



Sun StorageTek™ Common Array Manager Software Release Notes

Release 6.2

Sun Microsystems, Inc.
www.sun.com

Part No. 820-5749-12
February 15, 2009

Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

Copyright 2009 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

This document and the product to which it pertains are distributed under licenses restricting their use, copying, distribution, and decompilation. No part of the product or of this document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any.

Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Sun StorEdge, Solaris, Java, Sun StorageTek, and Solstice DiskSuite are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S., or its subsidiaries, and in other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and in other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

Legato Networker is a registered trademark of Legato Systems Inc.

Netscape Navigator and Mozilla are trademarks or registered trademarks of Netscape Communications Corporation in the United States and other countries.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights—Commercial use. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2009 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, Californie 95054, Etats-Unis. Tous droits réservés.

Sun Microsystems, Inc. a les droits de propriété intellectuels relatants à la technologie qui est décrit dans ce document. En particulier, et sans la limitation, ces droits de propriété intellectuels peuvent inclure un ou plus des brevets américains énumérés à <http://www.sun.com/patents> et un ou les brevets plus supplémentaires ou les applications de brevet en attente dans les Etats-Unis et dans les autres pays.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a.

Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, AnswerBook2, docs.sun.com, Sun StorEdge, Solaris, Java, Sun StorageTek, et Solstice DiskSuite sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc., ou ses filiales, aux Etats-Unis et dans d'autres pays.

Netscape Navigator et Mozilla est une marques de Netscape Communications Corporation aux Etats-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciées de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ÉTAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



Adobe PostScript

Contents

Sun StorageTek Common Array Manager Software Release Notes	1
Common Array Manager Software Features	2
New Features	2
Release Contents	3
Licensing Optional Premium Features	4
Documentation	6
System Requirements	7
Supported Arrays	7
Supported Platforms and Required Packages	8
Required Patches	10
Currently Available Patches	10
File Space Requirements	11
About Windows Service Packs	12
Open Ports Required on Management Host	12
Supported Platforms for the Remote CLI Client	13
Supported Web Browsers	14
Best Practices for Browser Performance	14
Supported Languages	15
Installing Packages and Patches	16

Prerequisites	17
Supported Upgrades	18
Installation Logs	18
Installing and Upgrading CAM Software	19
Installation Requirements	19
About the Software Installation CD	20
Installing From a Downloaded File	20
CLI (Minimal) Installation	21
Performing a CLI CAM Installation	22
Uninstalling a CLI CAM Installation	23
Uninstalling a Previous CAM Version	23
Array Firmware Delivered with CAM	24
Firmware Patches	25
Firmware Installation Locations	25
Installing the Firmware Baseline	26
RAID Manager Software Drivers, Firmware, and Utilities	27
Firmware for Sun StorageTek 2500 Series Arrays	27
Third Expansion Tray (48-Drive) Cabling for 2500 Series	29
Firmware for Sun StorageTek J4000 Series Arrays and the Sun Blade 6000 Disk Module	29
Firmware for Sun StorageTek 6000 Series and FlexLine Arrays	31
CSM200 Requirements	35
About DACstore	35
Supported Expansion Modules	36
Upgrading Firmware for Additional Expansion Trays	37
Upgrading Expansion Modules	37
Upgrading Firmware for Additional Expansion Modules	38
Known Issues and Operational Information	39
Array Issues	39

Configuration Issues	46
Documentation Issues	57
Provisioning Arrays	59
Firmware Issues	62
In-Band Array Management Issues	64
About the RAID Array Proxy Agent	64
Known RAID Array Proxy Agent Limitations	65
Solaris: Checking the UTM LUNs and Start/Stop of the Proxy Agent	65
Linux: Checking The UTM LUNs and Start/Stop of the Proxy Agent	66
Windows: Checking The UTM LUNs and Start/Stop of the Proxy Agent	67
Localization Issues	71
Solaris Issues	72
Sun Microsystems Support	74
Third-Party Web Sites	74
Sun Welcomes Your Comments	74

Sun StorageTek Common Array Manager Software Release Notes

This document contains important information about Release 6.2.0 of the Sun StorageTek™ Common Array Manager software, including requirements and issues 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
- “Array Firmware Delivered with CAM” on page 24
- “Known Issues and Operational Information” on page 39
- “Sun Microsystems Support” on page 74
- “Third-Party Web Sites” on page 74

Sun Welcomes Your Comments

Sun welcomes your comments and suggestions about this document at:

<http://www.sun.com/hwdocs/feedback>

Please include the title and part number of your document with your feedback:

Sun StorageTek Common Array Manager Release Notes, part number 820-5749-12.

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. CAM software includes the following:

- Browser interface
- Local command line interface
- Remote command line interface

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.

To obtain a general overview and detailed technical information, go to:

http://www.sun.com/storagetek/management_software/resource_management/cam.

Click the "Get It" tab to obtain the latest information and version available.

New Features

- Support for the Sun Blade™ 6000 Disk Module
- Support for the Sun StorageTek 6580 and 6780 arrays, with new 7.30.xx.xx firmware
- Support for 7.15.xx.xx firmware for the Sun StorageTek 6140, 6540 and FLX380 arrays, with the following features:
 - RAID 6 (6140 arrays only)
 - >2TB LUN Support (varies with operating system)
 - Portable Volume Groups
 - Batch Volume Operations
- Support for 7.35.xx.xx firmware for the 2500 Series arrays with the following features:
 - Third Expansion Tray (48-Drive) Cabling patch
 - RAID 6

- 4, 8 and 16k Cache block sizes
- >2TB LUN Support (varies with operating system)
- Volume-Copy (optional)
- Portable VDisks
- Batch Volume Operations
- Varying Cache Block size
- IPV6 Support
- Increased Number of Global Hot Spares
- Mixed Drive Support
- 8K Cache Block size
- Support for the Sun Storage J4200 / J4400 / J4500 Arrays
- Support for in-band management for Solaris x86 and Microsoft Windows
- CLI Minimal Installation
- Remote Proxy Agent for the Sun Storage J4200 / J4400 / J4500 Arrays
- Data In Place Migration (DIPM) and the concept of portable vdisks

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	6.2.0
Java WebConsole software	3.0.5
Java 2 Software Development Kit	1.5
Firmware files	See “Array Firmware Delivered with CAM” on page 24
Remote scripting CLI client	2.1.4

Licensing Optional Premium Features

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

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 the Help pages for these topics:

- 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.xx.xx 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	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.xx.xx Controller Firmware Only

Premium Feature	6140 Array	6540 Array	6570 Array	6580 Array
Enhanced Data Snapshot	X	X	X	X
Enhanced Data Snapshot Upgrade	X	X	X	X
Enhanced Data Replicator	X	X	X	X
Enhanced Data Replicator Upgrade	X	X	X	X
2 Domains	X	X	X	X
Upgrade 2 to 4 Domains	X	X	X	X
Upgrade 16 to 32 Domains	X	X	X	X
32 Domains	X	X	X	X
Upgrade 32 to 64 Domains	X	X	X	X
Upgrade 64 to 96 Domains	X	X	X	X
96 Domains	X	X	X	X
Upgrade 96 to 128 Domains	X	X	X	X
128 Domains	X	X	X	X
Upgrade 128 to 256 Domains		X	X	X
256 Domains		X	X	X
Upgrade 256 to 512 Domains		X	X	X
512 Domains		X	X	X

Note – Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.

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 Common Array Manager Documentation

Document Description	Title	Part Number
Online Help integrated with CAM	<i>Sun StorageTek Common Array Manager Online Help</i>	820-2933
CLI command reference	<i>Sun StorageTek Common Array Manager CLI Guide</i>	820-5748
Installation and initial configuration instructions	<i>Sun StorageTek Common Array Manager Software Installation Guide</i>	820-5747
How to install, configure, and manage the J4200, J4400, and J4500 arrays using CAM software's GUI.	<i>Sun StorageTek Common Array Manager User Guide for the J4000 Array Family</i>	820-3765
How to upgrade 2500 Series Array controller firmware to version 7.35.xx.xx.	<i>Sun StorageTek 2500 Series Array Firmware Upgrade Guide</i>	820-6362
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

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](#)
- [“File Space Requirements” on page 11](#)
- [“About Windows Service Packs” on page 12](#)
- [“Supported Platforms for the Remote CLI Client” on page 13](#)
- [“Supported Web Browsers” on page 14](#)
- [“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 StorageTek 6580 Array
- Sun StorageTek 6780 Array
- Sun Storage J4200 Array
- Sun Storage J4400 Array
- Sun Storage J4500 Array
- Sun Blade™ 6000 Disk Module

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 2	1.5 GHz PC	500 Megabytes
	Windows XP Professional with Service Pack 3*		
	Windows 2008		
x64 computer	Redhat Linux 4u6	x64	500 Megabytes
	Redhat Linux 5u1		
	SuSE Linux Enterprise Server 10 SP2		
	Suse Linux Enterprise Server 9 SP4		
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 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
SUNWmfrun	Motif RunTime Kit

TABLE 6 Required Solaris Packages

File	Description
SUNWxwice	X Window System Inter-Client Exchange (ICE) Components
SUNWxwplt	X Window System platform software
SUNWxwrtl	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

File	Version
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	-
libstdc++.so.5	(CXXABI_1.2)
libstdc++.so.5	(GLIBCPP_3.2)
libstdc++.so.5	(GLIBCPP_3.2.2)

Required Patches

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

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

The latest patches on SunSolve can be quickly found by referencing the Support section of the Common Array Manager product page here:

http://www.sun.com/storagetek/management_software/resource_management/cam/support.xml

Note – Patches required to run CAM on Solaris 10 with the J4500 and Sun Blade 6000 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.

Currently Available Patches

The 6.2.0 Firmware Update patches and 6.2.0 Platform Update patches currently available will automatically update these items:

- IPv6 support for the 2510 array
- API changes and Multipath support for the J4200 and J4400 arrays

CAM 6.2.0 Firmware Update Patches

Patch 140060-01 6xxx Array Firmware, J4200/J4400 Firmware (Solaris)

Patch 140061-01 6xxx Array Firmware, J4200/J4400 Firmware (Windows)

Patch 140062-01 6xxx Array Firmware, J4200/J4400 Firmware (Linux)

CAM 6.2.0 Platform Update Patches

Patch 140064-01 CAM Platform Update Patch (Solaris)

Patch 140066-01 CAM Platform Update Patch (Windows)

Patch 140065-01 CAM Platform Update Patch (Linux)

Note – For the J4200, J4000, J4500 and the Sun 6000 Storage Module: In order to centralize the management of multiple arrays which may be connected to multiple direct attached hosts, download the entire CAM installation kit and during the installation choose the “in-band proxy agent only” option for any hosts not designated as the centralized CAM management station. The centralized CAM management station will require the “full” distribution to be installed.

File Space Requirements

TABLE 8 CAM File Space Requirements

Operating System	Disk Space	Directory Space
Solaris 8 OS 4/01	450 Mbytes	root – 5 Mbytes
Solaris 9 OS 8/03		/tmp – 185 Mbytes
Solaris 10 OS		/usr – 40 Mbytes
		/var – 125 Mbytes /opt – 450 Mbytes
Windows XP Professional Edition with SP2 Note: Windows XP Home Edition is not supported.	750 MBytes on system drive	Not Applicable
Windows 2003 with SP1 or higher Windows 2008		
Red Hat Enterprise Linux AS Releases 4 and 5.1 SuSE Linux 10 and 9	450 Mbytes	root – 5 Mbytes
		/tmp – 120 Mbytes
		/usr – 155 Mbytes
		/var – 130 Mbytes /opt – 450 Mbytes

Note – For Solaris and Linux, the base packages are installed in /opt, root and /usr, and runtime files are stored in /var and /tmp. Disk usage estimates for the runtime files are based on a large configuration with 50 storage arrays.

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 [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.” on page 5.](#)

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
 - Sun Storage J4200 / J4400 / J4500 Arrays 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 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 CLI 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

OS	Version
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/ Enterprise Edition; SP2
Windows 2008	
Windows XP Professional 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

Browser	Minimum Version
Netscape Navigator	6.2.0
Mozilla	1.4
Firefox	1.0
Microsoft Internet Explorer	5.5

Note: Version 7 is not supported.

Best Practices for Browser Performance

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

- 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.
- Recent Firefox versions may require you to accept and add a security certificate prior bringing up the authentication page.

Note – Microsoft Internet Explorer version 7 is not supported.

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 Close button.**

Supported Languages

The locales are installed as part CAM's installation and there is no need to download any additional software other than the CAM Software and most recent patch updates.

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 CLI is available in:

- English

The online Help is available in:

- English
- Japanese
- Simplified Chinese

The man pages are available in:

- English
- Japanese

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](#)
- [“About the Software Installation CD” on page 20](#)
- [“Installing From a Downloaded File” on page 20](#)
- [“CLI \(Minimal\) Installation” on page 21](#)
- [“Performing a CLI CAM Installation” on page 22](#)
- [“Uninstalling a CLI CAM Installation” on page 23](#)
- [“Uninstalling a Previous CAM Version” on page 23](#)

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

Note – Patches required to run CAM on Solaris 10 with the J4500 and Sun Blade 6000 arrays are (i386) 138129-01 and (SPARC) 138128-01. 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 a general overview and detailed technical information, go to:

http://www.sun.com/storagetek/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>

Note – Patches required to run CAM on Solaris 10 with the J4500 and Sun Blade 6000 arrays are (i386) 138129-01 and (SPARC) 138128-01. 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 4.

4. Read the installation instructions.

Refer to the appropriate documentation. See “[Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.](#)” on page 5.

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](#)” 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 at:

<http://www.sun.com/contact/support.jsp>.

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: Upgrades are supported.

Installation Logs

If installation failure occurs, check the available disk space.

For more information, consult the installation logs.

TABLE 1 Installation Logs

Platform	Installation Log Location
Solaris	<code>/var/sadm/install/se6000/se6000_Host_SW.log</code>

TABLE 1 Installation Logs

Platform	Installation Log Location
Linux	<code>/var/opt/cam</code>
Windows 32-bit	<code>%SystemDrive%\Program Files\Common Files\Sun Microsystems\se6000</code>
Windows 64-bit	<code>%SystemDrive%\Program Files (x86)\Common Files\Sun Microsystems\se6000</code>

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 [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.”](#) on page 5.

- To search for a document from Sun’s website, go to:

<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 [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.”](#) on page 5.
- Complete the array hardware installation.
- Check the installation space requirements.

To obtain a general overview and detailed technical information, go to:

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 [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.”](#) on page 5.

- To search for a document from Sun’s website, go to:

<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 a 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.

Installing From a Downloaded File

To obtain a general overview and detailed technical information, go to:

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.

CLI (Minimal) Installation

You can perform a minimal installation that enables one of two options: CLI or CLI with firmware. In both cases, this installation is approximately 10%-20% of 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 Sun Storage J4200 / J4400 / J4500 Arrays
- Local CLI
- Array configurations supported in full installation
- Optional array firmware

For complete instructions on CLI Minimal Installation, refer to the appropriate documentation. See [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.”](#) on page 5.

- To search for a document from Sun’s website, go to:

<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 [“Arrays should be named before licenses are added. Otherwise, when users select to reset storage configuration for an array, the name might not list on the License Summary page.”](#) on page 5.

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

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

Note – Array firmware files are not installed with the CLI 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 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

Note – Users must stop all applications that are running a `java.exe` or `javaw.exe` before running the uninstaller.

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_6.2.0.13\  
bin\uninstall.bat
```

For Solaris and Linux, navigate to:

```
/var/opt/CommonArrayManager/Host_Software_6.2.0.13/bin/uninstall
```

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

- `libgcj-3.3.3-43.24.x86_64.rpm`
- `gettext-0.1.14.1-30.1.x86_64.rpm`

2. To remove the current installation, enter the command `uninstall -f`

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

Array Firmware Delivered with CAM

In general, firmware delivered with CAM can be installed using CAM's Install Firmware Baseline feature. However, moving from one major firmware release to another may require special procedures.

For the 6140, 6540, and FLX380 array types, upgrading from a 06.xx.xx.xx version to 07.xx.xx.xx requires a Sun Service call. Contact Sun Microsystems Support Services at <http://www.sun.com/contact/support.jsp>.

For the 25xx array types, upgrading from a 06.xx.xx.xx version to 07.xx.xx.xx requires a special utility. Consult the *2500 Array Series Firmware Upgrade Utility Guide* (part number 820-6362).

To obtain a general overview and detailed technical information, go to:

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, go to:

<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) 138128-01.

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
- "RAID Manager Software Drivers, Firmware, and Utilities" on page 27
- "Firmware for Sun StorageTek 2500 Series Arrays" on page 27
- "Firmware for Sun StorageTek J4000 Series Arrays and the Sun Blade 6000 Disk Module" on page 29
- "Expander Board information: Sun StorageTek J4500 Array and Sun Blade 6000 Disk Module" on page 31

Firmware Patches

CAM 6.2.0 patches provide firmware updates for several arrays, an update to the J4200/J440 API and the delivery of L10N updates.

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

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

Firmware Installation Locations

CAM firmware is installed in the following locations:

- Solaris: /opt/SUNWstkcam/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/
- Firmware files are located in the images subdirectory.
 - Controller firmware is located in images/nge.
 - SIM firmware - images/qnt/*.fw
 - Disk drive firmware - images/disk/*.fw
 - Expander board firmware for J4500 is in sun/sasxfwlo.*.fw
 - Expander board firmware for Sun Blade 6000 is in sun/sasxfwnv.*.fw

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 Series and Sun Blade 6000 Disk Module.
- README_6000.txt defines the firmware baseline for the Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 arrays.

Installing the Firmware Baseline

For optimal performance, Sun Microsystems recommends that the firmware on all arrays be at the level of the current firmware baseline. The software prompts you when it's time to upgrade array firmware. You do *not* need to uninstall existing firmware before following this procedure.

Note – New features are not supported with non-baseline firmware.

1. 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.

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.

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.

RAID Manager Software Drivers, Firmware, and Utilities

RAID Manager is used only with Sun StorageTek SAS RAID host bus adapters (HBAs) for arrays in the J4000 array family.

To download drivers, firmware, and utilities for Sun StorageTek RAID Manager software:

1. Go to Sun's SAS RAID Web page at http://www.sun.com/storagetek/storage_networking/hba/raid/
2. From the Related Support section on right side of the page, select Drivers, Firmware, and Utilities.

Firmware for Sun StorageTek 2500 Series Arrays

To install the new 07.35.xx.xx firmware for the 2500 Array Series, consult the *2500 Array Series Firmware Upgrade Utility Guide* (part number 820-6362). After the initial installation of 07.35.xx.xx, you can install future changes to the 07 firmware baseline using the normal upgrade procedures in CAM described in this document ("[Firmware Installation Locations](#)" on page 25).

Note – CAM 6.2 can run on 2500 Series Arrays with Firmware version 6.70; however, in order to upgrade to controller version 7.35, the Upgrade Utility is required.

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 11 Controller Information: Sun StorageTek 2500 Series Arrays

Controller	Version	Firmware File
2510	06.70.54.11	nge/RC_06705411_desperado_apollo_1532.dlp
2510_exmoor	07.35.10.10	nge/RC_07351010_exmoor_apollo_1532.dlp
2530	06.70.54.11	nge/RC_06705411_desperado_apollo_133x.dlp
2530_exmoor	07.35.10.10	nge/RC_07351010_exmoor_apollo_133x.dlp

TABLE 11 Controller Information: Sun StorageTek 2500 Series Arrays

Controller	Version	Firmware File
2540	06.70.54.11	nge/RC_06705411_desperado_apollo_1932.dlp
2540_exmoor	07.35.10.10	nge/RC_07351010_exmoor_apollo_1932.dlp

TABLE 12 NVSRAM Information: Sun StorageTek 2500 Series Arrays

NVSRAM	Version	Firmware File
2510	N1532-670843-001	nge/N1532-670843-001.dlp
2510_exmoor	N1532-735843-002	nge/N1532-735843-002.dlp
2510-Simplex	N1532-735843-902	nge/N1532-735843-902.dlp
2510_exmoor-Simplex	N1532-735843-902	nge/N1532-735843-902.dlp
2530	N133X-670843-001	nge/N133X-670843-001.dlp
2530_exmoor	N133X-735843-002	nge/N133x-0735843-002.dlp
2530-Simplex	N133X-735843-902	nge/N133x-735843-902.dlp
2530_exmoor-Simplex	N133X-735843-902	nge/N133X-735843-902.dlp
2540	N1932-670843-001	nge/N1932-670843-001.dlp
2540_exmoor	N1932-735843-002	nge/N1932-735843-002.dlp
2540-Simplex	N1932-670843-901	nge/N1932-670843-901.dlp
2540_exmoor-Simplex	N1932-735843-902	nge/N1932-735843-902.dlp

TABLE 13 IOM Information: Sun StorageTek 2500 Series Arrays

IOM	Version	Firmware File
2500 SAS	0195	nge/esm0195.esm

TABLE 14 Disk Drive Information: Sun StorageTek 2500 Series Arrays

Disk Drive	Version	Firmware File
HDS7250SASUN500G	AJ0A	disk/D_HDS7250SASUN500G_AJ0A_LCA.dlp
HUA7210SASUN1.0T	A90A	disk/D_HUA7210SASUN1.0T_A90A_LCA.dlp
HUA7250SBSUN500G	A90A	disk/D_HUA7250SBSUN500G_A90A_LCA.dlp
HUA7275SASUN750G	A90A	disk/D_HUA7275SASUN750G_A90A_LCA.dlp

TABLE 14 Disk Drive Information: Sun StorageTek 2500 Series Arrays

Disk Drive	Version	Firmware File
HUS1514SBSUN146G	SA04	disk/D_HUS1514SBSUN146G_SA04_LCA.dlp
HUS1530SBSUN300G	SA04	disk/D_HUS1530SBSUN300G_SA04_LCA.dlp
HUS1573SBSUN72G	SA04	disk/D_HUS1573SBSUN72G_SA04_LCA.dlp
ST314655SSUN146G	0B92	disk/D_ST314655SSUN146G_0B92.dlp
ST330055SSUN300G	0B92	disk/D_ST330055SSUN300G_0B92.dlp
ST330056SSUN300G	081C	disk/D_ST330056SSUN300G_081C.dlp
ST340008SSUN0.4T	0543	disk/D_ST340008SSUN0.4T_0543.dlp
ST373455SSUN72G	0B92	disk/D_ST373455SSUN72G_0B92.dlp
ST37500NSSUN750G	3AZQ	disk/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.

Firmware for Sun StorageTek J4000 Series Arrays and the Sun Blade 6000 Disk Module

New J4200/J4400 arrays come with the firmware installed. 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.

Note – Patches required to run CAM on Solaris 10 with the J4500 and Sun Blade 6000 arrays are (i386) 138129-01 and (SPARC) 138128-01.

TABLE 15 Disk Drive Information: Sun StorageTek J4200 and J4400 Arrays and Sun Blade 6000 Disk

Disk Drive	Version	Firmware File
ST373455SSUN72G	0B92	disk/ST373455S.0B92.fw
ST314655SSUN146G	0B92	disk/ST314655S.0B92.fw
ST330055SSUN300G	0B92	disk/ST330055S.0B92.fw
ST340008SSUN0.4T	0543	disk/ST340008S.0543.fw
ST32500NSSUN250G	3AZQ	disk/ST32500NS.3AZQ.fw
ST35000NSSUN500G	3AZQ	disk/ST35000NS.3AZQ.fw
ST37500NSSUN750G	3AZQ	disk/ST37500NS.3AZQ.fw
HUA7250SBSUN500G	AC4A	disk/HUA7250SB.AC4A.fw
HUA7275SASUN750G	AC4A	disk/HUA7275SA.AC4A.fw
HUA7210SASUN1.0T	AC4A	disk/HUA7210SA.AC4A.fw
HUS1573SBSUN72G	SA04	disk/HUS1573SB.SA04.fw
HUS1514SBSUN146G	SA04	disk/HUS1514SB.SA04.fw
HUS1530SBSUN300G	SA04	disk/HUS1530SB.SA04.fw
ST31000NSSUN1.0T	SU09	disk/ST31000NS.SU09.fw
ST314656SSUN146G	081C	disk/ST314656S.081C.fw
ST330056SSUN300G	081C	disk/ST330056S.081C.fw
ST345056SSUN450G	081C	disk/ST345056S.081C.fw

Module

TABLE 16 SIM Board information: Sun StorageTek J4200 and J4400 Arrays

SIM Board	Version	Firmware File
J4200 Array	3A31	qnt/J4200.3A31.fw
J4400 Array	3R20	qnt/J4400.3R20.fw

TABLE 17 Expander Board information: Sun StorageTek J4500 Array and Sun Blade 6000 Disk Module

Expander Board	Version	Firmware File
J4500 Array	502D (5.0.2.13)	sun/sasxfwlo.5.02.13.fw
Sun Blade 6000 Disk Module	502A (5.0.2.10)	sun/sasxfwnv.5.02.10.00.fw
Sun Blade 6000 Network Express Module Plus	502A (5.0.2.10)	sun/sasxfwnv.5.02.10.00.fw
Sun Blade 6000 10 GbE Multi-Fabric Network Express Module	502A (5.0.2.10)	sun/sasxfwnv.5.02.10.00.fw

Firmware for Sun StorageTek 6000 Series and FlexLine Arrays

For 6140, 6540, and FLX380 arrays currently at the 06.xx.xx.xx level of firmware: To install the new 07.10.x.xx firmware, you must contact Sun Microsystems Support Services at: <http://www.sun.com/contact/support.jsp>.

Note – 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 18 Controller Information: Sun StorageTek 6130, 6140, 6540, 6580, 6780, FLX240, FLX280, and FLX380 Arrays

Controller	Version	Firmware File
6130	06.60.11.10	nge/RC_06601110_chromium2_apollo_288x.dlp
6140	06.60.11.11	nge/RC_06601110_chromium2_apollo_399x.dlp
6140_crystal	07.15.11.11	nge/RC_0715111_crystalM_apollo_399x.dlp
6540	06.60.11.10	nge/RC_06601110_chromium2_apollo_6091.dlp
6540_crystal	07.15.11.11	nge/RC_0715111_crystalM_apollo_6091.dlp
6580	07.30.22.10	nge/RC_07302210_emerald_apollo_7091.dlp
6780	07.30.22.10	nge/RC_07302210_emerald_apollo_7091.dlp
FLX240	06.60.11.21	nge/RC_06601121_chromium2_silverado_288x.dlp

TABLE 18 Controller Information: Sun StorageTek 6130, 6140, 6540, 6580, 6780, FLX240, FLX280, and FLX380 Arrays

Controller	Version	Firmware File
FLX280	06.60.11.21	nge/RC_06601121_chromium2_silverado_588x_06600200.dlp
FLX380	06.60.11.21	nge/RC_06601121_chromium2_silverado_6091.dlp
FLX380_crystal	07.15.11.11	nge/RC_07151111_crystalM_apollo_6091.dlp

TABLE 19 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
6140_crystal	N399X-710843-006	nge/N399X-710843-006.dlp
6540	N6091-660843-003	nge/N6091-660843-003.dlp
6540_crystal	N6091-710843-005	nge/N6091-710843-005.dlp
6580	N7091-730843-004	nge/N7091-730843-004.dlp
6780	N7091-730843-004	nge/N7091-730843-004.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
FLX380_crystal	N6091-710855-005	nge/N6091-710855-005.dlp

TABLE 20 IOM Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

IOM	Version	Firmware File
6130 FC	9681	nge/esm9681.s3r
6130 FC CSM100 trays	9681	nge/esm9681.s3r
6130 iSATA	9728	nge/esm9728.dl
6130 iSATA CSM100 trays	9728	nge/esm9728.dl
6140	98C1	nge/esm98C1.esm
6140 CSM100 trays	98C1	nge/esm98C1.esm

TABLE 20 IOM Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

IOM	Version	Firmware File
6580	98C1	nge/esm98C1.esm
6780	98C1	nge/esm98C1.esm
FLA300	9681	nge/esm9681.s3r
FLA200	9330	nge/esm9330.s3r
FLC200 iSATA	9728	nge/esm9728.dl
FLC200 iSATA CSM100 trays	9728	nge/esm9728.dl
FLC200 dSATA	9566	nge/esm9566.dl
FLC200 dSATA CSM100 trays	9566	nge/esm9566.dl

TABLE 21 Disk Drive Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

Disk Drive	Version	Firmware File
HDS7225SCSUN250G	0603 (LP1153-A5DA)	disk/D_HDS7225SCSUN250G_0603.dlp
HDS7240SBSUN400G	AC7A	disk/D_HDS7240SBSUN400G_AC7A.dlp
HDS7250SASUN500G	0604 (LP1153-AJ0A)	disk/D_HDS7250SASUN500G_0604.dlp
HUA7210SASUN1.0T	0609 (LP1153-AC4A)	disk/D_HUA7210SASUN1.0T_0605.dlp
HUA7250SBSUN500G	0609 (LP1153-AC4A)	disk/D_HUA7250SBSUN500G_0605.dlp
HUA7275SASUN750G	0609 (LP1153-AC4A)	disk/D_HUA7275SASUN750G_0605.dlp
HUS1014FASUN146G	2A08	disk/D_HUS1014FASUN146G_2A08.dlp
HUS1030FASUN300G	2A08	disk/D_HUS1030FASUN300G_2A08.dlp
HUS1073FASUN72G	2A08	disk/D_HUS1073FASUN72G_2A08.dlp
MAT3073FSUN72G	1403	disk/D_MAT3073FSUN72G_1403.dlp
MAT3147FSUN146G	1403	disk/D_MAT3147FSUN146G_1403.dlp
MAT3300FSUN300G	1403	disk/D_MAT3300FSUN300G_1403.dlp
MAW3073FCSUN72G	1303	disk/D_MAW3073FCSUN72G_1303.dlp
MAW3147FCSUN146G	1303	disk/D_MAW3147FCSUN146G_1303.dlp
MAW3300FCSUN300G	1303	disk/D_MAW3300FCSUN300G_1303.dlp
MAX3073FDSUN72G	0403	disk/D_MAX3073FDSUN72G_0403.dlp

TABLE 21 Disk Drive Information: Sun StorageTek 6130, 6140, 6540, FLX240, FLX280, and FLX380 Arrays

Disk Drive	Version	Firmware File
MAX3147FDSUN146G	0403	disk/D_MAX3147FDSUN146G_0403.dlp
ST314655FSUN146G	3092	disk/D_ST314655FSUN146G_3092.dlp
ST314670FSUN146G	071C	disk/D_ST314670FSUN146G_071C.dlp
ST314680FSUN146G	055A	disk/D_ST314680FSUN146G_055A.dlp
ST314685FSUN146G	042D	disk/D_ST314685FSUN146G_042D.dlp
ST314695FSUN146G	0409	disk/D_ST314695FSUN146G_0409.dlp
ST32500NSSUN250G	0605 (LP1153-3AZQ)	disk/D_ST32500NSSUN250G_0605.dlp
ST330000FSUN300G	055A	disk/D_ST330000FSUN300G_055A.dlp
ST330055FSUN300G	3092	disk/D_ST330055FSUN300G_3092.dlp
ST330055FSUN300G	071C	disk/D_ST330055FSUN300G_071C.dlp
ST340008FSUN0.4T	0343	disk/D_ST340008FSUN0.4T_0343.dlp
ST330055FSUN450G	071C	disk/D_ST330055FSUN450G_071C.dlp
ST35000NSSUN500G	0605 (LP1153-3AZQ)	disk/D_ST35000NSSUN500G_0605.dlp
ST373207FSUN72G	055A	disk/D_ST373207FSUN72G_055A.dlp
ST373307FSUN72G	0407	disk/D_ST373307FSUN72G_0407.dlp
ST373453FSUN72G	0449	disk/D_ST373453FSUN72G_0449.dlp
ST373454FSUN72G	042D	disk/D_ST373454FSUN72G_042D.dlp
ST373455FSUN72G	3092	disk/D_ST373455FSUN72G_3092.dlp
ST373554FSUN72G	0409	disk/D_ST373554FSUN72G_0409.dlp
ST37500NSSUN750G	0605 (LP1153-3AZQ)	disk/D_ST37500NSSUN750G_0605.dlp

Note – 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 the firmware is installed, 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.

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

About DACstore

Maintained by the array firmware, DACstore stores information on each of the arrays' disk drives. Before you connect any replacement drive or additional expansion module to an existing functioning array, you should contact Sun Support at <http://www.sun.com/contact/support.jsp> to ensure the connection goes smoothly and avoid issues with the DACstore configuration and status database.

Arrays that might have a DACstore issue

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

Note – It is always best practice to maintain recoverable backups of your data.

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

If you observe any of the following, promptly contact Sun Microsystems Support Services at:

<http://www.sun.com/contact/support.jsp>.

Supported Expansion Modules

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

The following tables list the supported expansion modules:

TABLE 22 Supported Expansion Modules: 6000 Series Arrays

Array Controller	Original Supported Expansion Modules
Sun StorageTek 6540 Array	CSM200
Sun StorageTek 6140 Array	CSM200
Sun StorageTek 6130 Array	CSM100
Sun StorageTek 6580 Array	CSM200
Sun StorageTek 6780 Array	CSM200

TABLE 23 Supported Expansion Module: 2500 Series Array

Array Controller	Supported Expansion Modules
Sun StorageTek 2500 Series Arrays	2501

TABLE 24 Supported Expansion Module: Sun StorageTek FLX240, FLX280, and FLX380 Arrays

Array Controller	Supported Expansion Modules
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 07.xx.xx.xx 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 22](#), [TABLE 23](#), and [TABLE 24](#) 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

For 6140, 6540, and FLX380 arrays currently at the 06.xx.xx.xx level of firmware: To install the new 07.10.x.xx firmware, you must contact Sun Microsystems Support Services at: <http://www.sun.com/contact/support.jsp>. 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.**

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 39
- “Configuration Issues” on page 46
- “Documentation Issues” on page 57
- “Firmware Issues” on page 62
- “In-Band Array Management Issues” on page 64
- “Localization Issues” on page 71

Array Issues

Solaris -- Unable to Start CAM UI or Connect to CLI (Solaris 10 Update 6 or Newer)

Bug 6795734 –Unable to connect via CAM 6.x UI and CLI from Solaris host version 10 Update 6 or newer. Beginning with the Solaris 10 Update 6 release, it is possible that following an upgrade or a fresh install access to the CAM GUI might be prohibited due to enhancements in Solaris security. The solution to this problem to clear the Java Web Console service and restart as documented here: <http://docs.sun.com/app/docs/doc/817-1985/gdhuu?a=view>

Add this in addition to URL, you can execute the following for Solaris 10 Update 6 and later:

```
> # smcwebserver stop
> # svccfg -s svc:/system/webconsole setprop options/tcp_listen = true
> # svcadm refresh svc:/system/webconsole
> # /usr/share/webconsole/private/bin/wcremove -i console
> # svcadm clear system/webconsole:console
> # smcwebserver start
```

6130 Battery has no 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 –In progress.

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 Change - J4500

Bug 6736301 –Trying to change the name of a locally or remotely managed Sun Storage J4200 / J4400 / J4500 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 - 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 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 - Adding 2+ 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 - 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:

- Has the power supply been removed?
- Has the power supply stopped working?
- Are the power cords disconnected?

Defragmentation Jobs Do Not Display - 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 Drive Removal Does Not Display Event

Bug 6762697—When a disk is removed from an array, no PC/RA event is shown in the GUI.

Workaround —In progress.

Disk Drive Upgrade Fails for 6xxx Array

Bug 6794546—Upgrading disk drives ST314656FSUN146G, ST330056FSUN300G, ST345056FSUN450G to 071C fails with missing drive firmware file (dlp) error.

Workaround —Use sscs command with the following syntax instead of the firmware install wizard GUI.

```
sscs modify -a <array_name> -c <drive_model> -p <drive_fw_filepath> -o -w  
firmware
```

<array_name> is the array name that is displayed from the array summary page.

<drive_model> is one of ST314656FSUN146G, ST330056FSUN300G, ST345056FSUN450G. The model is displayed from “sscs list -a <array_name> firmware.”

<drive_fw_filepath> is the drive firmware file path. Use the matching firmware file of the drive model.

The file paths for Solaris, Linux, and Windows are as follows:

Solaris:

```
/opt/SUNWstkcamlshare/fw/images/disk/D_ST314656FSUN146G_071C.dlp
```

```
/opt/SUNWstkcamlshare/fw/images/disk/D_ST330056FSUN300G_071C.dlp
```

```
/opt/SUNWstkcamlshare/fw/images/disk/D_ST345056FSUN450G_071C.dlp
```

Linux:

```
/opt/sun/cam/share/fw/images/disk/D_ST314656FSUN146G_071C.dlp
```

```
/opt/sun/cam/share/fw/images/disk/D_ST330056FSUN300G_071C.dlp
```

```
/opt/sun/cam/share/fw/images/disk/D_ST345056FSUN450G_071C.dlp
```

Windows (32-bit):

```
C:\Program Files\Sun\Common Array Manager\Component\  
SunStorageTekArrayFirmware\images\disk\D_ST314656FSUN146G_071C.dlp
```

```
C:\Program Files\Sun\Common Array Manager\Component\  
SunStorageTekArrayFirmware\images\disk\D_ST330056FSUN300G_071C.dlp
```

C:\Program Files\Sun\Common Array Manager\Component\
SunStorageTekArrayFirmware\images\disk\D_ST345056FSUN450G_071C.dlp

Note – For 64-bit Windows, use “Program Files (x86)” in the file path instead of “Program Files.”

Disk Failure - Reconstruct Attempt Yields “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.

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.

Installation Fails when User Account Control is On- Windows 2008

Bug 6753949 –CAM fails to install on Windows 2008 when User Account Control is turned on.

Workaround –Users with Administrative privileges that are used to install CAM on Windows 2008 must have User Account Control turned off. From the Control Panel, select User Accounts, and then turn the User Account Control off.

Installation Fails due to Missing TEMP - Windows

Bug 6791511 –When CAM is being installed on a Windows system, an “Invalid TEMP” directory pop-up window displays.

Workaround –Windows users should investigate TEMP, TMP, and USERPROFILE environment variable settings, rather than follow the directions in the pop-up window.

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 - 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 on page 14](#).

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 --Uninstallation of CAM Panics Host

Bug 6769156 –Users must stop all applications that are running a java.exe or javaw.exe before running the uninstaller.

Configuration Issues

Array Configuration Page Inconsistent with Storage Summary Page

Bug 6764307 –Device type in Import/Export Array Configuration page is inconsistent with Storage Summary page.

Workaround –In progress.

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. Ensure the value of the HOME environment variable is set to your home directory.**
- 2. Verify that \$HOME/.sscs_conf, if it exists, has owner read and write permission.**

CLI Usage Statement Syntax Error - "The resource was not found"

Bug 6767678 –CLI usage statement yields syntax error "The resource was not found."

Workaround –Add spaces between the disks.

Resolution for this issue is in progress. Generally, adding spaces can break scripts; however, in this case it is the only workaround.

CLI: J4200/J4400 Controller Cannot Modify Date

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

Workaround –The J4200/J4400 arrays 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 Returns 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.

Controller Cache Memory Size Displays 0 for 2500 Series Arrays

Bug 6756414 –Controller Cache Memory size displays 0 from both the GUI and CLI for 2500 Series Arrays.

For 2500 Series Arrays using 07.35.07.10 firmware and above, a 0MB value for Cache Memory displays when you select Physical Devices -> Controllers. This can cause confusion when a customer upgrades the cache DIMM to a different size, because the new size is not reported.

Note – This issue only affects reporting and does not impact cache or array performance.

Workaround –In progress.

Disabled Snapshot Re-enabled After 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.

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

Import Configuration Error - 2510 Arrays

Bug 6764318 –Importing array configuration from Administration page yields errors.

This issue occurs with 2510 arrays when these steps are followed:

1. **Register array with CAM and create a configuration (volumes, etc.).**
2. **Select Administration -> Export/Import page.**
3. **Click Export.**

4. Browse for the exported file and then click Import.

Several minutes might transpire at this point.

Result: This error message displays: "Error executing the import command"

Workaround –Try importing again or configuring the array manually.

Import Functionality is Broken re: 6000 Series Arrays

Bug 6784562 –When importing an exported configuration, an error message displays stating "Error executing the import command - The target is an incompatible model:"

Workaround–Edit the file created during the export process. Modify the line containing the <model> tag. Change "null" to the appropriate array type which will be 6140, 6540 or FLX380.

Installation Fails When Another Version's Installation Exists

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.**

Installation yields error: CreateProcess failed==>%1 is not a valid Win32 application

Bug 6785218 –This error is caused by the environment variables TEMP and TMP not being correctly set to %USERPROFILE%\Local Settings\Temp

Workaround –You can also do the following to work around this issue:

1. mkdir %systemdrive%\mytemp
2. set TMP=%systemdrive%\mytemp
3. set TEMP=%systemdrive%\mytemp
4. RunMe.bat

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

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.**
 - 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 Sun Storage J4200/J4400/J4500 arrays 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 J4000 array.

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 lose 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 Manager 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.

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 Nov 18 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.

License Summary Page Does Not Display Array Name

Bug 6673878 –After resetting storage configuration, array name is not present in License Summary Page.

Workaround –Arrays should be named before licenses are added.

Login Not Required When sscs Used to Execute Commands Using Linux

Bug 6742577 –sscs does not require user login to execute commands

This issue is specific to Linux. There are two sscs executables--one for local in-band and one for remote out-of-band communication:

```
/opt/sun/cam/bin/sscs (in-band)
```

```
/opt/sun/cam/se6x20/cli/bin/sscs (out-of-band)
```

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 <http://www.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. For Linux, the CAM interface might have problems, in which case you can refer to your Linux documentation. Fix in progress. Look for patch ID version -17 to come out for the WebConsole 3.1 soon.

Primary Volume in 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 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 Details 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 array 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 Mapping Fails with Invalid LUN Error

Bug 6764785 –When attempting to map a snapshot from the Snapshot Details page, an error is observed that an invalid LUN number had been passed in. The user is not allowed to select a LUN number as the only option available from the pull down menu is “Next Available.”

Workaround –From the Snapshot Summary page, select the checkbox beside the snapshot and then click Map.

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:

```
/scs 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. The -Z option is only supported on the 6920 array.

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.

Snapshot/Volume does not Display Objects in “Create New Mappings”

Bug 6743793 –Searching volume/snapshot in “Create New Mappings” does not display all objects when there are 2048 volumes defined. This impacts users who have many volumes but do not provide filtering criteria to reduce the set they want to manipulate from the wizard interface.

Workaround –Use the CLI to create the map.

Virtual Disk Name Change Fails When GHS is in Use

Bug 6757428 –Attempting to change the name of a optimal/enabled vdisk fails when GHS is in use.

Workaround –In progress.

Virtual Disk Wizard Returns Application Error/Servlet Exception

Bug 6749919 –From WinXP, using MSIE to access CAM on SuSe10 Linux: While the Virtual Disk link is clicked in the left pane and displayed in the right pane, click the NEW button. In the first window of the wizard, fill in a name and press Enter (rather than click next). The application error appears.

Workaround –In progress.

Volume Copies can take Several Minutes to Complete

Bug 6762700 –As volume copies are created, some sscs commands take a long time to complete.

Workaround –In progress.

Volume Fail Error Occurs when VDisk does not Re-initialize

Bug 6760872 –Clicking vdisk button in Service Advisor does not re-initialize. Failed volume error is reported.

Workaround –Delete volumes (and subsequently the vdisk will be deleted). Recreate volumes/vdisk and restore data from backup.

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.

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.

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 Guide 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,...]
```

A future version of the CLI Guide will show the correct information.

CLI Guide: Special Characters Note Correction

Sun StorageTek Common Array Manager CLI Guide (part number 820-5748) 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 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 ]
```

Import and Export Not Described in Online Help

Bug 6742376 –No information is available in online Help about import and export functions via the Administration link.

Solution –The following content will be added to the Help for CAM 6.2.1:

Provisioning Arrays

CAM provides the ability to export an array configuration and save it to an XML file which you can import to one or more arrays. Using the array configuration file, you can provision and provide consistent configurations for your several arrays.

Some common reasons to export and import array configurations include:

- Cloning a configuration for a remote backup site.
- Resetting an array to get it back to a known state for end-of-quarter processing, data warehousing, or data migration
- Sending the exported array configuration to customer support for help in troubleshooting an issue with the array.

Exporting or importing configurations is supported for the following arrays:

- Sun StorageTek 6000 Array Family (model numbers 6130, 6140, 6540, 6580, 6780)
- Sun StorageTek 2500 Array Series (model numbers 2510, 2530, and 2540)
- Sun StorageTek FlexLine arrays (model numbers 240, 280, and 380).

Exporting an Array Configuration

Use the export function to save all configuration settings to a file on your local machine. Configuration settings include volume, pool, profile, virtual disk, snapshot, volume copy, storage domain, mappings, data replication configuration, etc.

1. **Click Sun StorageTek Common Array Manager.**
2. **From the navigation pane, expand the array configuration you want to save to a file.**
3. **Expand Administration, and select Import/Export.**
4. **Under Export Device Configuration, either accept the configuration file name supplied by CAM or enter the name you'd like to assign to the configuration file.**
5. **Click Export and specify whether you'd like to open and view the configuration file or save the file to your local machine.**

Importing an Array Configuration

Use the import function to reset all volume data and bring the array to a known state. You can import the array configuration file to one or more supported arrays. Since some arrays support features that others do not, when you import a configuration file to an array that has a more limited feature set, the import process discards unsupported configuration settings and returns an event that you can check later. Conversely, if you import an array configuration file to an array with a more extensive feature set, then those features will not be configured. During the import process, a job is created. You can track the progress from the Historical Jobs Summary page. Import jobs started by the CLI will also display there.

Caution – Because the entire array configuration is exported to a file, you must change settings such as the IP address and array name for the target array, unless it serves as a replacement for the array configuration being exported. When cloning an array, ensure that both the old and new array are not on the network with the same IP address at the same time.

1. **Click Sun StorageTek Common Array Manager.**
2. **From the navigation pane, expand the array to which you want to import the configuration file.**
3. **Expand Administration and choose Import/Export.**

4. Under **Import Device Configuration**, click **Browse** to locate the configuration file stored on your local machine.
5. Click **Import**.

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>]
```

Virtual Disk Expansion has Errors in Online Help

Bug 6686067 –Documentation error in Expansion of Vdisk Help page. Wrong information is given to the user regarding maximum number of disks.

Correct information–The Help is being updated (version 6.2.1) with this information:

Rules for Virtual Disk Expansion include:

- RAID-0–Virtual disks can support up to 30 disk drives with 06 level firmware and 224 disk drives with 07 level firmware. A minimum of one disk drive is required for virtual disk expansion.
- RAID-1–Virtual disks can support up to 30 disk drives with 06 level firmware and 224 disk drives with 07 level firmware. A minimum of two disk drives is required for virtual disk expansion.

- RAID-3, RAID-5, and RAID-6–Virtual disks can support up to 30 disks. A minimum of one disk drive is required for virtual disk expansion.
- All RAID levels– A maximum number of two disk drives that can be used for virtual disk expansion at a time.

Note – When you expand a virtual disk, the disk drives that participate in the virtual disk must all be of the size and the same type, either Serial Advanced Technology Attachment (SATA), Fibre Channel (FC), or Serial Attached SCSI (SAS).

Firmware Issues

Avoiding Firmware Issues

To avoid issues regarding the new 07.xx.xx.xx firmware:

- Contact Sun Microsystems Support Services at:
<http://www.sun.com/contact/support.jsp>.
to upgrade from 06.xx firmware baseline for the 6140, 6540, and FLX380 arrays.
- To install the new 07.35.xx.xx firmware for the 2500 Array Series, consult the *2500 Array Series Firmware Upgrade Utility Guide* (part number 820-6362).

Note – 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.

2510 Arrays - sscs modify iscs-ports Lacks IPV6 Support

Bug 6763354 – CAM 6.2.0.13 - 2510 arrays - sscs modify iscs-ports is lacking IPv6 support

Workaround – Use the GUI to use ipV6 for iscsi ports for the arrays.

2510 Arrays - Disabling IPv6 Support on Data Ports Does Not Work

Bug 6763343 – Disabling IPv6 support on the data ports does not work. Using CAM 6.2.0.13 to manage the 2510 arrays disabling IPv6 Support on the data ports displays a successful status, however IPv6 is not disabled. The check-box stays selected and there is no indication on the controller serial console of the disabling taking place.

Workaround – Fix to be delivered in CAM 6.2.1.

6220 Expander Firmware Upgrade Fails - 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.

Controller Slot Positions Contained in MEL Log are Unreliable

Bug 6747684 – The controller redundancy lost event is showing the wrong controller slot in the component field on a 2530 array.

Workaround – In progress.

Install Wizard Displays 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.

NVSRAM Firmware Will Not Upgrade on a Simplex 2530 Array using CAM 6.2.0.13

Bug 6762669 – NVSRAM upgrade on a Simplex 2530 array fails with this error message:

“Error upgrading firmware. Check the following error message and array alarm page for possible problems. - Error from updating NVSRAM - Caught exception:

/opt/SUNWstkcam/share/fw/images/nge/N133X-735843-902.dlp (No such file or directory)”

CAM points to firmware file N133X-735843-902.dlp; however, this file does not exist and the upgrade fails.

The correct firmware file name should be N133X-735843-902.dlp (with an uppercase X).

Workaround – Upgrade the firmware using the CLI:

```
/opt/SUNWsesscs/cli/bin/sscs modify -a <arrayname> -f
```

```
-p /opt/SUNWstkcaml/share/fw/images/nge/N133x-735843-902.dlp -c system -w  
firmware
```

Note – This upgrade will take approximately 5-10 minutes

There will be no output to the terminal until the upgrade is complete. To monitor the status: From the array's Current Job Summary page, select the upgrade job in progress.

Upgrade Utility Automatic Array Discovery Password Verify does not Reference the Array

Bug 6736963 – When multiple arrays are discovered (using the Automatic scan subnet option), the Password Verification pop-up windows do not make reference to the array.

Workaround – None at this time.

In-Band Array Management Issues

There are two different agents that can be used for communication to arrays via the in-band (data) path, dependent 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

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

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

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 LUNs 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.

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. Check 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 LUNs 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. Check 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-lcal, Volume Access,
LUN 31, Volume ID <600a0b80002458d20000000000000000>]
\\.\PHYSICALDRIVE1 [Storage Array fms-lcal, 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.

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:

- Format

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

- 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
```

- Correlate WWNs

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 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 Sun Blade 6000

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 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

“Adding Expansion Trays” Procedure Missing Illustrations

Bug 6762874 –“Adding Expansion Trays” service procedure missing illustrations under localized system.

Workaround –Please install patch 139784-01 to fix this issue. For the latest patches available for your system, check SunSolve at:

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

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.

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.

Pages Appear in English

Bug 6764994 –Some pages appear in English.

Workaround –Please install patch 139784-01 to fix or set your browser in english. For the latest patches available for your system, check SunSolve at:

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

Solaris Issues

SES vs. SD Paths for UTM LUNs

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

Solaris -- Unable to Start CAM UI or Connect to CLI (Solaris 10 Update 6 or Newer)

Bug 6795734 –Unable to connect via CAM 6.x UI and CLI from Solaris host version 10 Update 6 or newer. Beginning with the Solaris 10 Update 6 release, it is possible that following an upgrade or a fresh install access to the CAM GUI might be prohibited due to enhancements in Solaris security. The solution to this problem to clear the Java Web Console service and restart as documented here:

<http://docs.sun.com/app/docs/doc/817-1985/gdhhu?a=view>

Add this in addition to URL, you can execute the following for Solaris 10 Update 6 and later:

```
> # smcwebserver stop
> # svccfg -s svc:/system/webconsole setprop options/tcp_listen = true
> # svcadm refresh svc:/system/webconsole
> # /usr/share/webconsole/private/bin/wcremove -i console
> # svcadm clear system/webconsole:console
> # smcwebserver start
```

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 LUNs 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 LUNs 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. Use the procedure that follows.

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
```

Sun Microsystems Support

If you need help installing or using a product, contact Sun Microsystems Support Services at:

<http://www.sun.com/contact/support.jsp>.

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 search for a document from Sun's website, go to:

<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.

Third-Party Web Sites

Sun is not responsible for the availability of third-party Web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services available on or through such sites or resources.

Sun Welcomes Your Comments

Sun welcomes your comments and suggestions about this document at:

<http://www.sun.com/hwdocs/feedback>

Please include the title and part number of your document with your feedback:

Sun StorageTek Common Array Manager Release Notes, part number 820-5749-10