



# Sun StorEdge™ T3+ Array Releases Notes

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Version 2.0 Controller Firmware

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# Sun StorEdge T3 Array Release Notes

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## Introduction

This document contains late-breaking product information and known issues that are specific to the Sun StorEdge™ T3+ array. Issues documented previously for the Sun StorEdge T3 array model that do not appear in these release notes have either been resolved or do not apply to the Sun StorEdge T3+ array.

Review this document so that you are aware of issues or requirements that can impact the installation and operation of the array. The information in this document supplements the information contained in the *Sun StorEdge T3 and T3+ Array Installation, Operation, and Service Manual* and the *Sun StorEdge T3 and T3+ Array Administrator's Guide*.

Use this release note in conjunction with other release notes and README files that you may have received with other software products related to the Sun StorEdge T3+ array, such as Sun StorEdge Component Manager software and VERITAS Volume Manager.

These release notes are organized as follows:

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- "Sun Cluster Issues" on page 4
- "VERITAS Issues" on page 4
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# Required Patches

Install all the required patches listed below before installing the Sun StorEdge T3+ array. These patches are available on the SunSolve™ web site:

<http://sunsolve.sun.com>

To retrieve patches:

1. In the SunSolve Online column, click on Patches.
2. In the Patches column, click on PatchPro.
3. Click on Storage Products.

Refer to the patch README file for instructions and patch information.

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**Note** – You may need other patches not listed below for related software products such as Sun StorEdge Component Manager or VERITAS Volume Manager. Refer to the SunSolve web site and to the release notes of these products for their required patches.

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**TABLE 1** Required Patches

System Type	Solaris™ 2.6 Operating Environment	Solaris 7 Operating Environment	Solaris 8 Operating Environment
All	105356-18 or later (ssd driver)	107458-13 or later (ssd driver)	109524-05 or later (ssd driver)
	106226-01 or later (format patch)	107473-07 or later (luxadm patch)	
	105181-26 or later (kernel update patch)	107834-03 or later (DKIO Extensions Patch)	
		106541-16 or later (Kernel Update Patch)	
VERITAS 3.0.4	110261-04	110262-03	110263-03
VERITAS 3.1	110253-04	110254-04	110255-04
VERITAS 3.1.1	110451-02	110452-02	111118-02

**TABLE 1** Required Patches (*Continued*)

System Type	Solaris™ 2.6 Operating Environment	Solaris 7 Operating Environment	Solaris 8 Operating Environment
<b>PCI (ifp) Only</b>	107280-08 or later (ifp/PCI driver/PCI Systems only)	107292-07 or later (ifp/PCI driver/PCI Systems only)	109189-02 or later (ifp/PCI driver/PCI Systems only)
	109399-03 or later (PCI Host Adapter Firmware Fcode)	109399-03 or later (PCI Host Adapter Firmware Fcode)	109399-03 or later (PCI Host Adapter Firmware Fcode)
<b>SBus/sf-socal Only</b>	105375-26 or later (sf/socal driver/SBus systems only)	107469-08 or later (sf/socal driver/SBus systems only)	109460-05 or later (sf/socal driver/SBus systems only)
	109400-03 or later (SBus Host Adapter Firmware Fcode)	109400-03 or later (SBus Host Adapter Firmware Fcode)	109400-03 or later (SBus Host Adapter Firmware Fcode)
<b>Sun StorEdge Network Foundation Software on PCI Network Adapters<sup>1</sup></b>			111095-04
			111097-04
			111412-04
			111413-04

1. Applies only to the following PCI network adapters: Sun StorEdge PCI Single Fibre Channel network adapter, Sun StorEdge PCI Dual Fibre Channel network adapter, and Sun StorEdge CompactPCI Dual Fibre Channel network adapter.

## Diagnostics Issue



**Caution – Sun StorEdge T3+ array `ofdg` utility is for service use only. Use of this feature will make data unavailable.**

The array firmware provides a command-line and graphical user interface to a diagnostics tab provided by Sun StorEdge Component Manager 2.2. The `ofdg` utility is used to perform offline diagnostic testing. This tool should be used *only* by qualified Sun service providers at this time. The `ofdg` utility is limited in its test capabilities and must be run while the system is offline to avoid problems.

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## Sun Cluster Issues

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**Note** – The Sun StorEdge T3+ array does not support Sun™ Cluster 2.2 software.

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### 4406863: Sun Cluster cannot use recon\_rate=high array setting.

If the Sun StorEdge T3+ array is configured in a Sun Cluster environment, use either the low or med setting for the recon\_rate. You can change this setting using the array `sys recon_rate` command. The recon\_rate=high setting on an array can cause node takeover issues.

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## VERITAS Issues

### 4264118: DMP failback is not automatically enabled (VERITAS Volume Manager 3.0.4 only).

After installing the VERITAS software, to ensure correct operation of VERITAS Dynamic Multipathing (DMP) auto failback operations, type the following command (as root) on host systems connected to Sun StorEdge T3+ arrays:

```
# vxdmpadm start restore interval=60 policy=check_all
```

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**Note** – You must run this command after every system reboot.

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## 4282806: vxinstall only displays the first array controller for the configuration.

During the `vxinstall` procedure, only the first connected host bus adapter in an array partner group is displayed. This occurs because `vxinstall` displays only the first path to an array partner group, even though other paths to the partner group have also been detected. This can be misleading since in array configurations, volumes can also exist through second controller data paths.

You do not need to take any special action to correct this. Allow `vxinstall` to proceed to completion. Once the host system has rebooted from the VERITAS installation, all paths to the array are properly recognized by the Volume Manager software.

## 4313336: Enable DMP support for a Sun StorEdge T3+ array and StorEdge A3500 configuration.

DMP support is necessary to obtain full redundancy between interconnected array controller units. If you are connecting redundant Sun StorEdge T3+ arrays to a host running DMP that also has StorEdge A3500 storage devices connected to it, you must remove the Alternate Pathing (AP) file to make sure that both types of storage devices co-exist properly.

To perform the following procedure, you must be logged in as `root`.

### 1. On the data host, type:

```
# ls -l /kernel/drv/ap
```

### 2. If the `/kernel/drv/ap` file is of 0 length, remove `/kernel/drv/ap` by typing:

```
# rm /kernel/drv/ap
```

### 3. Reboot the system.

```
# reboot
```

If the `/kernel/drv/ap` file is *not* of 0 length, AP is installed and you cannot enable DMP because AP and DMP cannot co-exist. Sun Microsystems, Inc. recommends that you remove the AP product entirely using `pkgrm (1m)`. Refer to the AP product documentation for further details.

## 4253044: Volume usage does not refresh.

Within the Volume Manager Storage Administrator (VMSA) product, volume usage information might not be refreshed correctly. If this problem is encountered, restart the VMSA application to update the volume usage statistics.

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## Service Issues

### FRU removal for longer than 30 minutes will initiate a partner group shutdown.

If any field replaceable unit (FRU) is removed for an extended period of time, thermal complications might result. To prevent this, the Sun StorEdge T3+ array is designed so that an orderly shutdown occurs when a component is removed for longer than 30 minutes. Therefore, a replacement part must be immediately available before starting a FRU replacement procedure. You must replace a FRU that has been removed within 30 minutes or the array, and all attached arrays in that partner group, will shut down and power off.



## 4374724: Multiple non-adjacent disk failures in a RAID 1 stripe.

In the event of multiple non-adjacent drive failures in a RAID 1 volume on a Sun StorEdge T3+ array, the volume can be unmounted. Single drive failures within the RAID 1 volume are handled correctly and, in those cases, the RAID 1 volume remains mounted and accessible from the host.

## 4348664: `fru list` command should display new drive firmware versions automatically.

After upgrading the Sun StorEdge T3+ array internal drive firmware, perform a `disk version und1-9` operation on the upgraded drives. This array command ensures that correct drive firmware version information gets updated correctly in internal databases. If you do not do this after a drive firmware upgrade, it is possible that stale drive firmware version information can be displayed when using the `fru list` command.

For more information on using the `disk version` and `fru list` commands, refer to the *Sun StorEdge T3 and T3+ Array Administrator's Guide*.

## 4415132: Cache mode `auto` setting does not behave as documented for workgroup configurations.

In workgroup configurations (not fully redundant), the `auto` cache mode setting currently enables write-behind caching of data. The normal behavior for the `auto` cache mode in a workgroup configuration is to enable write-through caching. Write-through caching protects data in case of an array failure in nonredundant configurations. In the write-behind cache mode, data loss could occur if there is an array failure because cache is not mirrored.

To protect data in a workgroup configuration, set the cache mode to `writethrough` using the `sys cache writethrough` command on the array. If you continue to use write-behind caching, use a host-based mirroring solution to protect data.

For more information on changing the cache setting, refer to *Sun StorEdge T3 and T3+ Array Administrator's Guide*.

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# System Level Issues

## Bootability

The Sun StorEdge T3+ array supports *warm* bootability for hosts running the Solaris operating environment that are connected by a SOC+ host bus adapter (HBA). Warm bootability means that the Sun StorEdge T3+ array must be completely booted before attempting to boot the host from the array volume. Warm bootability is supported by Solaris 7 (Release 11/99) and later. Bootability for the Solaris 2.6 environment is not currently supported.

*Cold* bootability—that is, booting the Sun StorEdge T3+ array and host at the same time—is not supported.

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**Note** – Only SOC+ HBAs used in the Solaris 7 operating environment, and later releases of the Solaris operating environment, support warm bootability at this time. Warm bootability is not supported with the ifp (Qlogic 2100) HBA.

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**Note** – See issue 4253419 that follows. The delayed time required for a Sun StorEdge T3+ array to become fully available to host I/O operations may cause issues, especially if the array is used as a boot device. If you have encountered this situation, contact an authorized Sun Service Provider or Sun Service at 1-800-USA-4SUN for an evaluation.

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## 4253419: Sun StorEdge T3+ array controller extended boot times.

In some cases, host systems running the Solaris software environment can boot faster than Sun StorEdge T3+ arrays. This results in a host configuration that might not be able to detect all available array storage during a full AC power-loss boot cycle. This can occur when the host system has minimal amounts of memory (or memory power-on self-test operations have been disabled).

When powering up a configuration, always power on Sun StorEdge T3+ arrays *before* the host server.

If this scenario still occurs, contact an authorized Sun Service provider or Sun Service at 1-800-USA-4SUN for an evaluation and suggested workaround.

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**Note** – Any modification to the system nonvolatile random access memory (NVRAM) configuration should be avoided as errors can result in extensive system down time. Before making modifications to NVRAM, contact Sun Service.

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## 4427400: bootdelay parameter set to 60 seconds can cause an array partner group boot issue.

The default `bootdelay` parameter for the Sun StorEdge T3+ array is set to a value of 3. To avoid problems with booting the array system, do not reset the `bootdelay` parameter to a higher value than the default setting.

## 4309324: Extend RARP time-out to better support Ethernet switches.

In a first-time installation, the Sun StorEdge T3+ array is assigned its IP address from a RARP server that has been configured with the address. When first powered on, the array waits for the RARP server response. If the array and RARP server are connected to a Cisco Catalyst switch, the switch takes longer to activate the interface than the array, and the array will time out waiting for the RARP server response.

To avoid this problem, change the spanning tree setting of the Cisco Catalyst port to “portfast,” which allows the switch to first enable the port and then check for integrity using the spanning tree algorithm. By default, the switch checks the integrity of the spanning tree first and then enables the port. To change the port settings, refer to the switch documentation for instructions.

## 4395542: SUNWlux package installation required for hosts running Solaris 2.6 environment.

The SOC patch (105375) for the Solaris 2.6 software environment will install and not fail, even when SUNWlux packages are not installed on the host. This results in a configuration where the host can see only one LUN on a Sun StorEdge T3+ array. If this occurs and there is no indication of other problems, check that SUNWlux packages are installed correctly on the host.

## 4362567: Use default port addressing on array.

The default setting for Sun StorEdge T3+ array port addressing is `hard`. Although it is possible to change this setting, use the default setting to avoid unexpected system behavior.

## 4426672: Power management on host is not supported.

If a Sun StorEdge T3+ array is connected to a host bus adapter (HBA) with power management enabled, it can cause failover issues. To avoid this, disable power management on HBAs.

## 4292162: Permanent serial cable connections to the array are not recommended.



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**Caution** – The serial port cable must be disconnected from the array to meet regulatory emissions requirements. Do not leave it connected after performing a procedure.

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**Note** – The serial cable is used for special service procedures only and should not be used by anyone except authorized, qualified service personnel. The serial cable must be removed when the service procedure has been completed.

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Because the Sun StorEdge T3+ array serial port provides diagnostic and EPROM access to the system during the boot cycle, there is a risk of a security breach if the serial cable is left connected to the array. To avoid this risk, remove the serial cable connection from the array to external host systems after use.

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## EPRM Issues

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**Note** – Changes to settings at the erasable programmable read-only memory (EPRM) level can be done only through a serial cable connection with the array. Use of the serial cable is reserved for special field service procedures only.

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### 4293509: System bootmode setting at the EPRM level can be overwritten at the application level.

If changes are made to array settings at the EPRM level, they may not be persistent after the partner group has booted. This is important specifically when changing the bootmode. For example, if the array has been set to the `tftpboot` mode at the application level and later is set back to the default `autoboot` mode at the EPRM level, the `autoboot` setting will be overwritten with the `tftpboot` setting. As a result, you will not be able to boot without a tftpboot server. To avoid this, check the array settings at the application level before rebooting and make sure the bootmode is set to `autoboot`.

### 4300136: An array in a partner group configuration that sits idle at the EPRM level for more than five minutes can be disabled by its partnered controller.

One controller in a partner group can disable the other controller being held at the EPRM level. This happens when using the serial cable interface to a controller in a partner group if the boot process is interrupted leaving the system at the EPRM level for more than five minutes. If this happens, the disabled controller will continuously output `St` to the console. To recover access to that controller, telnet into the partner group and use the `sys stat` command to determine which controller needs to be enabled. Re-enable the disabled controller with the `enable u?` command. The controller that was previously held at the EPRM level resets and boots as the alternate.

