



# Sun StorageTek™ Common Array Manager Software Release Notes

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Release 6.1.2

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

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Adobe PostScript

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# Sun StorageTek Common Array Manager Software Release Notes

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This document contains important information about Release 6.1.2 of the Sun StorageTek™ Common Array Manager software, including issues and requirements that can affect installation and operation.

These Release Notes include the following sections:

- [“Common Array Manager Software Features” on page 2](#)
- [“Documentation” on page 6](#)
- [“System Requirements” on page 7](#)
- [“Installing Packages and Patches” on page 16](#)
- [“Firmware for CAM” on page 24](#)
- [“Known Issues and Operational Information” on page 37](#)
- [“Service Contact Information” on page 65](#)
- [“Third-Party Web Sites” on page 65](#)

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# Common Array Manager Software Features

The Sun StorageTek Common Array Manager (CAM) software provides an easy-to-use interface from which you can configure, manage, and monitor Sun StorageTek and Sun Storage arrays.

To obtain the most current software release and related information: From [http://www.sun.com/storagetek/management\\_software/resource\\_management/cam](http://www.sun.com/storagetek/management_software/resource_management/cam), click the “Get It” tab to obtain the latest information and version available.

## Overview

CAM software provides the following:

- Browser interface
- New Local Command-Line Interface
- Remote Command-Line Interface

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**Note** – The Command Line Interfaces (CLIs) perform the same control and monitoring functions as the browser interface. For most new users, managing the array with the browser interface is recommended because it is easier to use if you’re not familiar with the CLI.

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## New Features

- Support for the Sun Blade™ 6000 Disk Module (B6000)
- JBOD Support (J4200 / J4400 / J4500 Arrays)
- Support for 7.10.xx.xx firmware for the 6140, 6540, and FLX380 arrays with the following features:
  - RAID 6 (6140 arrays only)
  - >2TB LUN Support
  - Portable Volume Groups
  - Batch Volume Operations
  - 8K Cache Block size
- Support for in-band management for Solaris x86 and Microsoft Windows

- CLI Minimal Installation
- Remote Proxy Agent for JBODs
- Data In Place Migration (DIPM) and the concept of portable vdisks
- Third Expansion Tray (48-Drive) Cabling patch for the 2500 Series Arrays

## Release Contents

TABLE 1 lists the version information for the software included in this release.

**TABLE 1** Sun StorageTek CAM CD Contents

| Type                                                                       | Version                                   |
|----------------------------------------------------------------------------|-------------------------------------------|
| Common Array Manager                                                       | 6.1.2                                     |
| Java WebConsole software                                                   | 3.0.5                                     |
| Java 2 Software Development Kit                                            | 1.5                                       |
| Firmware files, as listed in <a href="#">“Firmware for CAM” on page 24</a> | 06.60.11.10<br>06.70.54.10<br>06.60.11.20 |
| Remote scripting CLI client                                                | 2.1.4                                     |

## Licensing Optional Premium Features

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**Note** – Premium features are not supported for the J4000 Array Family.

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To use optional premium features, you must purchase licenses. When you order licenses, they will be sent to you with instructions on how to activate the features. For more information, search for these topics in the online Help:

- About Licensed Features
- Adding a License
- Displaying License Information
- Managing Licenses

The following licenses for premium features are available from Sun:

**TABLE 2** Premium Feature Licenses: 06.nn.nn.nn and 07.nn.nn.nn Controller Firmware

| Premium Feature                                                        | 6540 Array | 6140 Array | 6130 Array | 2500 Arrays | FLX240 Array | FLX280 Array | FLX380 Array |
|------------------------------------------------------------------------|------------|------------|------------|-------------|--------------|--------------|--------------|
| Data Snapshot                                                          | X          | X          | X          | X           | X            | X            | X            |
| Data Volume Copy                                                       | X          | X          | X          |             | X            | X            | X            |
| Data Replicator                                                        | X          | X          | X          |             | X            | X            | X            |
| 4 Domains                                                              | X          | X          |            | X           | X            | X            | X            |
| Upgrade 4 to 8 Domains                                                 | X          | X          |            |             | X            | X            | X            |
| 8 Domains                                                              | X          | X          |            | X           | X            | X            | X            |
| Upgrade 8 to 16 Domains                                                | X          | X          | X          |             | X            | X            | X            |
| 16 Domains                                                             | X          | X          | X          | X           | X            | X            | X            |
| Upgrade 16 to 64 Domains                                               | X          | X          | X          |             | X            | X            | X            |
| 64 Domains                                                             | X          | X          | X          |             | X            | X            | X            |
| Combo Data Snapshot and 8 Domains                                      | X          | X          |            |             |              | X            | X            |
| Combo Data Snapshot, Data Volume Copy, Data Replicator, and 64 Domains | X          | X          | X          |             | X            | X            | X            |
| Combo Data Snapshot, Data Volume Copy                                  | X          | X          | X          |             | X            | X            | X            |
| Combo Data Snapshot, Data Volume Copy, and Data Replicator             | X          | X          | X          |             | X            | X            | X            |

**TABLE 3** Premium Feature Licenses for 07.nn.nn.nn Controller Firmware Only

| <b>Premium Feature</b>           | <b>6540<br/>Array</b> | <b>6140<br/>Array</b> |
|----------------------------------|-----------------------|-----------------------|
| Enhanced Data Snapshot           | X                     | X                     |
| Enhanced Data Snapshot Upgrade   | X                     | X                     |
| Enhanced Data Replicator         | X                     | X                     |
| Enhanced Data Replicator Upgrade | X                     | X                     |
| 2 Domains                        | X                     | X                     |
| Upgrade 2 to 4 Domains           | X                     | X                     |
| Upgrade 16 to 32 Domains         | X                     | X                     |
| 32 Domains                       | X                     | X                     |
| Upgrade 32 to 64 Domains         | X                     | X                     |
| Upgrade 64 to 96 Domains         | X                     | X                     |
| 96 Domains                       | X                     | X                     |
| Upgrade 96 to 128 Domains        | X                     | X                     |
| 128 Domains                      | X                     | X                     |
| Upgrade 128 to 256 Domains       | X                     |                       |
| 256 Domains                      | X                     |                       |
| Upgrade 256 to 512 Domains       | X                     |                       |
| 512 Domains                      | X                     |                       |

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# Documentation

For hardware information, refer to the array's release notes and hardware installation guide. You can search for Sun documentation at <http://www.sun.com/documentation>.

**TABLE 4** Documentation Related to CAM

| <b>Application</b>                                                                                             | <b>Title</b>                                                                     | <b>Part Number</b> |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|
| CLI command reference                                                                                          | <i>Sun StorageTek Common Array Manager sscs (1M) CLI Quick Reference</i>         | 820-2932           |
| Installation and initial configuration instructions                                                            | <i>Sun StorageTek Common Array Manager Software Installation Guide</i>           | 820-4193           |
| Installation and configuration instructions and managing the J4200, J4400, and J4500 arrays using CAM software | <i>Sun StorageTek Common Array Manager User Guide for the J4000 Array Family</i> | 820-3765           |
| Sun Storage J4500 Array documentation set                                                                      | <i>Where to Find Sun Storage J4500 Array Documentation</i>                       | 820-3159           |
| Sun Blade™ 6000 Module documentation set                                                                       | <i>Where to Find Sun Blade 6000 Disk Module Documentation</i>                    | 820-1701           |

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# System Requirements

System requirements for the Sun StorageTek Common Array Manager software are described in the following sections:

- [“Supported Arrays” on page 7](#)
- [“Supported Platforms and Required Packages” on page 8](#)
- [“Required Patches” on page 10](#)
- [“File Space Requirements” on page 11](#)
- [“About Windows Service Packs” on page 11](#)
- [“Supported Platforms for the Remote CLI Client” on page 13](#)
- [“Supported Web Browsers” on page 13](#)
- [“Supported Languages” on page 15](#)

## Supported Arrays

CAM software supports the following Sun storage systems:

- Sun StorageTek Flexline 240 Array
- Sun StorageTek Flexline 280 Array
- Sun StorageTek Flexline 380 Array
- Sun StorageTek 2510 (iSCSI)
- Sun StorageTek 2530 Array (SAS)
- Sun StorageTek 2540 Array (FC)
- Sun StorEdge 6130 Array
- Sun StorageTek 6140 Array
- Sun StorageTek 6540 Array
- Sun Storage J4200 Array
- Sun Storage J4400 Array
- Sun Storage J4500 Array
- Sun Blade™ 6000 Disk Module (B6000)

# Supported Platforms and Required Packages

**TABLE 5** Management Host Platforms

| Platform                    | Operating System                                        | CPU                                | Minimum System Memory |
|-----------------------------|---------------------------------------------------------|------------------------------------|-----------------------|
| SPARC server or workstation | Solaris 8 OS 4/01                                       | UltraSPARC C 3 or better (750 MHz) | 1 Gigabyte            |
|                             | Solaris 9 OS 8/03                                       |                                    |                       |
|                             | Solaris 10 OS                                           |                                    |                       |
| Windows Servers             | Windows 2003 with Service Pack 1                        | 1.5 GHz PC                         | 500 Megabytes         |
|                             | Windows XP Professional with Service Pack 2*            |                                    |                       |
| x64 computer                | Red Hat Enterprise Linux AS Release 4 (Nahant update 4) | x64                                | 500 Megabytes         |
|                             | Redhat Linux 4u6                                        |                                    |                       |
|                             | Redhat Linux 5u1                                        |                                    |                       |
|                             | SuSE Linux Enterprise Server 10 (x86_64)                |                                    |                       |
|                             | SuSE Linux 10 SP1                                       |                                    |                       |
|                             | SuSE Linux Enterprise Server 9                          |                                    |                       |
| x64 or x86 computer         | Solaris 10 OS                                           | x64 or x86                         | 1 Gigabyte            |

\* Windows XP Home Edition is not supported.

**TABLE 6** lists Solaris packages that must be installed on your Solaris host. Installing the minimum Solaris operating system package as listed in **TABLE 5** will install all but the last four packages. Those packages are required by Java, but are not used by the management software.

**TABLE 6** Required Solaris Packages

| File      | Description                         |
|-----------|-------------------------------------|
| SUNWtcatu | Tomcat Servlet/JSP Container        |
| SUNWcar   | Core Architecture, (Root)           |
| SUNWcsd   | Core Solaris Devices                |
| SUNWcsl   | Core Solaris, (Shared Libs)         |
| SUNWcsr   | Core Solaris, (Root)                |
| SUNWcsu   | Core Solaris, (Usr)                 |
| SUNWkvm   | Core Architecture, (Kvm)            |
| SUNWlibC  | Sun Workshop Compilers Bundled libC |

**TABLE 6** Required Solaris Packages

| <b>File</b> | <b>Description</b>                                           |
|-------------|--------------------------------------------------------------|
| SUNWmfrun   | Motif RunTime Kit                                            |
| SUNWxwice   | X Window System Inter-Client Exchange (ICE) Components       |
| SUNWxwplt   | X Window System platform software                            |
| SUNWxwrtd   | X Window System & Graphics Runtime Library Links in /usr/lib |

[TABLE 7](#) lists Linux packages and libraries that must be installed on your Linux host. The 32-bit versions of the packages and files are required.

**TABLE 7** Required Linux Packages

| <b>File</b>    | <b>Version</b> |
|----------------|----------------|
| fileutils      | 4.0-8          |
| gawk           | 3.0.4-1        |
| glibc          | 2.1.2-11       |
| ld-linux.so.2  | -              |
| libc.so.6      | -              |
| libc.so.6      | (GLIBC_2.0)    |
| libc.so.6      | (GLIBC_2.1)    |
| libc.so.6      | (GLIBC_2.1.2)  |
| libc.so.6      | (GLIBC_2.1.3)  |
| libcrypt.so.1  | -              |
| libcrypt.so.1  | (GLIBC_2.0)    |
| libdl.so.2     | -              |
| libpam.so.0    | -              |
| sh-utils       | 2.0-1          |
| textutils      | 2.0-2          |
| libstdc++.so.5 | -              |

**TABLE 7** Required Linux Packages

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| <b>File</b>    | <b>Version</b>  |
|----------------|-----------------|
| libstdc++.so.5 | (CXXABI_1.2)    |
| libstdc++.so.5 | (GLIBCPP_3.2)   |
| libstdc++.so.5 | (GLIBCPP_3.2.2) |

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## Required Patches

For the latest patches available for your system, check SunSolve at <http://www.sunsolve.sun.com>

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**Note** – Patches required to run CAM on Solaris 10 with the J4500 and B6000 arrays are (i386) 138129-01 and (SPARC) 138128-01 (SES driver). The SCSI Enclosure Services Driver (SES) must be patched in order for CAM to do discovery and manage these types of arrays.

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# File Space Requirements

**TABLE 8** File Space Requirements: CAM 6.1.2

| Operating System                                | Disk Space                 | Directory Space   |
|-------------------------------------------------|----------------------------|-------------------|
| Solaris 8 OS 4/01                               | 795 Mbytes                 | root – 5 Mbytes   |
| Solaris 9 OS 8/03                               |                            | /tmp – 175 Mbytes |
| Solaris 10 OS                                   |                            | /usr – 40 Mbytes  |
|                                                 |                            | /var – 110 Mbytes |
|                                                 | /opt – 530 Mbytes          |                   |
| Windows 2003 with SP1 or higher                 | 965 MBytes on system drive | Not Applicable    |
| Windows XP Professional Edition with SP2        |                            |                   |
| NOTE: Windows XP Home Edition is not supported. |                            |                   |
| Red Hat Enterprise Linux AS Releases 4 and 5.1  | 775 Mbytes                 | root – 5 Mbytes   |
| SuSE Linux 10 and 9                             |                            | /tmp – 120 Mbytes |
|                                                 |                            | /usr – 155 Mbytes |
|                                                 |                            | /var – 115 Mbytes |
|                                                 | /opt – 410Mbytes           |                   |

## About Windows Service Packs

**Caution** – Before installing CAM on Windows: Be sure a file or directory named “%SystemDrive%\Program” does not exist. This file can prevent some applications from functioning properly. If it does exist, rename the file to “%SystemDrive%\Program1.”

If needed, download the files from the Microsoft Download site. You must be logged in to the Windows system as an administrative user.

The array installation files and installers are provided in a compressed file on the CD. The process unpacks the contents of the file on the host and then proceeds with the installation.

After the installation on a Windows platform, you will need to configure the Windows firewall on each host to allow an exception for port 6789.

For more information, refer to the appropriate product documentation. See [“Documentation” on page 6](#).

# Open Ports Required on Management Host

Open the following incoming and outgoing ports for secure-by-default Solaris, Linux, and Windows platforms:

- Incoming Ports
  - TCP 6788 - console HTTP port that redirects to 6789
  - TCP 6789 - console HTTPS port
- Outgoing Ports
  - TCP 25 - SMTP used for email event notification from FMS
  - UDP 161 - SNMP used for event notification traps from FMS
  - TCP 2463 - used for RPC (remote procedure calls) with the arrays
- Proxy Agent Ports
  - JBODs and Sun Blade 6000 Disk Module- If the CAM Proxy Agent is used, then an open port is required, in addition to the above ports. This allows for TCP (protocol) traffic.
  - Use open port 8653 only if a proxy agent is used.
  - For more information, see [“In-Band Array Management Issues” on page 55](#).
- For instructions on how to open a port through the firewall using Windows, refer to the documentation/online Help for that operating system.

## Supported Platforms for the Remote CLI Client

The remote scripting command-line interface client sends commands to a management host, which in turn sends the commands to the array.

[TABLE 9](#) lists remote platforms from which you can run the CLI client:

**TABLE 9** Remote CLI Client Platforms

| <b>OS</b>                      | <b>Version</b>                           |
|--------------------------------|------------------------------------------|
| Solaris 8 SPARC                | 4/01 or higher                           |
| Solaris 9 SPARC                | 8/03 or higher                           |
| Solaris 10 SPARC               | any                                      |
| Solaris 10 x86                 | any                                      |
| Windows Server 2003            | Standard/Web/<br>Enterprise Edition; SP2 |
| Windows XP Professional<br>Ed. | SP2                                      |
| Red Hat Linux                  | 4u6, 5u1                                 |
| SuSE Linux                     | 9, 10                                    |
| IBM AIX                        | 3.5                                      |
| HP-UX                          | B.11.23                                  |

## Supported Web Browsers

**TABLE 10** Supported Web Browsers

| <b>Browser</b>              | <b>Minimum Version</b>           |
|-----------------------------|----------------------------------|
| Netscape Navigator          | 6.2 or newer                     |
| Mozilla                     | 1.4 or newer                     |
| Firefox                     | 1.0 or newer                     |
| Microsoft Internet Explorer | 5.5 (version 7 is not supported) |

## Best Practices for Browser Performance

For best web browser performance while using CAM, do the following:

- Enable pop-up windows.
- Specify No Proxy for the Common Array Manager host, to avoid situations where your browser might hang, time out, or generate incorrect error messages. From Preferences > Advanced > Proxies (or a similar path, depending on your browser), add the Common Array Manager management host name to the “No Proxy for” section.
- Be aware that Firefox and Mozilla browsers share session information: If you log in to Common Array Manager and then open another browser instance or tab pointed to the same URL, you access it through the same user session, so there is no need to log in again. The Current Logins field in the Common Array Manager does not increment to include the new window as another login. Therefore, if you require a different user session, you must define a different profile or log in from a different machine. This does not happen with Microsoft Internet Explorer browsers, so you can also open a new session using that browser.

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**Note** – Microsoft Internet Explorer version 7 is not supported.

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### *Array Registration Progress Incomplete with Firefox 3.0.1*

Using Solaris 10 and Firefox 3.0.1, the progress of array registration is not finishing in registration wizard with Firefox 3.0.1. To work around this issue, be sure to perform Step 5 below when registering an array:

1. **Click the Registration Button.**
2. **Enter an array IP number.**
3. **Click Next.**
4. **Click Finish to display the Results window.**

The progress bar is not in motion and the Closed button is active.

5. **Click the Closed button.**

The registration process should finish as you had expected it to in Step 4.

## *DNS Delays on Windows Hosts*

To avoid DNS-lookup delays, be sure arrays are connected. Otherwise, Windows might take a long time looking up information for arrays that are not being managed by CAM, if you have them listed in the system as being connected to the system. Make sure the array names are in DNS or add them to the hosts table in the Windows OS.

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**Note** – This does not apply to JBOD arrays unless there is a mixture of JBOD's along with arrays that are communicated with via Ethernet.

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## Supported Languages

For Solaris, Linux and Windows, the Browser User Interface for the Sun StorageTek Common Array Manager is available in:

- English
- French
- Japanese
- Simplified Chinese

The command-line interface is available in:

- English

The online Help is available in:

- English
- Japanese
- Simplified Chinese

The man pages are available in:

- English
- Japanese

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# Installing Packages and Patches

CAM installation procedures are described in the *Sun StorageTek Common Array Manager Software Installation Guide* (part number 820-4193) and the *Sun StorageTek Common Array Manager User Guide for the J4000 Array Family* (part number 820-3765). This section describes release-specific steps for management software patch upgrades that you must perform:

- [“Prerequisites” on page 17](#)
- [“Supported Upgrades” on page 18](#)
- [“Installation Logs” on page 18](#)
- [“Installing and Upgrading CAM Software” on page 19](#)
- [“Installing and Upgrading CAM Software” on page 19](#)
- [“About the Software Installation CD” on page 20](#)
- [“Installing From a Downloaded File” on page 20](#)
- [“Command-Line \(Minimal\) Installation” on page 21](#)
- [“Uninstalling a Previous CAM Version” on page 23](#)
- [“Installing and Upgrading CAM Software” on page 19](#)

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**Caution** – Before installing CAM on Windows, the file or directory “%SystemDrive%\Program” should not exist. The user can rename the file to “%SystemDrive%\Program1.” The existence of this file could cause certain applications to not function correctly.

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**Note** – Patches required to run CAM on Solaris 10 with the J4500 and B6000 arrays are (i386) 138129-01 and (SPARC) 138128-. The SCSI Enclosure Services Driver (SES) must be patched in order for CAM to do discovery and manage these types of arrays.

---

# Prerequisites

Before you perform an installation procedure, do the following:

## 1. Locate the management software.

The management software is distributed on the Sun StorageTek Common Array Manager Software CD and is also available from the Sun website.

To obtain the most current software release and related information: From [http://www.sun.com/storage/management\\_software/resource\\_management/cam](http://www.sun.com/storage/management_software/resource_management/cam), click the “Get It” tab to obtain the latest information and version available.

## 2. Locate the most current patches.

For the latest patches available for your system, check SunSolve at <http://www.sunsolve.sun.com>

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**Note** – Patches required to run CAM on Solaris 10 with the J4500 and B6000 arrays are (i386) 138129-01 and (SPARC) 138128-. The SCSI Enclosure Services Driver (SES) must be patched in order for CAM to do discovery and manage these types of arrays.

---

## 3. If supported by your array types, verify that you have license certificates for all premium features, including storage domains.

See [“Licensing Optional Premium Features” on page 3](#).

## 4. Read the installation instructions.

Refer to the appropriate documentation. See [“Documentation” on page 6](#).

## 5. Log in as `root` (Solaris and Linux) or as a user with full administration privileges—not just local administrator privileges—(Windows) on the management host.

## 6. Note that before starting the installation script, the CD verifies host requirements, such as the following:

- Unsupported versions of related software such as CAM releases prior to 5.x, Storage.
- Unsupported versions of operating systems or software
- Insufficient disk space (see [“File Space Requirements: CAM 6.1.2” on page 11](#))

If the host meets the requirements, the script will search for earlier versions and determine if a new installation or an upgrade/baseline installation is necessary. If the script detects that there is no earlier version installed, it will perform a complete new installation.

## *Prerequisites for Solaris Zones*

- Before you install CAM in a sparse-root zone, install Lockhart 3.0.5 with its L10N (Localization) packages in the global zone.
- For Solaris 10, do not attempt to run the Lockhart setup script when logged into the local zone. The CAM installation prevents this. Either install Lockhart into a whole root zone or install/upgrade Lockhart in the global zone before installing CAM into the local zone.

For more information, contact Sun Microsystems Support Services. ([“Service Contact Information”](#) on page 65)

## Supported Upgrades

**Solaris:** Upgrades from CAM 5.0.0.8, 5.0.1.1, 5.0.2.1, 5.1.0.10, 5.1.0.11, 5.1.1.2, 5.1.2.2, 5.1.3.2, and 6.x to this release are supported. You are not required to uninstall the existing CAM version before installing this release.

**Linux:** Upgrades are supported.

**Windows:** Upgrade to this build is not supported in 64-bit Windows 2003. Uninstall of previous CAM version is required before installing this build in 64-bit Windows 2003. In other Windows platforms, upgrade to this build is supported.

## Installation Logs

If installation failure occurs, check the available disk space.

For more information, consult the installation log:

Solaris: `/var/sadm/install/se6000/se6000_Host_SW.log`

Linux: `/var/opt/cam`

Windows: `\Program Files\Common Files\Sun Microsystems\se6000`

# Installing and Upgrading CAM Software

If you are installing the management software on a new host, check the installation requirements and follow the entire installation and configuration procedure described in the appropriate documentation. See [“Documentation” on page 6](#).

- To search for a document from Sun’s website, do the following:  
From <http://www.sun.com/documentation>, type the document title, part of the title, or the document’s part number in the “Search” field, and press Return.

## Installation Requirements

You can install CAM on a local management host or on a central management server.

Before installing the management software, do the following:

- Read the entire installation instructions. See [“Documentation” on page 6](#).
- Complete the array hardware installation.
- Check the installation space requirements.

To obtain the most current software release and related information: From [http://www.sun.com/storagetek/management\\_software/resource\\_management/cam](http://www.sun.com/storagetek/management_software/resource_management/cam), click the “Get It” tab to obtain the latest information and version available.

After initial installation and configuration, you can upgrade the management software and firmware with each release.

During installation, the firmware update bundle is installed on the host server. For details about upgrading array firmware, refer to the appropriate documentation. See [“Documentation” on page 6](#).

- To search for a document from Sun’s website, do the following:  
From <http://www.sun.com/documentation>, type the document title, part of the title, or the document’s part number in the “Search” field, and press Return.

## About the Software Installation CD

The Sun StorageTek Common Array Manager Installation Software CD provides three installation-related wizards:

- GUI software installer – Enables you to use a graphical user interface wizard to install a selection of applications to support a local or remote management host.
- CLI software installers – Enables you to use either a command-line interface (CLI) script to install a selection of applications to support a local or remote management host.
- Uninstaller – Enables you to uninstall the management and remote host software from a host. See Appendix B in the for CLI options.

## Installing From a Downloaded File

To obtain the most current software release and related information: From [http://www.sun.com/storagetek/management\\_software/resource\\_management/cam](http://www.sun.com/storagetek/management_software/resource_management/cam), click the “Get It” tab to obtain the latest information and version available.

After initial installation and configuration, you can upgrade the management software and firmware with each release

# Command-Line (Minimal) Installation

You can perform a minimal installation that enables one of two options: a command-line interface only or a command-line interface with firmware. In both cases, this installation is approximately 10%-20% smaller than the size of the full CAM installation since the Graphical User Interface (GUI) is not installed.

After the CLI-only Installation mode is chosen, the option will be given to make the installation on this host a proxy to another host running the full installation of CAM for the purposes of aggregating multiple proxy hosts.

---

**Note** – Minimal Installation can stand alone, whereas Remote Client installation requires a fully installed image on a separate host.

---

This light-weight management solution is installed on a data host attached to the array. The data host can also serve as a management host using the CLI only installation option and provides:

- Array management and monitoring capabilities
- Remote proxy agent for JBODs
- Local CLI
- Array configurations supported in full installation
- Optional array firmware

For complete instructions on CLI Minimal Installation, refer to the appropriate documentation. See [“Documentation” on page 6](#).

- To search for a document from Sun’s website, do the following:  
From <http://www.sun.com/documentation>, type the document title, part of the title, or the document’s part number in the “Search” field, and press Return.

# Performing a CLI CAM Installation

For complete instructions on CLI (Minimal) Installation, refer to the appropriate documentation. See [“Documentation” on page 6](#).

**1. From the Common Array Manager Installation page, select one of these options in the Select a feature bundle list:**

- Command-Line Only with Firmware (management host software; CLI for local users, remote users, and remote management host; array firmware)
- Command-Line Only (management host software; CLI for local users, remote users, and remote management host)

---

**Note** – Array firmware files are not installed with the Command-Line Only option. Because firmware is not installed, the firmware analysis feature is not available with this installation.

---

**2. Click Next and follow the prompts by pressing 1 for Next, 3 to Cancel, or 5 to Redisplay.**

The software will notify you as it checks your system and does any or all of the following:

- uninstalls any old features
- installs Java 2 Standard Edition
- installs Sun StorageTek Configuration Service BUI
- installs Sun StorageTek Fault Management Services
- installs Sun StorageTek Array Firmware
- installs Sun StorageTek Common Array Manager
- creates uninstaller
- finalizes the Vital Product Data Registry.

**3. Press 3 to Finish or 5 to Redisplay.**

# Uninstalling a CLI CAM Installation

1. From the host software installer, select **Uninstall**.
2. Click **Next** and follow the prompts by pressing **1** for **Next**, **3** to **Cancel**, or **5** to **Redisplay**.

The software will notify you as it checks your system and does any or all of the following:

- prepares for uninstallation
- uninstalls Java 2 Standard Edition
- uninstalls Sun StorageTek Fault Management Services
- finalizes the Vital Product Data Registry
- post-uninstallation action

The system will notify you that the un-installation has been successful.

3. Press **3** to **Finish** or **5** to **Redisplay**.

# Uninstalling a Previous CAM Version

1. Log in to the CLI on the management host or using the remote CLI client as documented in the *Sun StorageTek Common Array Manager Software Installation Guide* (part number 820-4193) and the *Sun StorageTek Common Array Manager User Guide for the J4000 Array Family* (part number 820-3765).

## Navigate to the appropriate directory for your operating system:

For Windows, navigate to:

```
%systemdrive%\Sun\CommonArrayManager\Host_Software_6.1.2.7\  
bin\uninstall.bat
```

For Solaris and Linux, navigate to:

```
/var/opt/CommonArrayManager/Host_Software_6.1.2.7/bin/uninstall
```

For the Suse 9 platform, CLI uninstall requires the following rpm packages:

- libgcj-3.3.3-43.24.x86\_64.rpm
- getttext-0.1.14.1-30.1.x86\_64.rpm

2. Enter the command `uninstall -f`

If you still have problems, enter the command `uninstall -f -s`

The command will remove the current installation.

---

# Firmware for CAM

During installation, the firmware update bundle is installed on the host server. For details about upgrading array firmware, refer to the appropriate documentation. See [“Documentation” on page 6](#).

---

**Note** – To install the new 07.10.x.xx firmware for the 6140, 6540, and FLX380 arrays, contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)).

---

To obtain the most current software release and related information: From [http://www.sun.com/storagetek/management\\_software/resource\\_management/cam](http://www.sun.com/storagetek/management_software/resource_management/cam), click the “Get It” tab to obtain the latest information and version available.

For the latest patches available for your system, check <http://www.sunsolve.sun.com>.

---

**Note** – Patches required to run CAM on Solaris 10 with the J4500 and Sun Blade 6000 arrays are (i386) 138129-01 and (SPARC) 138128-. The SCSI Enclosure Services Driver (SES) must be patched in order for CAM to do discovery and manage these types of arrays.

---

This section describes the following topics:

- [“Firmware Installation Locations” on page 25](#)
- [“Installing the Firmware Baseline” on page 26](#)
- [“CSM200 Requirements” on page 31](#)
- [“Supported Expansion Modules” on page 32](#)
- [“Upgrading Firmware for Additional Expansion Trays” on page 33](#)
- [“Upgrading Expansion Modules” on page 33](#)
- [“Upgrading Firmware for Additional Expansion Modules” on page 34](#)
- [“Third Expansion Tray \(48-Drive\) Cabling for 2500 Series” on page 36](#)

# Firmware Installation Locations

CAM firmware is installed in the following locations:

- Solaris: /opt/SUNWstkcaml/share/fw
- Windows: <system drive>:\Program Files\Sun\Common Array Manager\ Component\SunStorageTekArrayFirmware\
  - Windows (64-bit) - C:\Program Files (x86)\Sun\Common Array Manager\ Component\SunStorageTekArrayFirmware
  - Windows (32-bit) - C:\Program Files \Sun\Common Array Manager\ Component\SunStorageTekArrayFirmware
- Linux - /opt/sun/cam/share/fw/
- Linux - sun-cam-fw-j4000-\*.rpm
- Firmware files are located in the images subdirectory.
  - Controller firmware is located in images/ngc.
  - SIM firmware - images/qnt/\*.fw
  - Disk drive firmware is in images/sun: images/sun/\*.fw
  - Expander board firmware for J4500 is in sun/sasxflwlo\*.fw
  - Expander board firmware for Sun Blade 6000 is in sun/sasxfwnv\*.fw
  - Baseline/j4200.properties
  - Baseline/j4400.properties

Within the directory where you installed the firmware, a README file for each array type defines the firmware baseline.

- README\_2500.txt defines the firmware baseline for the Sun StorageTek 2500 Series Arrays.
- README\_J4000.txt defines the firmware baseline for the J4000 Array Family.
- README\_6000.txt defines the firmware baseline for the Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 arrays.

---

**Note** – The following information does not apply to J4000 arrays: After an upgrade to the 7.10 firmware version, the Cache Block size will reset to 4KB. In previous firmware levels, the default size was 16K. The GUI and CLI have options to change the default Cache Block size, if necessary, to the previous 16KB size.

---

**TABLE 11** Release Firmware Level

| <b>Array</b>                                     | <b>Firmware Version</b> |
|--------------------------------------------------|-------------------------|
| Sun Storage J4200                                | 3A27                    |
| Sun Storage J4400                                | 3R14                    |
| Sun Storage J4500                                | 502C (5.0.2.12)         |
| Sun StorageTek 6540, 6140, and 6130 Arrays       | 06.60.11.11             |
| Sun StorageTek 2500 Series Arrays                | 06.70.54.11             |
| Sun StorageTek Flexline 240, 280, and 380 Arrays | 06.60.11.20             |
| Sun Storage J4200 SIM Firmware                   | 3A27                    |
| Sun Storage J4400 SIM Firmware                   | 3R14                    |
| Sun Blade 6000 Disk Module                       | 502A (5.0.2.10)         |

## Installing the Firmware Baseline

You can upgrade array firmware by using CAM's Install Firmware Baseline feature. The software prompts you when it's time to upgrade array firmware.

---

**Note** – You do *not* need to uninstall existing firmware before following this procedure.

---

For optimal performance, Sun Microsystems recommends that the firmware on all arrays be at the level of the current firmware baseline. New features are not supported with non-baseline firmware. You can update your array firmware by clicking the Install Firmware Baseline button on the Storage System Summary page or the array's Administration page.

As part of the CAM installation, the script puts the array firmware files in a directory on the management host. When you upgrade the firmware, the software analyzes the firmware installed on the array. If the firmware baseline on the host is newer, and you choose to install, the software installs the firmware baseline on the array.

## *Prerequisites*

**1. Before you perform this task, be sure the array is not in a degraded state.**

If it is degraded, the upgrade will fail. If the array is degraded because it is not at the baseline, you can upgrade the array.

**2. Check to see if there are any alarms and resolve them.**

Alarms can be checked in the Java Web Console masthead or in the Alarms Summary link in the Navigation Tree on the left. Use Service Advisor to fix any alarms.

**3. Log in to the management software.**

See [“Documentation” on page 6](#) for help in locating the appropriate product documentation.

**4. From the Java WebConsole page, click Sun StorageTek Common Array Manager.**

**5. From the Storage System Summary page, select the array for which the firmware needs to be installed/upgraded.**

**6. Click Install Firmware Baseline, and follow the prompts.**

## Firmware for Sun StorageTek 6000 Series and FlexLine Arrays

Be sure to check the build notes file distributed with the software for the exact firmware build. CAM will support one prior version of the firmware for legacy features on previously supported arrays. (This does yet apply to the new Sun StorageTek 2500 Series Arrays or the J4000 Family Series).

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**Note** – Contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)) to install the new 07.10.x.xx firmware for the 6140, 6540, and FLX380 arrays.

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In the following tables, the path listed in the Firmware File column is relative to the images subdirectory where firmware files are located.

**TABLE 12** Controller Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| Controller | Version     | Firmware File                                         |
|------------|-------------|-------------------------------------------------------|
| 6130       | 06.60.11.10 | nge/RC_06601110_chromium2_apollo_288x.dlp             |
| 6140       | 06.60.11.10 | nge/RC_06601110_chromium2_apollo_399x.dlp             |
| 6540       | 06.60.11.10 | nge/RC_06601110_chromium2_apollo_6091.dlp             |
| FLX240     | 06.60.11.20 | nge/RC_06601120_chromium2_silverado_288x.dlp          |
| FLX280     | 06.60.11.20 | nge/RC_06601120_chromium2_silverado_588x_06600100.dlp |
| FLX380     | 06.60.11.20 | nge/RC_06601120_chromium2_silverado_6091.dlp          |

**TABLE 13** NVSRAM Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| NVSRAM | Version          | Firmware File            |
|--------|------------------|--------------------------|
| 6130   | N288X-660843-003 | nge/N288X-660843-003.dlp |
| 6140   | N399X-660843-003 | nge/N399X-660843-003.dlp |
| 6540   | N6091-660843-003 | nge/N6091-660843-003.dlp |
| FLX240 | N288X-660855-003 | nge/N288X-660855-003.dlp |
| FLX280 | N588X-660855-003 | nge/N588X-660855-003.dlp |
| FLX380 | N6091-660855-003 | nge/N6091-660855-003.dlp |

**TABLE 14** IOM Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| IOM                     | Version | Firmware File   |
|-------------------------|---------|-----------------|
| 6130 FC                 | 9643    | nge/esm9643.s3r |
| 6130 FC CSM100 trays    | 9673    | nge/esm9673.s3r |
| 6130 iSATA              | 9726    | nge/esm9726.dl  |
| 6130 iSATA CSM100 trays | 9728    | nge/esm9728.dl  |
| 6140                    | 98B4    | nge/esm98B4.esm |
| 6140 CSM100 trays       | 98B4    | nge/esm98B4.esm |
| FLA300                  | 9643    | nge/esm9643.s3r |

**TABLE 14** IOM Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| IOM                       | Version | Firmware File   |
|---------------------------|---------|-----------------|
| FLA200                    | 9330    | nge/esm9330.s3r |
| FLC200 iSATA              | 9726    | nge/esm9726.dl  |
| FLC200 iSATA CSM100 trays | 9728    | nge/esm9728.dl  |
| FLC200 dSATA              | 9565    | nge/esm9565.dl  |
| FLC200 dSATA CSM100 trays | 9566    | nge/esm9566.dl  |

**TABLE 15** Disk Drive Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| Disk Drive       | Version            | Firmware File                   |
|------------------|--------------------|---------------------------------|
| HDS7225SCSUN250G | 0603 (LP1153-A5DA) | sun/D_HDS7225SCSUN250G_0603.dlp |
| HDS7240SBSUN400G | AC7A               | sun/D_HDS7240SBSUN400G_AC7A.dlp |
| HDS7250SASUN500G | 0604 (LP1153-AJ0A) | sun/D_HDS7250SASUN500G_0604.dlp |
| HUA7210SASUN1.0T | 0605               | sun/D_HUA7210SASUN1.0T_0605.dlp |
| HUA7250SBSUN500G | 0605               | sun/D_HUA7250SBSUN500G_0605.dlp |
| HUA7275SASUN750G | 0605               | sun/D_HUA7275SASUN750G_0605.dlp |
| HUS1014FASUN146G | 2A08               | sun/D_HUS1014FASUN146G_2A08.dlp |
| HUS1030FASUN300G | 2A08               | sun/D_HUS1030FASUN300G_2A08.dlp |
| HUS1073FASUN72G  | 2A08               | sun/D_HUS1073FASUN72G_2A08.dlp  |
| MAT3073FSUN72G   | 1403               | sun/D_MAT3073FSUN72G_1403.dlp   |
| MAT3147FSUN146G  | 1403               | sun/D_MAT3147FSUN146G_1403.dlp  |
| MAT3300FSUN300G  | 1403               | sun/D_MAT3300FSUN300G_1403.dlp  |
| MAW3073FCSUN72G  | 1303               | sun/D_MAW3073FCSUN72G_1303.dlp  |
| MAW3147FCSUN146G | 1303               | sun/D_MAW3147FCSUN146G_1303.dlp |
| MAW3300FCSUN300G | 1303               | sun/D_MAW3300FCSUN300G_1303.dlp |
| MAX3073FDSUN72G  | 0403               | sun/D_MAX3073FDSUN72G_0403.dlp  |
| MAX3147FDSUN146G | 0403               | sun/D_MAX3147FDSUN146G_0403.dlp |
| ST314655FSUN146G | 3092               | sun/D_ST314655FSUN146G_3092.dlp |

**TABLE 15** Disk Drive Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

| Disk Drive       | Version            | Firmware File                   |
|------------------|--------------------|---------------------------------|
| ST314670FSUN146G | 055A               | sun/D_ST314670FSUN146G_055A.dlp |
| ST314680FSUN146G | 0407               | sun/D_ST314680FSUN146G_0407.dlp |
| ST314685FSUN146G | 042D               | sun/D_ST314685FSUN146G_042D.dlp |
| ST314695FSUN146G | 0409               | sun/D_ST314695FSUN146G_0409.dlp |
| ST32500NSSUN250G | 0605 (LP1153-3AZQ) | sun/D_ST32500NSSUN250G_0605.dlp |
| ST330000FSUN300G | 055A               | sun/D_ST330000FSUN300G_055A.dlp |
| ST330055FSUN300G | 3092               | sun/D_ST330055FSUN300G_3092.dlp |
| ST340008FSUN0.4T | 0343               | sun/D_ST340008FSUN0.4T_0343.dlp |
| ST35000NSSUN500G | 0605 (LP1153-3AZQ) | sun/D_ST35000NSSUN500G_0605.dlp |
| ST373207FSUN72G  | 055A               | sun/D_ST373207FSUN72G_055A.dlp  |
| ST373307FSUN72G  | 0407               | sun/D_ST373307FSUN72G_0407.dlp  |
| ST373453FSUN72G  | 0449               | sun/D_ST373453FSUN72G_0449.dlp  |
| ST373454FSUN72G  | 042D               | sun/D_ST373454FSUN72G_042D.dlp  |
| ST373455FSUN72G  | 3092               | sun/D_ST373455FSUN72G_3092.dlp  |
| ST373554FSUN72G  | 0409               | sun/D_ST373554FSUN72G_0409.dlp  |
| ST37500NSSUN750G | 0605 (LP1153-3AZQ) | sun/D_ST37500NSSUN750G_0605.dlp |

- Controller firmware 06.19.x.x or higher allows tray mixing of 6540, 6140, 6130, FLX240, FLX280, and FLX380 array controllers modules and the Sun StorageTek CSM100, CSM200, FLA200, FLC200, and FLA3 expansion modules. After installing the firmware, 6130 controllers can use CSM200 expansion modules and CSM100 expansion modules can be used with 6540 and 6140 controllers.

## CSM200 Requirements

When you add a new CSM200 expansion module to an existing array in a production or active environment, you must cable and add the trays while the RAID controller module is powered on.

Before connecting any replacement drive or additional expansion module to an existing functioning array, it is best practice to contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)). One reason for this is to avoid issues related to DACstore, the configuration and status database maintained by the array firmware, that stores its information on each of the disk drives.

---

**Caution** – Not following correct procedures could result in loss of customer data.

---

Because corrective actions for a DACstore issue may require a configuration restoration, it is important to maintain a current image of the configuration. And, as always, it is best practice to maintain recoverable backups of your data.

Affected arrays are:

- Sun StorEdge 6130 Array
- Sun StorageTek 6140 Array
- Sun StorageTek 6540 Array
- StorageTek FLX280 Array
- StorageTek FLX380 Array

Contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)) promptly upon experiencing any of the following symptoms:

- loss of management or data access
- inability to apply feature licenses
- inability to upgrade/install the baseline for array firmware
- incorrect component details in the management tool
- host operating system reports the wrong product identifier
- array registration or discovery fails to complete
- persistent or unrecoverable multipathing failover

# Supported Expansion Modules

---

**Note** – There are no expansion modules for the J4000 Array Family.

---

The following tables list the supported expansion modules:

**TABLE 16** Supported Expansion Modules: 6000 Series Arrays

| <b>Array Controller</b>   | <b>Original Supported Expansion Modules</b> | <b>Supported Expansion Modules with Controller Firmware 06.19.25.16</b> |
|---------------------------|---------------------------------------------|-------------------------------------------------------------------------|
| Sun StorageTek 6540 Array | CSM200                                      | CSM100, CSM200, FLA200, FLC200, FLA300                                  |
| Sun StorageTek 6140 Array | CSM200                                      | CSM100, CSM200, FLA200, FLC200, FLA300                                  |
| Sun StorageTek 6130 Array | CSM100                                      | CSM100, CSM200, FLA200, FLC200, FLA300                                  |

**TABLE 17** Supported Expansion Module: 2500 Series Array

| <b>Array Controller</b>           | <b>Supported Expansion Modules</b> |
|-----------------------------------|------------------------------------|
| Sun StorageTek 2500 Series Arrays | 2501                               |

**TABLE 18** Supported Expansion Module: Sun StorageTek FLX240, FLX280, and FLX380 Arrays

| <b>Array Controller</b>     | <b>Supported Expansion Modules</b>     |
|-----------------------------|----------------------------------------|
| Sun StorageTek FLX240 Array | CSM100, CSM200, FLA200, FLC200, FLA300 |
| Sun StorageTek FLX280 Array | CSM100, CSM200, FLA200, FLC200, FLA300 |
| Sun StorageTek FLX380 Array | CSM100, CSM200, FLA200, FLC200, FLA300 |

## Upgrading Firmware for Additional Expansion Trays

Controller firmware 06.19.*nn.nn* allows tray mixing of array controllers modules, two versions of expansion modules for the Sun StorageTek 6130, 6140, and 6540 arrays, and the FLX240, FLX280, and FLX380 arrays.

- Refer to [TABLE 16](#), [TABLE 17](#), and [TABLE 18](#) for a list of the supported modules for intermixing trays without data.
- To add trays with data already on them, contact your service representative for assistance to avoid data loss.
- Mixing trays is not supported for the Sun StorageTek 2500 Series Arrays.

## Upgrading Expansion Modules

You must contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)) to install the new 07.10.x.xx firmware for the 6140, 6540, and FLX380 arrays. After the initial installation, you can install future changes to the 07 firmware baseline using the procedure that follows.

---

**Note** – 07.10.x.xx is not available for the 6130, FLX240, 280, 2500 and J4000 arrays.

---

This following does not apply to J4000 arrays: After an upgrade to the 7.10 firmware version, the Cache Block size will reset to 4KB. In previous firmware levels, the default size was 16K. The GUI and CLI have options to change the default Cache Block size, if necessary, to the previous 16KB size.

**Prerequisite:** Before discovering a Sun StorageTek FLX240, FLX280, FLX380 array using CAM and before performing any tray migration (for example, adding FLA300 expansion trays behind an existing 6130, 6140 or 6540 controller), you must upgrade the arrays and associated trays to the firmware version 6.19.25.00 or later. After you register the arrays with CAM, you can upgrade to the current firmware baseline.

### *Adding a New Expansion Module to an Existing Array*

1. **Before cabling the newly supported expansion module, upgrade the existing controller and trays.**
2. **Add the expansion module.**
3. **Upgrade the array again.**

## *Adding an Existing Expansion Tray to a New Array*

1. **Install the new controller and trays.**
2. **Perform the firmware upgrade.**
3. **Add the expansion tray.**
4. **Upgrade the array again.**

## Upgrading Firmware for Additional Expansion Modules

Follow this procedure to add trays to arrays managed by CAM:

---

**Note** – Do not cable the additional expansion tray.

---

1. **Install the Common Array Manager release following the standard installation procedure.**
  - There are separate procedures for Solaris, Windows, and Linux management hosts. The software update places a copy of the latest firmware on the management software server.
  - Tray IDs must be unique within an array. The tray ID for the CSM200 tray is automatically set to the next available ID number upon power up. All other trays must be set manually.
2. **Register the array, if needed.**
3. **From the Storage Summary page or Array Administration page, click the Install Firmware Baseline button.**
4. **Accept the upgrade.**
5. **Use Service Advisor to cable the additional expansion tray and add it to the array.**
6. **Upgrade the array again to update the firmware on the new tray.**

# Firmware for Sun StorageTek 2500 Series Arrays

For the latest patches available for your system, check SunSolve at:  
<http://www.sunsolve.sun.com>.

In the following tables, the paths listed in the Firmware File column is relative to the images subdirectory where firmware files are located.

**TABLE 19** Controller Information: Sun StorageTek 2500 Series Arrays

| Controller | Version     | Firmware File                                 |
|------------|-------------|-----------------------------------------------|
| 2510       | 06.70.54.10 | nge/RC_06705410_desperado_apollo_1532.dlp     |
| 2530       | 06.70.54.10 | nge/RC_06705410_desperado_apollo_133x.dlp     |
| 2540       | 06.70.54.10 | nge/RC_067054SA0410_desperado_apollo_1932.dlp |

**TABLE 20** NVSRAM Information: Sun StorageTek 2500 Series Arrays

| NVSRAM       | Version          | Firmware File            |
|--------------|------------------|--------------------------|
| 2510         | N1532-670843-001 | nge/N1532-670843-001.dlp |
| 2510-Simplex | N1532-670843-901 | nge/N1532-670843-901.dlp |
| 2530         | N133X-670843-001 | nge/N133X-670843-001.dlp |
| 2530-Simplex | N133X-670843-901 | nge/N133X-670843-901.dlp |
| 2540         | N1932-670843-001 | nge/N1932-670843-001.dlp |
| 2540-Simplex | N1932-670843-901 | nge/N1932-670843-901.dlp |

**TABLE 21** IOM Information: Sun StorageTek 2500 Series Arrays

| IOM      | Version | Firmware File   |
|----------|---------|-----------------|
| 2500 SAS | 0186    | nge/esm0186.esm |

**TABLE 22** Disk Drive Information: Sun StorageTek 2500 Series Arrays

| Disk Drive       | Version | Firmware File                       |
|------------------|---------|-------------------------------------|
| HDS7250SASUN500G | AJ0A    | sun/D_HDS7250SASUN500G_AJ0A_LCA.dlp |
| HUA7210SASUN1.0T | A90A    | sun/D_HUA7210SASUN1.0T_A90A_LCA.dlp |
| HUA7250SBSUN500G | A90A    | sun/D_HUA7250SBSUN500G_A90A_LCA.dlp |
| HUA7275SASUN750G | A90A    | sun/D_HUA7275SASUN750G_A90A_LCA.dlp |
| HUS1514SBSUN146G | SA04    | sun/D_HUS1514SBSUN146G_SA04_LCA.dlp |

**TABLE 22** Disk Drive Information: Sun StorageTek 2500 Series Arrays

| Disk Drive       | Version | Firmware File                       |
|------------------|---------|-------------------------------------|
| HUS1530SBSUN300G | SA04    | sun/D_HUS1530SBSUN300G_SA04_LCA.dlp |
| HUS1573SBSUN72G  | SA04    | sun/D_HUS1573SBSUN72G_SA04_LCA.dlp  |
| ST314655SSUN146G | 0B92    | sun/D_ST314655SSUN146G_0B92.dlp     |
| ST330055SSUN300G | 0B92    | sun/D_ST330055SSUN300G_0B92.dlp     |
| ST340008SSUN0.4T | 0543    | sun/D_ST340008SSUN0.4T_0543.dlp     |
| ST373455SSUN72G  | 0B92    | sun/D_ST373455SSUN72G_0B92.dlp      |
| ST37500NSSUN750G | 3AZQ    | sun/D_ST37500NSSUN750G_3AZQ_LCA.dlp |

## Third Expansion Tray (48-Drive) Cabling for 2500 Series

Support has been added for a third expansion tray and 48 drives.

For the most current cabling information, see the *Sun StorageTek 2500 Series Array Release Notes*. From <http://www.sun.com/documentation>, you can type "2500 Release Notes" in the "Search" field, and press Return. Then select the current Release Notes document.

---

# Known Issues and Operational Information

The following sections provide information about known issues and recommended workarounds, as well as operational information not found elsewhere in the documentation:

- [“Array Issues” on page 37](#)
- [“Configuration Issues” on page 43](#)
- [“Documentation Issues” on page 51](#)
- [“Firmware Issues” on page 54](#)
- [“In-Band Array Management Issues” on page 55](#)
- [“Localization Issues” on page 62](#)

## Array Issues

### *6130 Battery does not have a Unique Identifier Listed*

**Bug 6590617** –Since the Sun StorageTek 6130 array does not report asset data for the cache backup batteries, the management software inserts a dash (-) instead of a value in the Unique Identifier field on Component Summary for Battery page (Troubleshooting > FRUs > Battery).

**Workaround** –Use the sscs CLI service command to manage data channels 3 and 4.

### *Alarm Summary Page: Selecting Device Name Displays Error*

**Bug 6698254** –When you select the device name link from the Alarm Summary page, you might get an exception or an error. For instance, a Java stack trace might display in the main UI window.

**Workaround** –Select the device from the main window.

## *Array Name Does Not Appear to Change - J4500*

**Bug 6736301** –Trying to change the name of a locally or remotely managed JBOD array appears to complete successfully but the array name is never changed. Issuing the command “`sscs modify -N <new name> storage-system <old name>`” returns successfully; however, the name on the J4500 does not change.

**Workaround** –Use the “`sscs service -a <old name> set name=<new name>`” command.

## *Array Out of Compliance Yields Errors*

When an array is out of compliance, a number of operations might not occur, such as:

- Standard RAID Volume creation
- Automatic Configuration
- Creation of Storage Partitons Mappings
- Hot Spare Assignments
- DSS
- DCE/DVE
- Snapshot Volume Creation

## *Array Registration Progress Incomplete with Firefox 3.0.1*

**Bug 6744622** –Using Solaris 10 and Firefox 3.0.1, the progress of array registration is not finishing in registration wizard with Firefox3.0.1.

**Workaround** – Be sure to perform Step 5 below when registering an array.

**1. Click the Registration Button.**

**2. Enter an array IP number.**

**3. Click Next.**

**4. Click Finish to display the Results window.**

The progress bar is in motion and the Closed button is active.

**5. Click the Closed button.**

The registration process should finish as you had expected it to in Step 4.

## *Cache Stop % Cannot be Greater than Cache Start %*

**Bug 6590637** –Attempting to modify the Cache Start% and Cache Stop% parameters from the array’s Administration page so that the value assigned to Cache Stop% is greater than the value assigned to Cache Start% results in the error message “setCacheParams operation failed:43”.

**Workaround** – Use valid values. Since the Cache Stop% is the percentage of unwritten data in the cache that will stop a cache flush that is currently in progress, it must not be greater than the value for Cache Start%, which is the percentage of unwritten data in the cache that will trigger a cache flush.

## *Cannot Cancel Some Jobs*

**Bug 6600387** –Some jobs, like volume creation jobs, cannot be cancelled on the array once they have started. However, if multiple jobs are queued up for an array, any job in the queue can be cancelled before the array actually starts the job.

## *CLI - Addition of Two or More Unnamed or Unlabeled Arrays Indeterminate*

**Bug 6681173** –List devices can show multiple unlabeled entries. List storage systems can show multiple unlabeled entries as well. The CLI user is unable to differentiate between unlabeled entries.

**Workaround** –Rename each unlabeled device to a unique Temporary Name. Use list controller to determine IP address for the TN. Then rename TN to desired.

## *Critical Alarm: Property Status for PowerSupply.00 on 0744QCJ005 changed from OK to CRITICAL*

**Bug 6698735** –When a power cord for a power/fan CRU on a J4200 is disconnected, the following CAM critical alarm is generated:

“The property Status for PowerSupply.00 on 0744QCJ005 has changed from OK to CRITICAL.”

**Workaround** –Check the following and take appropriate action:

- 1. Has the power supply been removed?
- 2. Has the power supply has stopped working?
- 3. Are the power cords disconnected?

## *Defragmentation Jobs may not Display in the Jobs Summary Page*

**Bug 6592811** –For small virtual disks, disk defragmentation jobs may complete too quickly for a job task to be created and listed on the Jobs Summary page. If an error does occur, the user will be notified.

**Workaround** –This should have no impact but if the status needs to be seen, you can run defragmentation jobs using the CLI: `/opt/SUNWsesscs/cli/bin/sscs modify --array oz1-Shared-with-DavidBL --defragment vdisk 1`

## *Disk Drive Failure Affects Vdisk Redundancy*

**Bug 6592877**–When a drive fails, the vdisk to which it belongs is no longer redundant. A stand-by hot-spare drive is chosen and integrated into that volume group automatically if possible.

The drive is chosen to satisfy the following conditions:

- The chosen drive must be <PRESENT, STANDBY-HOT-SPARE, OPTIMAL>.
- The chosen drive must be of the same technology (FC, SATA, etc.) as the FAILED drive.
- The chosen drive must have adequate capacity to contain the piece(s) of the volume(s) defined on that volume group in addition to all required metadata.
- The chosen drive should match the spindle speed of other drives in the volume group if possible.
- If the volume group to which the failed drive belongs had Tray-Loss Protection (TLP), it is best to choose a hot spare drive that provides TLP for the volume group.

## *Disk Failure - Reconstruct Attempt Results in "error.reason.100404"*

**Bug 6682034** –Attempting to reconstruct a disk results in message "error.reason.100404." The vdisk to which the drive belongs is in an invalid state and cannot be reconstructed.

This occurs because of the loss of redundancy that results from more disk failures than a given RAID level can recover. This fix is in progress and will be available in a future release.

## *DNS Delays on Windows Hosts*

To avoid DNS-lookup delays, be sure arrays are connected. Otherwise, Windows might take a long time looking up information for arrays that are not being managed by CAM, if you have them listed in the system as being connected to the system. Make sure the array names are in DNS or add them to the hosts table in the Windows OS.

---

**Note** – This does not apply to JBOD array unless there is a mixture of JBOD's along with arrays that are communicated with via Ethernet.

---

## *Drive Order Cannot Be Specified During Volume Creation*

**Bug 6515237** –CAM does not allow the disk drive order to be specified during volume creation.

**Workaround** – Use the CLI to specify disk drive order.

## *Error Message During Data Replication Configuration is Misleading*

**Bug 6498717** –When creating a data replication set, if the primary array cannot communicate with the secondary array, a misleading error message displays stating that it is “unable to get volume candidate list from array.”

**Workaround** – Verify that the arrays can communicate before replicating data.

## *Errors - General Password Mismatch*

**Bug 6590097, 6577775, 6592717, 6592703** –Using an invalid array password may result in configuration error messages.

**Workaround** – Use the correct array password.

## *Jobs Checkbox does not Display; Job will not Cancel*

**Bug 6600387** –When a long job is running, such as large volume creation, the Cancel checkbox does not display on current job status. Some jobs cannot be cancelled once they have started on the array.

**Workaround** –If the queue includes multiple jobs for the array to perform, the job can be cancelled at the point where the GUI sends the next job to the array.

## *Registration Page Displays Upon Initial Installation*

When you install the CAM software for the first time, upon logging into the Browser User Interface, a registration page will display. Fill out the information before continuing.

During the initial storage array registration process, CAM prompts you to register with the Auto Service Request service by displaying the Auto Service Request (ASR) Setup page. This page continues to display until you either fill out the page and click OK, or click Decline to either decline or defer ASR service registration.

---

**Note** – You must register the array with ASR before using the Test button.

---

## *Volume Copy License Not Enabled in Microsoft Internet Explorer 7*

**Bug 6684322** –Cannot enable volume copy license by specifying the license file using Internet Explorer 7.

**Workaround** –Internet Explorer version 7 is not supported. Use a supported browser listed in [TABLE 10](#).

## *Windows DNS Issue*

There may be significant DNS delays on Windows hosts.

**Workaround** –To avoid DNS-lookup delays, be sure arrays are connected. Otherwise, Windows might take a long time looking up information for arrays that are not being managed by CAM, if you have them listed in the system as being connected to the system. Make sure the array names are in DNS or add them to the hosts table in the Windows OS.

---

**Note** – This does not apply to JBOD array unless there is a mixture of JBOD's along with arrays that are communicated with via Ethernet.

---

## *Windows Installation -- Prerequisite*

1. **Before installing CAM on Windows, be sure the file or directory “%SystemDrive%\Program” does not exist.**

This file can prevent some applications from functioning properly.

2. **If it does exist, rename the file to “%SystemDrive%\Program1.”**

### *Windows Proxy issue: proxycfg.bat does not exist*

**Bug 6709828** –When using either the command-line interface only or command-line interface with firmware option for installation on the Windows platform, other CAM installations are unable to discover the JBOD array via the Windows proxy (%ProgramFiles%\Sun Microsystems\Common Array Manager\Component\fms\sbin\proxycfg.bat).

**Workaround** –Because the proxy has not been set up correctly on the Windows platform during installation, you must manually execute the proxycfg.bat file.

## Configuration Issues

### *CLI Error -- Connection Failed*

**Bug 6635453** –sscs displays “Connection failed!” error when user’s home directory or its files cannot be read.

**Workaround** –If you get a “Connection failed!” error when using the CAM CLI command sscs, do the following:

- 1. Check the value of the HOME environment variable and that it is set to you home directory.**
- 2. Verify that \$HOME/.sscs\_conf, if it exists, has owner read and write permission.**

### *CLI: J4200/J4400 Controller Unable to Modify Date*

**Bug 6730975** –CLI: Cannot modify date on J4200 controller. Error says invalid resource-type value was used.

**Workaround** –The J4200/J4400 JBODs only support syncTime:

```
sscs service --array J4400_box1 syncTime
```

```
Executing the syncTime command on J4400_box1
```

```
Completion Status: Success
```

### *CLI Uninstall Yields Errors*

**Bug 663281** –If gettext rpm is not present on Suse 9 platform, CLI uninstall gives error messages.

**Solution** –This is not a workaround but a solution to this issue. Before installing CAM on a Suse 9 platform, you must install the following RPM packages:

- libgcj-3.3.3-43.24.x86\_64.rpm
- gettext-0.1.14.1-30.1.x86\_64.rpm

See [“Uninstalling a Previous CAM Version”](#) on page 23.

### *Communication Test May Return False Results*

**Bug 6597344** –Clicking the Test Communications button for an offline controller may erroneously report that the communications test has passed.

**Workaround** –Verify a controller’s offline state by viewing its alarms.

### *Disabled Snapshot will be Reenabled after a Firmware Update*

**Bug 6529172** –A snapshot volume that is disabled will be automatically reenabled after a firmware update occurs. If the snapshot volume is full, it can start generating warning events.

**Workaround**–Disable the snapshot again after the firmware update.

### *Events Page Advanced Filter Does Not Display Events*

**Bug 6727335** –Attempting to view communication events via the UI Events advanced filter returns an empty list. An empty list is also returned when Removal Events is selected. Filter does not find any events.

**Workaround** –In progress. To be fixed in a future release.

### *J4500 Nickname Not Seen During Firmware Upgrade*

**Bug 6738923** –Nickname not set on second expander B0/B1; original name seen during firmware upgrade.

**Workaround** –This is a limitation of the hardware. There is no workaround at this time.

## *J4500 Registered Name is Offset by Character*

**Bug 6745468** –Registered name is offset by a character from the physical sticker identifier.

**Workaround** –This is expected behavior. The physical sticker indicates the base WWN shared by all four expanders. This offset does not affect ASR registration, because the chassis WWN is used to register rather than the nickname.

## *J4500 Hot Plug Issues - Linux*

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**Note** – Issues listed in this section are in progress and will be updated with the CAM 6.2 release. For further details, contact your technical support representative.

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Two categories of J4500 Hot Plug issues have been identified: Those that require a Linux host reboot and those in which the hot plug is not supported. These are separated into two sub-sections as follows:

- 1. Linux host reboot is required if the array or any of its components are not recognized after changes such as cable re-configurations, firmware upgrades, etc.**
  - Registration, firmware upgrades AL/RW/J4500, Failed FRUs drives, ALT SIMs.
  - Sun StorageTek SAS RAID HBA hot plug is not supported.
  - Sun StorageTek SAS RAID HBA is inconsistent with CAM reports and missing FRU disk information. This is expected J4500 registration behavior during SAS bus re-scan.
  - Firmware upgrade failed for Sun Blade 6000 Disk Module.
  - J4500 - Name issues during registration and upgrade connected to B0/B1 side.
  - J4500 - Linux J4500 registration - `sg_map -i` must be clear of all errors or it will fail; leads to host reboot to clear `sg_map`.

**Bug 6688831** –Linux Operating Systems hang when JBODs are disconnected from Sun StorageTek PCI-Express SAS Host Bus Adapter B3.

**Bugs 6688831 and 6692819** –RHEL4 U6 64-bit Operating System hangs when Failed disk is recovered on JBOD 4000.

**Bugs 670618 and 6731595**–AL/RW: Sun StorageTek PCI-Express SAS Host Bus Adapter B3: SuSE 9 SP4: Multipath (device mapper): Alternate SIM failure causes host to hang.

**Bug 6730211** –CAM: Linux RHEL5.2: PANIC when upgrading SIM firmware on J4000 array family with Sun StorageTek PCI-Express SAS Host Bus Adapter.

**Bug 6730678** –AL/RW: Sun StorageTek PCI-Express SAS Host Bus Adapter B3: SuSE 9 SP4: Multipath (device-mapper): Alternate SIM failure causes host to hang.

**Bug 6732411** –AL/RW: Sun StorageTek PCI-Express SAS Host Bus Adapter B3: SLES9SP4: Multipath: Lost Communication to AL/RW after CAM SIM firmware upgrade.

**Bug 6732925** –RHEL5.2 J4000 array family: Panic when SIM is pulled while running IO on Sun StorageTek PCI-Express SAS Host Bus Adapter.

**Bug 6737779** –J4000 array family: SUSE10: Loss of communication after upgrade of SIM and DISK Firmware.

**Bug 6738394** –SUSE10:RW:SATA drives Replacing cable in HBA causes multipath -l to loose info in sysfs & device-map.

**Bug 6741578** –Cannot register J4500 on Linux until host reboot3.

**Bug 6741693** –RHEL5.2: Upgrade of SIM and disk firmware using CAM CLI causes panic.

**2. Sun StorageTek SAS RAID HBA hot plug is not supported. Generally, the workaround is to reboot the array between any cable changes etc.**

- For J4500 arrays, SAS discovery and inventory of drives blocks CAM registration of any inband\_discover devices. This re-scan takes green-light 20 minutes to cascade.
- Sun StorageTek Raid Manger and CAM reports are inconsistent, missing Windows disk information.

**Bug 6723686** –J4500 failed disk drive (Sun StorageTek SAS RAID HBA) not reported by CAM.

**Bug 6732704** –J4500 Windows agent (Sun StorageTek SAS RAID HBA) 0.0 MB reported; drive FRU missing unique identifier.

**Bug 6739921** –Enclosure management device properties still shows old J4500 firmware version after upgrade.

## *Installation Fails When Another Version is Already Installed*

**Bug 6729062** –CAM fails to install on Windows with another version already installed.

**Workaround** –If either of the following two instances occur, use the procedure that follows:

- The following error occurs at any time during CAM installation: “Another version of this product is already installed. Installation of this version cannot continue. To configure or remove the existing version of this product, use Add/Remove Programs on the Control Panel.”
  - Uninstallation of CAM cannot clean up the Windows registry
1. **Download the Windows Installer CleanUp Utility from the following website: <http://support.microsoft.com/kb/290301>**
  2. **Install the Windows Installer CleanUp Utility, by running msicuu2.exe.**
  3. **Execute the Windows Installer CleanUp Utility.**
  4. **Select and remove all CAM components from the Windows Installer CleanUp Utility.**

## *Java Web Console Version 3.0.2 Goes into Maintenance Mode*

**Bug 6657309** –After several minutes of inactivity, the Sun Java(TM) Web Console Version 3.0.2 goes into maintenance mode and yields errors similar to the following:

```
m4000 gconfd (noaccess-2277): I can't write to '/var/tmp/orbit-noaccess', ORB init failed
```

```
m4000 svc.startd[7]: system/webconsole:console failed: transitioned to maintenance (see 'svcs -xv' for details)
```

```
svc:/system/webconsole:console (Java web console)
```

```
State: maintenance since Tue Jan 22 14:08:06 2008
```

```
Reason: Method failed.
```

```
See: http://sun.com/msg/SMF-8000-8Q
```

```
See: man -M /usr/share/man -s 1M smcwebserver
```

```
See: /var/svc/log/system-webconsole:console.log
```

```
Impact: This service is not running.
```

**Workaround** –For unix hosts, set the directory permission to 01777 (i.e., `chmod 01777 /var/tmp`) and restart the console.

## *Patch for Linux Hosts*

**Bug 6701605** –WebConsole 3.1 patch is breaking the CAM UI on Linux host.

**Workaround** –Download patch 125954-16 or later from [sunsolve.sun.com](http://sunsolve.sun.com) for Linux hosts and apply it to the CAM server to upgrade the WebConsole to 3.1. For Solaris and Windows, the upgrade is seamless but for Linux the CAM interface might have problems in which case you can refer to your Linux documentation.

Fix in progress. Look for version -17 to come out for the WebConsole 3.1 patch soon.

---

**Note** – For the latest patches available for your system, check SunSolve at <http://www.sunsolve.sun.com>

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## *Primary Volume in a Replication Set Cannot Exceed the Size of the Secondary Volume*

**Bug 6596281** – If a data replication set is created between two volumes with the primary volume having a size less than the secondary volume, the primary volume can be expanded till it reaches the size of the secondary volume.

## *Replication Status May be Listed Incorrectly when the Primary Volume Fails*

**Bug 6561709** –When the primary volume in a replication set fails, the management software may incorrectly list the volume as replicating.

## *Replication Set Detail Page Shows Incorrect Dedicated Port*

**Bug 6684018** –Replication Set Detail page shows an incorrect replication dedicated port for 6540 array.

The fix will be delivered in a future release of CAM software.

## *Serial Numbers Not Used as Device Identifier*

**Bug 6736979** –The J4500 and Sun Blade 6000 Disk Module display invalid Serial number data. Expander id is not the Serial number.

**Workaround** –None. Serial numbers will be used as device identifiers in a future release.

### *Service Advisor Does Not Verify Disk is Ready to be Removed*

**Bug 6501029** –When the management software lists a disk as failed and the Service Advisor procedure for replacing drives is followed, the step to verify that the disk is ready to remove may not list the failed disk.

**Workaround** –Use an alternative menu option, Array Troubleshooting and Recovery, to view the status of the disk.

### *Snapshot Quantity Incorrect: Snapshot Details and License Summary Pages*

**Bug 6681459** –There is a discrepancy in the snapshot quantity shown on Snapshot details and License summary pages.

**Workaround** –Use the License page for accurate snapshot quantity details.

### *Snapshot Reserve Error When -Z Option is Used*

**Bug 6665092** –When used together, the -Z option overrides the -L option.

Therefore, the following command yields an error:

```
/sscs create -a 6540-1 -V master-vol-1 -f failsnapshot -m res-vol-1 -Z 5GB -w 50 -C 1  
-L average snapshot snap-1.
```

**Workaround** –Do not use the -Z option. Instead, use the -w option.

---

**Note** – The -Z option is not supported on any array other than the 6920.

---

### *Snapshot Reserve Space is Insufficient and Fails Resnap*

**Bug 6523608** –Refreshing a snapshot does not update the filesystem if there is insufficient reserve space, yet a message displays indicating success. The array's event log says the resnap completed successfully.

**Workaround** –In the snapshot feature of the management software, configure snapshots to fail if sufficient reserve space is not available. The fail message will prompt you to increase the reserve space.

## *Snapshot Volumes do not Support Read-ahead*

**Bug 6560461** –Although both the base volume and the snapshot reserve volume support read-ahead, the snapshot volume itself does not support read-ahead. As a result, the Read-ahead Enabled Option is set to False on the Snapshot Details page.

This works as designed.

## *Volumes not Created Using Fractional Sizes*

**Bug 6665635** –Creating volumes with sizes that contain a fraction does not work in locales using a comma as decimal point. The check for a legal numeric value is not localized, but the interpretation of the number afterwards is. If you correctly enter the locale with a comma as 17,352, you will get this error message: “You must provide a numeric capacity value.” The check for a legal numeric value is not localized, but the interpretation of the number afterwards is.

**Example** –When you create a volume with 17.352GB under the standard “en” locale, you can enter the size as 17.352 and select GB as unit. However, under the “de” locale, the dot is interpreted as 1000-separator. A 17.352 size with a 1GB unit would try to create a ~17 TB volume and likely fail with this error message: “The size entered for the new volume exceeds the maximum space available on the selected pool.”

**Workaround** –For GB and TB values you can multiply by 1024 and enter as MB or GB. You can perform one of the following tasks:

- Remove or modify the check for a numeric value, so that values containing a comma can pass.
- Always interpret the value entered in the “en” locale.

## *Volume Segment Size Associated Requires a New Profile with a Variable Number of Disks when Changed*

**Bug 6599933** –Changing a volume created with a one segment size to one with a different segment size requires that you create a new profile with the desired segment size, create a pool using that profile, and apply the new pool to the volume. However, if the original profile was created using a fixed number of disks instead of a variable number of disks, then an error is returned.

**Workaround** –Adjust the new profile so that the number of disks is variable instead of fixed.

## *Write Consistency Group Members Not All Consistent*

**Bug 6598844** –Members of a replication write consistency group should all have matching attributes and roles.

## Documentation Issues

### *CLI Command Changes for `sscs map initiator` and `sscs map snapshot`*

**Bug 6599146** –Although the CLI command `sscs map initiator` is listed in the CLI manpage, it is not implemented. And, although the CLI manpage lists the `-i` option for use with the CLI commands `sscs map volume` and `sscs map initiator`, this option is not yet implemented.

### *CLI Guide `sscs Error`*

**Bug 6710961** –CLI Quick Reference contains an error in the `sscs` list in this example:

List the field replaceable components in this device.

```
sscs list -d device-name [-t battery | ctrl | disk |  
midplane | pcu | sfp | all] [-s] [-f string] [-l string]  
fru [string,...]
```

The option “all” should be removed so the command reads like so:

```
sscs list -d device-name [-t battery | ctrl | disk |  
midplane | pcu | sfp] [-s] [-f string] [-l string]  
fru [string,...]
```

The 6.2 version of the CLI Quick Reference Guide will show the correct information.

## *CLI Guide: Special Characters Note Correction*

*Sun StorageTek Common Array Manager sscs (1M) CLI Quick Reference Guide (part number 820-2932) says: “Do not use spaces, commas, colons (:), or the special characters ?,\*,!,@,%, or & as a character in any name you specify. Numbers in braces {0} and {1} represent variables.”*

The *correct* wording in the note should be as follows:

Do not use spaces, commas, colons (:), or the special characters ?,\*,!,@,%, or & as a character in any name you specify unless you are prepared to escape them in the shell. Numbers in braces {0} and {1} represent variables in some error messages.

## *CLI - List Firmware Command Correction*

In “list firmware,” “-x unit-type” should be “-x fru-type.”

In synopsis and options, fru-type and unit-type are used in an interchangeable way. For both -t and -x, use “fru-type” instead of “unit-type” to be consistent.

## *CLI - sscs modify firmware Command -p Option Requires the File Path of the Firmware Image*

The *CLI Quick Reference Guide* and the *CLI manpage* docs do not specify that when using the -p option with the sscs modify firmware command, you must supply the file path of the firmware image file.

## *CLI - sscs modify volume Command Correction*

**Bug 6592776** – The manpage for the CLI command sscs modify volume should define the usage for the -c option, which enables you to select a controller, as follows:

```
[ -c, --controller A | B ]
```

### *Service Locate Command for the -o Option -- 6140 sscs man page error*

**Bug 6686472** –The 6140 sscs man page describes the wrong usage for the -o --off option in the sscs service locate command. The -o option is used to turn off the locate LED. The man page incorrectly states it is use to place a FRU into a failed state.

For /opt/se6x20/cli/bin: man -M /opt/se6x20/cli/man sscs-6140, the man page should display the following:

```
service -a|--array <array-name> [-t|--target <string>] [-o|--off] locate
```

```
service
```

```
rt:
```

```
locate
```

```
r:
```

```
-a|--array<array-name>
```

```
o:
```

```
[-o|--off]
```

```
[-t|--target<string>]
```

### *Volumes Supported on the Sun StorageTek 6130 Array up to 1022*

**Bug 6540170** – CAM can be used to create up to 1022 volumes (volumes 0 through 1021) on the Sun StorageTek 6130 array. However, if the Access LUN is in use, up to 1023 volumes (volumes 0-1022) can be created. If you attempt to create more than the supported number of volumes, an error message is returned.

### *Volume Copy not Supported for 2500 Arrays*

Sun StorageTek 2500 series does not support volume-copy. Any instances in the Browser User Interface or documentation that imply there is a command or function for this task is misleading.

# Firmware Issues

## *6220 Expander Firmware Upgrade Fails on Suse9 x6220 Blade Server*

**Bug 6736935** –From a x6220 blade running Suse 9, expander firmware upgrade fails, displaying the message “Error upgrading firmware. Check the following error message and array alarm page for possible problems. - expander reset failed - FWR\_NO\_ERROR, 0.” After the failure, some of the expanders do not display on the FRU detail pages. In this state, re-running firmware upgrade may lead to system issues.

**Workaround** –Reboot the host and verify that all expanders show from the FRU detail pages. Retry the firmware upgrade.

## *New 7.10.x.xx Firmware Supported in 6.1.2*

To avoid issues regarding the new 7.10.x.xx firmware:

- Contact Sun Microsystems Support Services (see [“Service Contact Information” on page 65](#)) to upgrade from 06.xx firmware baseline to 07.10.x.xx firmware for the 6140, 6540, and FLX380 arrays.
- After the initial installation of 07.10.xx.xx, you can install future changes to the 07 firmware baseline using the normal upgrade procedures in CAM described in this document.
- Be aware that the firmware upgrade utilities provided with CAM 6.1 are not able to perform the upgrade operation from 06.xx firmware baseline to the 7.10.xx.xx firmware release.

## *Install Wizard Might Display a False Warning*

**Bug 6593508** – The review step of firmware Install wizard might display a false warning that the array health is not optimal.

**Workaround** –Check the Alarm Summary page to verify the alarm.

# In-Band Array Management Issues

There are two different agents that can be used for communication to arrays via the in-band (data) path, dependant upon the array type: the CAM Proxy Agent and the RAID Array LSI Proxy Agent. In-band management is supported on the Sun StorageTek 6130, 6140, 6540, 2530 and 2540 arrays. The CAM Proxy Agent is to be used for J4xxx and Sun Blade 6000 Disk Module.

## About the RAID Array Proxy Agent

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**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

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The in-band management proxy agent is a package which is added to a host (or group of hosts) with in-band connectivity via Fibre Channel to the storage array. An external management station can then talk to this proxy host via an out-of-band connection and the management commands are then relayed to the storage device via the in-band path. This is a transparent proxy agent which simply converts the RPC request packets to UTM SCSI- specific messages. The API CAM uses to manage the arrays is identical whether the array is managed via the in-band or out-of-band path.

Multiple in-band proxy hosts may be used to access the same array and multiple arrays are allowed behind a single proxy host.

Installation of the proxy agents is accomplished via the standard package addition tools inherent to the specific operating system. For example, the `pkgadd (1M)` command would be used to install the Solaris agent and the associated Java Runtime package should also be installed. For Linux, the packages are RPM based and a runtime package is also needed. For windows, the installation packages are executable files that include their own “Install Anywhere” installer.

---

**Note** – CAM 6.1 added support for Solaris (x86) and Windows proxy agents.

---

## Known RAID Array Proxy Agent Limitations

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**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

---

A proxy agent restart is required after disruptive changes to the storage configuration. This does not apply to changes in volumes exposed from a single array but it does apply if storage arrays are re-cabled differently or if the storage array configuration has changed (i.e. adding new storage arrays to the configuration).

The in-band proxy agents will start when the host boots, but they will terminate if storage is not immediately seen. A restart of the agent (instructions below) will force a re-scan for storage arrays and, if any are found, the agent will remain running.

## Solaris: Checking the UTM LUN's and Start/Stop of the Proxy Agent

---

**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

---

Download CAM in-band proxy agents for Solaris from here:

<http://www.sun.com/download/products.xml?id=471e7573>

To verify the host sees the arrays management (UTM) LUN, do the following:

1. Start / Stop the Agent (Solaris):

```
/opt/SMgr/agent/SMagent start
```

If the agent is already running, this will stop and then restart it.

2. Check the status of the agent:

```
# ps -ef | grep SMagent | grep -v grep
root 5144      1    0 11:58:24 pts/3          0:01
/opt/SMgr/agent/jre/bin/java -classpath
/opt/SMgr/agent/SMagent.jar devmgr.launch
```

# Linux: Checking The UTM LUNs and Start/Stop of the Proxy Agent

---

**Note** – The SMagent requires Red Hat 5.1 (also known as “5 update 1”) or higher. It is not supported on Red Hat 5.0.

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**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

---

Download CAM in-band proxy agents for Linux from here:  
<http://www.sun.com/download/products.xml?id=471e7573>

To verify the host sees the arrays management (UTM) LUN:

## 1. Start/Stop Agent

```
[root@nsvr-150 agent]# /opt/SMgr/agent/SMagent start
Stopping Agent process 12632.
SMagent started.

[root@nsvr-150 agent]# SANtricity Storage Array Host Agent,
Version 09.17.A0.03

Built Tue Dec 05 14:52:38 CST 2006
Copyright (C) 1999-2006 LSI Logic Corporation. All rights
reserved.

Checking device /dev/sda (/dev/sg0): Skipping
Checking device /dev/sdb (/dev/sg1): Skipping
Checking device /dev/sdc (/dev/sg2): Activating
Running...
```

## 2. Checking for UTM LUN

```
[root@nsvr-150 agent]# java -classpath
/opt/SMgr/agent/SMagent.jar
devmgr.versioned.agent.DeviceIdentifier | grep "Volume
Access" /dev/sdc

(/dev/sg2) [Storage Array fms-lca1, Volume Access, LUN 31,
Volume ID <600a0b80002fc07400000000000000000>]
```

# Windows: Checking The UTM LUN's and Start/Stop of the Proxy Agent

---

**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

---

To verify the host sees the arrays management (UTM) LUN, do the following:

1. Start/Stop Agent

```
E:\Program Files (x86)\StorageManager\agent>net start
"SANtricity Storage Manager Agent"

The Storage Manager Agent service is starting.

The Storage Manager Agent service was started successfully.
```

2. Checking for UTM LUN

```
E:\Program Files (x86)\StorageManager\agent>C:\Java\
jdk1.5.0_11\bin\java -classpath SMagent.jar
devmgr.versioned.agent.DeviceIdentifier |
findstr Access

\\.\PHYSICALDRIVE0 [Storage Array fms-lca1, Volume Access,
LUN 31, Volume ID <600a0b80002458d20000000000000000>]

\\.\PHYSICALDRIVE1 [Storage Array fms-lca1, Volume Access,
LUN 31, Volume ID <600a0b80002fc074
```

## *Access LUN does not Correlate with Host to which it is Mapped*

---

**Note** – This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

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**Bug 6584815** –When an access LUN is mapped to a proxy agent host for in-band management use, you must correlate the mappings between the LUNs and the host by using the `format` command at the UNIX prompt. The system will list the access LUNs and the array ports from the UI or the CLI, and it will then compare the results.

For example:

**a. format**

```
7. c8t0d31 <SUN-UniversalXport-9617 cyl 8 alt 2 hd 64 sec 64>
    /pci@8,700000/fibre-channel@2/fp@0,0/ssd@w200500a0b82fbc3c,1f
13. c9t0d31 <SUN-UniversalXport-9617 cyl 8 alt 2 hd 64 sec 64>
    /pci@8,700000/fibre-channel@2,1/fp@0,0/ssd@w200400a0b82fbc3c,1f
```

**b. List the array ports using the UI or CLI:**

```
A/1 A Up FC 2 Gbps 20:04:00:A0:B8:2F:BC:3B
A/2 A Up FC 2 Gbps 20:04:00:A0:B8:2F:BC:3C
B/1 B Up FC 2 Gbps 20:05:00:A0:B8:2F:BC:3B
B/2 B Up FC 2 Gbps 20:05:00:A0:B8:2F:BC:3C
```

**c. Correlate WWN's**

In this example, Port A/2 exposes c9t0d31 and Port B/2 exposes c8t0d31

## *Array Removal Might Not Complete Successfully*

**Bug 6593318** – When a number of in-band managed arrays are selected for removal, the operation appears to complete successfully. However, one array may still be listed on the Storage System Summary page.

## *Controller Resetting Issues on an In-band Managed Array*

This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

For best performance, ensure both controllers are connected during configuration.

**Bug 6603978** –The controller for an in-band managed array cannot not be reset even when physical connectivity between the array and the management host has been verified.

**Workaround** –If physical connectivity is valid, un-register and then re-register the array.

## *Error: Could not Communicate with Controller to Complete Request*

This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

**Bugs 6610504, 6609734, 6609155, 6607104, 6609732, 6612120** –An occasional problem exists where the in-band proxy agent may return the paths to the controllers in reverse order. This error can occur on any platform.

The net result is an immediate communications error. The error message will typically read “Error: Could not communicate with the controller to complete this request. Possible causes include network or connection problems, controller problems, or no power to the host or storage array. Check these possible causes, then retry the operation.”

This error might occur when performing the following operations:.

- volume expansion
- snapshot copy, re-snap and disable
- virtual disk defragmentation

**Workaround** –Change the Current Volume Ownership when a “communication error” is encountered during volume expansion: From the Volumes page, select the “Specific Volume” and then change the value of the “Owning Controller.”

Changing the Current Volume Ownership will create an Alarm because the volume is not on the preferred controller. Select one of two actions:

- Change the Volume back to the original owner after performing the desired command.
- Change the Preferred Volume Ownership of the desired volumes via sscs(1m).

For best performance, ensure both controllers are connected during configuration.

## *Firmware Upgrade through In-band Remote Proxy Does Not Download Manufacturing Image for J4500 and B6000*

**Bug 6739547** –If you have selected the Remote Proxy Only Without Firmware Custom Install option, the manufacturing image does not download. When CAM runs firmware upgrade of remote proxy in-band array expanders, the manufacturing image download is skipped.

**Workaround** –When installing a remote proxy: From the Custom Install menu of the CAM installer, select the option to install both remote proxy and array firmware.

## *Linux (Red Hat) 5.1 Version is Required - 5.0 not Supported*

This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

**Bug 6661742** – SMagent-LINUX-10.00.A2.02-1.i386.rpm will not load. SMagent is not supported on Redhat 5.0.

**Workaround** – The SMagent requires Red Hat 5.1 (also known as “5 update 1”) or higher.

## *Network Address Column Shows Change from Out-of-band to In-band when Registering an In-band Array*

This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

**Bug 6612214** – When one of the arrays behind an in-band management proxy is removed in CAM, the software will change the management of the other arrays behind the proxy to out-of-band management if that path exists. An in-band discovery of the proxy agent would return them to in-band management in this case.

## *Performance Monitoring Page Does Not Display In-band Statistics*

This information applies only to FLX240, FLX280, FLX380, 6130, 6140, 6540, 2510, 2530 and 2540 arrays.

**Bug 6681582** –Performance Monitoring page lists the Performance statistics as Unavailable.

**Workaround** –Check the physical connectivity from the management host to the array. If the connectivity is good, try un-registering and then re-registering this array.

## Localization Issues

### *Apostrophe Displays Incorrectly for French*

**Bug 6648569** –Apostrophes display incorrectly in the Browser User Interface in some cases for the French language.

**Workaround** –Please set your browser language to en-us.

### *Event and Alarm Page has Parsing Exception*

**Bug 6734714** –A parsing exception is thrown on Event and Alarm page with fr or ja or zh\_cn languages of your browser.

**Workaround** –Please set your browser language to en-us.

### *FRU Details Pages in English*

**Bug 6739084** –Some messages are still in English under local language of browser on FRU details pages for J4500 and Sun Blade 6000 Disk Module.

**Workaround** –Please set your browser language to en-us.

### *zh Locale Error for Online Help*

**Bug 6747749** –For the zh locale, the first link on the left panel is not working for Online help.

**Workaround** –Please set your browser language to en-us.

# Solaris Issues

## *SES vs. SD Paths for UTM LUNs*

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**Note** – This information applies only to 6000 and 2500 arrays.

---

**Bug 6500605** –For Solaris 10u4 and Solaris 8 and 9, the host cannot see the storage device's management UTM LUN.

---

**Note** – This bug is fixed in S10u5.

---

**Workaround** –Perform the following commands on the data host:

```
# setenv LD_LIBRARY_PATH /opt/SMgr/agent
# java -classpath /opt/SMgr/agent/SMagent.jar
devmgr.versioned.agent.DeviceIdentifier | grep "Volume
Access"
```

You should then receive output like the following, indicating which arrays have access LUNs visible to the agent:

```
/dev/rdisk/c5t200600A0B82458D4d31s2 [Storage Array fms-lca1,
Volume
Access, LUN 31, Volume ID <600a0b80002458d20000000000000000>]
/dev/rdisk/c5t200700A0B82458D3d31s2 [Storage Array fms-lca1,
Volume
Access, LUN 31, Volume ID <600a0b80002fc07400000000000000000>]
```

## *UTM LUNs Controlled by "Solaris Traffic Manager"*

This information applies only to 6000 and 2500 arrays.

**Bug 6594360** –After you upgrade to S10U3 (or later), the in-band management UTM LUN's are controlled by Solaris Traffic Manager (MPxIO). In most cases, in-band management will not fail as a result of this; however, it is best practice to ensure that the UTM LUN's are not controlled by MPxIO. Performing the following workaround task will help prevent problems.

**Workaround** –Use the `format inquire` command to get the eight-character Vendor (VID) and Product IDs. Follow the procedure on the next page.

### **1. Edit the file `/kernel/drv/scsi_vhci.conf`**

The following line should read:

```
device-type-scsi-options-list = "SUN Universal Xport",  
"disable-option"; disable-option = 0x7000000
```

### **2. Run the `stmsboot -u` command.**

Respond to the prompts as follows:

```
WARNING: This operation will require a reboot.
```

```
Do you want to continue? [y/n] (default: y) y
```

```
The changes will come into effect after rebooting the system.
```

```
Reboot the system now? [y/n] (default: y) y
```

---

## Service Contact Information

If you need help installing or using this product, go to:

<http://www.sun.com/service/contacting>

For the latest patches available for your system, check SunSolve at:

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

To download Common Array Manager software, go to <http://www.sun.com>, click the New Downloads tab, and scroll down the list to find the link.

To locate a document: From <http://www.sun.com/documentation>, you can type the document title, part of the title, or the specific document's part number in the "Search" field, and press Return. Then select the current document.

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