 in "To Upgrade AP" in the *Solaris 7 11/99 Sun Hardware Platform Guide* and steps 10 through 16 in "How to Convert to DiskSuite 4.2 on SPARC Systems Running DiskSuite 4.0 or 4.1" in Chapter 1 of the *Solstice DiskSuite 4.2 Installation and Product Notes*).

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.

Supported Devices

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

- SPARCstorage™ Arrays recognized by AP using the `pln`,`soc`, and `ssd` ports
- Sun™ StorEdge™ A5000 recognized by AP using `sf`, `socal`, and `ssd` ports
- SunFastEthernet™ 2.0 (`hme`)
- SunFDDI™ 5.0 (`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 GigabitEthernet 2.0 (`ge`)

The following table lists which devices are supported in which releases:

TABLE 5–1   Supported Network Devices

	AP 2.0	AP 2.1	AP 2.2
Solaris 2.5.1	`hme, le, nf, bf, hi, qe, qfe`	N/A	N/A
Solaris 2.6 (5/98)	N/A	`ge, hme, le, nf, qe, qfe, vge`	N/A
Solaris 7 11/99	N/A	N/A	`ge,hme, le, nf, qe, qfe`

SunFDDI and GigabitEthernet Devices

AP 2.2 validation tests were performed on SunFDDI (revision 6.0) and GigabitEthernet (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. Because of this, AP does not support the Sun StorEdge A3000. See that product's documentation for more information about its failover support.

Sun StorEdge A5000

AP supports the Sun StorEdge A5000 for this release.

Sun StorEdge A7000

AP 2.2 does not support the Sun StorEdge A7000 for this release.

Software Compatibility

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

- Solaris 2.6 5/98 with AP 2.1 and DR
- Solaris 7 with AP 2.2 and DR
- Solaris 7 11/99 with AP 2.2 and DR

Known Bugs

The following bugs are no known bugs in this version of AP 2.2.

Fixed Bugs

This section contains the synopses and Sun BugID number of the more important bugs that have been fixed since the AP 2.1 release (Solaris 2.6 5/98). This list does not include all of the fixed bugs.

4126743 – AP disk autofailover hangs on simultaneous multi-pathgroup failures (this bug was fixed by BugID 4136249).

4126897 – Domain panics when there are no AP database and metadevice entry in `/etc/vfstab`.

4136249 – I/O's to SEVM RAID volumes hang after AP autofailover.

4141438 – `mhme` interface hangs under heavy use of network.

4143514 – FDDI with AP hangs with heavy use of network.

4147674 – AP causes `ifconfig` to hang on a mutex.

4153152 – `apconfig` works as an ordinary user.

4161396 – AP 2.x needs capability to work with GEM.

4163270 – `netstat` of network ap network meta interface shows no tallies.

4166620 – `snoop` of AP meta network interface stops snooping after switch.

4170818 – If you run the $<callouts nadb macro, or fm2's "callout ts" command, you see thousands of qenable timeouts in the timeshare callout table.

4180055 – Accessing an AP'd metadisk with a failed active alternate panics.

4180702 – Messages from `swap.c` are not internationalized.

4183581 – `apboot` *disk* causes coredump when *disk* is the same as the current boot disk.

4185154 – AP GigabitEthernet stress test hands.

4188418 – It is possible for a hard disk error to go undetected by Veritas [SEVM].

4195441 – AP2.0 `ap_daemon` doesn't communicate with AP2.2.

4228731 – Non-existent network interfaces not marked as detached after reboot.

Dynamic Reconfiguration of Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 Systems

These release notes provide the latest information on Dynamic Reconfiguration (DR) functionality for Sun Enterprise™ 6*x*00, 5*x*00, 4*x*00, and 3*x*00 systems running update Solaris 7 11/99. 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 11/99 update includes support for CPU/Memory boards on Sun Enterprise 6*x*00, 5*x*00, 4*x*00, and 3*x*00 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 7 11/99" section on the 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 later. For more information, refer to the "Solaris 7 11/99" section at the web site:

```
http://sunsolve5.sun.com/sunsolve/Enterprise-dr/
```

PROM Updates for CPU and I/O Boards

Users of Solaris 7 11/99 software who wish to use dynamic reconfiguration must be running CPU PROM version 3.2.22 (firmware patch ID 103346-xx) or later. This firmware is available from the web site. See "How To Obtain Firmware" on page 59.

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.

1. **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 #xxxxxxxx.
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 7 11/99" section at the following web site:

`http://sunsolve5.sun.com/sunsolve/Enterprise-dr/`

At this site, you will find 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 root.**

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:slot*number*) 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-a
```

1. **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
```

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

```
# eeprom disabled-board-list=
```

1. **If you are at the OpenBoot™ prompt, use this OBP command instead 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*, part number 805-4454.

Disabled Memory List

For information about the OBP `disabled-memory-list` setting, refer to the section "Specific NVRAM Variables" in the *Platform Notes: Sun Enterprise 3x00, 4x00, 5x00, and 6x00 Systems*.

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, Bug-ID 4156075 " on page 62 and "DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory, Bug ID 4210234" on page 64.

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.

Dynamic Reconfiguration Feature in Sun Enterprise SyMON Software

As noted in the *Dynamic Reconfiguration User's Guide for Sun Enterprise 3x00/4x00/5x00/6x00 Systems*, Sun Enterprise SyMON™ system monitoring and management software supports dynamic reconfiguration. However, the user's guide listed the wrong reference. The correct reference is *Sun Enterprise SyMON 2.0.1 Supplement for Sun Enterprise Midrange Servers.*

Known Bugs

For the latest bug and patch information, refer to: `http://sunsolve5.sun.com/sunsolve/Enterprise-dr.`

`cfgadm -v` Not Working Properly, bug-ID 4149371

Category: RFE

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, Bug-ID 4156075

Category: Bug

Memory interleaving is left in an incorrect state after a Sun Enterprise *x*500 server encounters 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, Bug ID 4210234" on page 64.

`vmstat` Output Is Incorrect After Configuring Processors, Bug-ID 4159024

Category: Bug

`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 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 1 0 0 4294967216 43 68 0 0 100
```

Workaround: Restart `vmstat`.

POST System Board Status Displays Only 1 of the 2 Failing CPUs, Bug-ID 4200513

Category: Bug

If two CPUs on a single board fail before reporting to the master CPU, the POST system status display lists one CPU as failing, but the second CPU may not be listed at all.

Workaround: None.

DR: Cannot Unconfigure a CPU/Memory Board That Has Interleaved Memory, Bug ID 4210234

Category: RFE

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, Bug-ID 4156075 " on page 62 for a related discussion on interleaved memory.

DR: Cannot Unconfigure a CPU/Memory Board That Has Permanent Memory, Bug ID 4210280

Category: RFE

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, Bug-ID 4220105

Category: Bug

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.

Fatal Reset on `init 5` After DR Operations, Bug-ID 4220852

Category: Bug

After DR operations have been run, an attempt to power down a system with the `init 5` command may cause a fatal reset.

Workaround: Reset the system, then power it off by entering the command `power-off` at the ok prompt.

Cannot Drain And/or Detach Sun Enterprise Server Boards That Host QFE Cards, Bug-ID 4231845

When a server is configured as a boot server for Solaris 2.5.1-based x86 clients, it has several `rpld` jobs running, whether or not such devices are in use. These active references prevent DR operations from detaching these devices.

Workaround: To 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