Sun StorageTek™ Common Array Manager Software Release Notes

Release 5.1.2

Sun Microsystems, Inc.
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Sun StorageTek Common Array Manager Software Release Notes

This document contains important information about Release 5.1.2 of the Sun StorageTek™ Common Array Manager software or information that was not available at the time the product documentation was published. Read this document so that you are aware of issues or requirements that can affect the installation and operation of the Common Array Manager software.

These release notes cover the software released on the Sun StorageTek Common Array Manager Software 5.1.2 CD.

The Release Notes consist of the following sections:

Features in This Release

This section describes the main features of the Sun StorageTek Common Array Manager software in the following sections:

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Supported Arrays

Common Array Manager software supports the following Sun storage systems:

- Sun StorageTek 6540 Array
- Sun StorageTek 6140 Array
- Sun StorEdge 6130 Array
- Sun StorageTek 2540 Array
- Sun StorageTek 2530 Array

Firmware Features in This Release

This section describes the main new features of the firmware, including the following:

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Firmware Version

The following is the firmware for this release of Sun StorageTek Common Array Manager software.

TABLE 1   Release Firmware Level

Array	Firmware Version
Sun StorageTek 6540, 6140, and 6130 Arrays	06.19.25.10
Sun StorageTek 2500 Series Arrays	06.17.52.10

Check the build notes file distributed with the software for the exact firmware build. The Sun StorageTek Common Array Manager software will support one prior version of the firmware for non-new features on previously supported arrays. (This does yet apply to the new Sun StorageTek 2500 Series Arrays).

The firmware files for each array are listed in "Firmware Files" on page 30.

For information about how to upgrade firmware, see "Upgrading Array Firmware" on page 14.

Array Expansion Module Support

Controller firmware 06.19.25.10 or higher allows tray mixing of 6540, 6140 and 6130 array controllers modules and the Sun StorageTek CSM100 and CSM200 Expansion Modules. After installing the firmware, 6130 controllers can use CSM200 expansion modules and CSM100 expansion modules can be used with 6540 and 6140 controllers.

Note – To add trays with data already on them, contact your service representative for assistance to avoid data loss.

Refer to "Upgrading Firmware for Adding Expansion Trays" on page 14 for the procedure to upgrade trays without data.

TABLE 2 and TABLE 3 list the supported expansion modules.

TABLE 2   Supported Expansion Modules - 6000 Series Arrays

Array Controller	Original Supported Expansion Modules	Supported Expansion Modules with Controller Firmware 06.19.25.10
Sun StorageTek 6540 Array	CSM200	CSM100, CSM200
Sun StorageTek 6140 Array	CSM200	CSM100, CSM200
Sun StorageTek 6130 Array	CSM100	CSM100, CSM200

The Sun StorageTek 2500 Series Array uses Controller Firmware 6.17.52.10 and supports the Sun StorageTek 2501 expansion module.

TABLE 3   Supported Expansion Module - 2500 Series Array

Array Controller	Supported Expansion Modules
Sun StorageTek 2500 Series Arrays	2501

Common Array Manager Software Features

The Sun StorageTek Common Array Manager software provides you with an easy-to-use interface to configure, manage, and monitor Sun StorageTek storage arrays.

New features in Release 5.1.2:

- Sun Connection (Auto Service Request): registration, telemetry, and automated case generation
- Support for 2500 Series Arrays
- Support for Common Array Manager on Linux operating systems
- 2007 Daylight Savings Time update
- DC power supply support (NEBS compliant) on 6140 array

Release Contents

TABLE 4 lists the version information for the software included in this release.

TABLE 4 Sun StorageTek Common Array Manager CD Contents

Type	Version
Common Array Manager	5.1.2
Remote scripting CLI client	2.1.4
Java Web Console software	2.2.5
Java 2 Software Development Kit	1.4.2
Firmware files, as listed in "Firmware Files" on page 30	06.19.25.10 06.17.52.10

Licenses For Optional Premium Features

For optional premium features, you must purchase licenses. When you order premium feature licenses, the licenses will be sent to you with instructions on how to activate the features.

The following licenses for premium features are available from Sun:

TABLE 5 Available Licenses for Premium Features, by Array

Premium Feature	6540 Array	6140 Array	6130 Array	2500 Arrays
Data Snapshot	X	X	X	X
Data Volume Copy	X	X	X	
Data Replicator	X	X	X	
4 Domains	X	X		X
Upgrade 4 to 8 Domains	X	X		
8 Domains	X	X		X
Upgrade 8 to 16 Domains	X	X	X	
16 Domains	X	X	X	X
Upgrade 16 to 64 Domains	X	X	X	
64 Domains	X	X	X	
Combo Data Snapshot and 8 Domains	X	X		

TABLE 5   Available Licenses for Premium Features, by Array *(Continued)*

Premium Feature	6540 Array	6140 Array	6130 Array	2500 Arrays
Combo Data Snapshot, Data Volume Copy, Data Replicator, and 64 Domains	X	X	X	
Combo Data Snapshot, Data Volume Copy	X	X	X	
Combo Data Snapshot, Data Volume Copy, and Data Replicator	X	X	X	

System Requirements

The software and hardware products that have been tested and qualified to work with the Sun StorageTek Common Array Manager software are described in the following sections:

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Supported Platforms

The management software runs on the platforms described in TABLE 6.

TABLE 6   Management Host Platforms

Platform	Operating System	CPU
SPARC server or workstation	Solaris 8 OS 4/01 Solaris 9 OS 8/03 Solaris 10 OS	UltraSPARC 3 or better (750 Mhz)
Windows Servers	Windows 2000 with Service Pack 4 or higher Windows 2003 with Service Pack 1 or higher Windows XP Pro with Service Pack 2 or higher*	1.5 Ghz PC
x64 computer	Red Hat Enterprise Linux AS Release 4 (Nahant update 4) (x86_64) Red Hat Enterprise Linux AS Release 3 (Taroon update 8) (x86_64) SuSE Linux Enterprise Server 10 (x86_64)	x64
x86 computer	Solaris 10 OS	x86

* Windows XP Home is NOT supported.

TABLE 7 lists Solaris packages that must be installed on your Solaris host. Installing the minimum Solaris operating system package as listed in TABLE 6 will install all but the last four files. Those files are required by Java, but are not used by the management software.

TABLE 7   Required Solaris Packages

File	Description
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 7   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 8 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 8   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_2.1.2)
libc.so.6	(GLIBC_2.1.3)
ibdl.so.2	-
ibpam.so.0	-
sh-utils	2.0-1
textutils	2.0-2

File Space Requirements

The following table lists the disk and directory space requirements of the management host software.

TABLE 9   Sun StorageTek Common Array Manager File Space Requirements

Operating System	Disk Space	Directory Space
Solaris 8 OS 4/01 Solaris 9 OS 8/03 Solaris 10 OS	555 Mbytes	`root` – 5 Mbytes `/tmp` – 110 Mbytes `/usr` – 15 Mbytes `/var` – 145 Mbytes `/opt` – 280 Mbytes
Windows 2000 with Service Pack 4 or higher Windows 2003 with Service Pack 1 or higher Windows XP Pro with Service Pack 2 or higher*	800 MBytes on system drive	Not Applicable
Red Hat Enterprise Linux AS Release 3 and 4 SuSE Linux 10	560 Mbytes	`root` – 5 Mbytes `/tmp` – 120 Mbytes `/usr` – 140 Mbytes `/var` – 95 Mbytes `/opt` – 300 Mbytes

* Windows XP Home is NOT supported.

Open Ports Required on Management Host

Open the following ports for secure-by-default Solaris, Linux, and Windows platforms. In Windows, refer to your firewall documentation for instructions on how to open a port through the firewall.

Incoming Ports

TCP 6788 - console http port which 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

Supported Platforms for the Remote Scripting CLI Client

The remote scripting CLI client sends commands to a management host, which in turn sends the commands to the array. TABLE 10 lists remote platforms that can run the CLI client.

TABLE 10 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 2000 Server	Server (SP4) and Advanced Server (SP4)
Windows Server 2003	Standard/Web/ Enterprise Edition; SP2
Windows XP	SP1
Red Hat Linux	3, 4
SuSE Linux	10
IBM AIX	5.2, 5.3
HP-UX	B.11.23, B.11.11

Supported Web Browsers

The Sun StorageTek Common Array Manager software supports the web browsers listed in TABLE 11.

TABLE 11   Supported Web Browsers

Browser	Minimum Version
Netscape Navigator	6.2
Mozilla	1.4
Firefox	1.0
Microsoft Internet Explorer	5.5 (7 is not supported)

Note – The software requires that you enable pop-up windows in your web browser.

Note – On some browser configurations, if the Proxy setting is not disabled, the browser may appear to hang, time out, or generate incorrect error messages. To avoid these potential problems, specify No Proxy for the Common Array Manager host. On some browsers, you do this by going to Preferences>Advanced>Proxies and add the Common Array Manager management hostname to the "No Proxy for:" section.

Supported Languages

The browser user interface for the Sun StorageTek Common Array Manager is available in:

For Solaris and Linux:

- English
- Simplified Chinese
- Japanese
- French

For Windows:

- English

The command line interface, online help, and the man pages are available in:

- English

Installing Packages and Patches

The array installation procedures are described in the *Sun StorageTek Common Array Manager Software Installation Guide* (part number 820-0213-nn). This section describes release-specific steps for firmware and management software patch upgrades that you must perform:

Before You Begin

The management software is distributed on the Sun StorageTek Common Array Manager Software CD or is available from the Sun Download Center:
`http://www.sun.com/download/`
(look for Systems Administration>Storage Management).

Be sure to do the following before performing the upgrade:
- Verify that you have license certificates for all premium features, including storage domains. You must have licenses to use premium features.
- Read the installation instructions completely.
- Log in as `root` (Solaris and Linux) or as a user with administrator privilege (Windows) on the management host.

Before starting the installation script, the CD verifies host requirements. such as
- Unsupported versions of related software such as Common Array Manager 4.x, Storage Automated Diagnostic Environment 2.x and unsupported versions of the sscs CLI
- Unsupported versions of operating systems or software
- Insufficient disk space (see "Sun StorageTek Common Array Manager File Space Requirements" on page 9)

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

Supported Upgrades

Solaris: Upgrade from CAM 5.0.1.1, 5.0.2.1, 5.1.0.10, and 5.1.0.11 to this release is supported. Uninstalling the existing CAM version is not required to install this release.

Linux: Upgrade to the initial release of the Linux version is not needed.

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

▼ To Uninstall a Previous CAM Version

This procedure uninstalls the previous CAM version if the upgrade to the current CAM version is not supported.

1. **Log into the CLI on the management host or using the remote CLI client as documented in the** *Sun StorageTek Common Array Manager Software Installation Guide***.**

2. **Enter the command** `uninstall -f`.

   The command will remove the current installation.

Installation Logs

Should an installation failure occur, be sure to check the available disk space again. Then consult the system log for more information.
Solaris: `/var/sadm/install/se6000/se6000_Host_SW.log`
Linux: `/var/opt/cam`
Windows: `\Program Files\Common Files\Sun Microsystems\se6000`

Installing and Upgrading Common Array Manager Software

If you are installing the management software on a new host, follow the entire installation and configuration procedure described in the *Sun StorageTek Common Array Manager Software Installation Guide*.

After the initial installation and configuration, you will be able to upgrade the management software and firmware with each release.

The installer also installs the firmware update bundle on the host server. To upgrade the firmware on the array, see "Upgrading Array Firmware" on page 14.

Upgrading Array Firmware

The upgrade function is available as part of the Registration procedure for new arrays or as a separate feature in the Sun StorageTek Common Array Manager software. The software prompts you if the array needs to update its firmware.

If you are adding new expansion trays, see "Upgrading Firmware for Adding Expansion Trays" on page 14.

▼ To Upgrade the Array Firmware

This procedure downloads the firmware binary on the management host to the array and upgrades the firmware running in the array. It is not necessary to uninstall the existing firmware.

1. **Log into the management software as documented in the** *Sun StorageTek Common Array Manager Software Installation Guide***.**

2. **On the Java Web Console page, click Sun StorageTek Common Array Manager.**

3. **Go to the Storage System Summary page and select the arrays to be upgraded.**

4. **Click the Upgrade Firmware button.**

5. **Follow the prompts.**

Note – An upgrade will fail for an array in a degraded state.

Upgrading Firmware for Adding Expansion Trays

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

Note – Mixing trays is not supported for the Sun StorageTek 2500 Series Arrays.

Refer to TABLE 3 for a list of a list of the supported modules for intermixing trays without data.

Note – To add trays with data already on them, contact your service representative for assistance to avoid data loss.

Expansion Module Upgrade Overview

To add a newly supported expansion module to an existing array

- Before cabling the newly supported expansion module, first upgrade the existing controller and trays to Controller Firmware 06.19.xx.xx.
- Add the expansion module
- Upgrade the array again.

To add an existing expansion tray to a new array, it is also safest to follow a similar procedure:

- Install the new controller and trays first
- Perform the firmware upgrade
- Add the existing expansion tray
- Upgrade the array again.

▼ To Upgrade Firmware for Additional Expansion Modules

For adding trays to arrays managed by Sun StorageTek Common Array Manager Software:

1. **Do not cable the additional expansion tray.**

2. **Install Release 5.1 or later 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.

3. **Register the array, if needed.**

Note – For CSM100 trays, the tray IDs need to be set manually.

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4. **Upgrade the array.**

The upgrade function is available as part of the Registration procedure or as a separate feature in the Sun StorageTek Common Array Manager software. The software prompts you if the array needs to update its firmware.

5. **Accept the upgrade.**

The firmware is installed on the array.

6. **Use Service Advisor to cable the additional expansion tray and add it to the array.**

7. **Upgrade the array again to update the firmware on the new tray.**

Known Issues

The following sections provide information about known issues and bugs filed against this product release:

If a recommended workaround is available for a bug, it follows the bug description.

Common Array Manager-Specific Issues

Tray Type Error for 2500 Series Arrays

Bug 6544481 - The wrong tray type, SS3600, for 2500 Series Arrays displays in the management software. The can be especially confusing on the new array information screen that displays when a new array is registered in the management software.

Workaround – Refer to the packing list shipped with the array if you need to check the tray type.

On a Busy Array, Host Name Modification Returns Error Message

Bug 6503775 – When a user attempts to modify the host name on a busy array (higher than average I/O cycles), the host name may change but an error message is still returned.

Workaround – Turn off proxies. For example, in Mozilla the proxy setting is "no setting" or "direct connection to internet."

Service Advisor Does Not Verify Disk is Ready to be Removed

Bug 6537131 – 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.

Verify Drive Status Before Disk Firmware Upgrade

Bug 6536982 - The disk replacement procedure in Service Advisor needs a step to verify drive status before firmware upgrade.

Workaround - After disk is replaced, the disk will be in non-optimal status while reconstructing volume. Wait and verify that the drive status is Optimal from the Physical Devices - Disks page before starting firmware upgrade.

Common Array Manager Allows the Same Name For Snapshot and Reserve Volume

Bug 6521775 – The software allows you to give the same name for the Snapshot name and the Reserve Volume name in the Snapshot Create window.

Workaround – Do not enter he same name for the Snapshot name and the Reserve Volume name in the Snapshot Create window.

On a Busy Array, Host Name Modification Returns Error Message

Bug 6503775 – When a user attempts to modify the host name on a busy array (higher than average I/O cycles), the host name may change but an error message is still returned.

Workaround – Turn off proxies. For example, in Mozilla the proxy setting is "no setting" or "direct connection to internet".

When Array is in Lost Communication State, Search With Asterisk Causes Error

Bug 6516228 – When an array is in "Loss of Communication" state, using an asterisk (*) in the search window causes an error.

Workaround – Connect the array to the network before using the search feature (or any other management feature) of Common Array Manager.

Common Array Manager Cannot Distinguish Tray Types in Mixed Tray Configurations

Bug 6523157 – Common Array Manager does not distinguish between tray types. Now that it supports mixed tray type configurations, the Tray Summary/Details page needs to indicate the tray type of each tray.

Workaround – In mixed tray configurations, a user wishing to create a new VDisk spanning trays of different types should do as follows:

1. **Use the manual creation mode in the volume creation wizard.**

2. **Instead of entering a number of disks, manually select the disks.**

Job Completion and Elapsed Time Estimates Are Not Updating

Bug 6522922 – Job completion and elapsed time estimates are not updating during unmapping operations.

Workaround – The job will still complete.

Volume Copy Job Stops at 90% When Volume is Degraded

Bug 6522808 – The Volume Copy job stops at 90% if the source volume is in the Degraded state.

Workaround – Correct the degraded state before copying a volume.

Unclear Message Shown When Unmapping Volumes

Bug 6521739 – When a user unmaps the volumes from a Host or Hostgroup Details page, the message displayed afterward is "The selected objects were deleted". The correct message should be "All selected volumes/snapshots have been unmapped."

Navigation Pane Not Updated with Addition/Removal of Arrays

Bug 6521695 – The navigation pane (left-side pane) sometimes fails to update when an array is added or removed.

Workaround – Reload the left frame of page by clicking on the Reload button on the browser.

Unable to Map Volumes to Default Storage Domain When Multiple Volumes are Selected

Bug 6505546 – When multiple volumes are selected from the Volume Summary, the Common Array Manager is not able to map them to the default storage domain.

Workaround – If you are unable to map all of the volumes in one command, map them one at a time.

Incorrectly Reports the Array Password is Valid

Bug 6441062 – At certain points in the upgrade during the registration process, the wizard may report an invalid password as valid. This can be confusing later on when the operation fails.

Workaround – Re-attempting the upgrade after it is registered will correctly report the invalidity of the password.

Unable to Change Volume Permissions From Read Only to Read/Write Via CLI

Bug 6504473 – While mapping to a host or host group, permission to a volume remains set to Read/Write even if set to readonly by the `sscs map volume` command.

Workaround – Change the permissions using the browser user interface.

Able to Create Unlicensed Host Groups

Bug 6486712 – If the Storage Domains license is disabled the user can still create Host groups. They will be unable to map to them and get an error message when they try.

Workaround – The license must be added for mapping.

Register Storage System Scan Stops at 99%

Bug 6475717 – On subnets with many arrays the registration wizard may time out when scanning the subnet.

Workaround – Remove any web proxy settings from the browser preferences, or manually register an array using the IP address.

Repeat Notifications Of Battery Removal/Failure

Bug 6419579 – When a battery fails or is removed, the problem is reported multiple times in both alarms and email notifications.

Addition and Removal of Initiators From Zones in Fabric Are Not Dynamically Detected

Bug 6329784 - When an initiator is added or removed from a zone in a fabric, the Configuration Service software does not dynamically detect the change. The WWNs of initiators newly added to the SAN are not displayed.

Workaround – If the WWN of a new initiator is not in the drop-down list on the New initiator page, try creating the initiator by manually entering the new WWN. This will force the page to refresh. When you create another new initiator, the WWN will be in the list.

Volumes Associated With Bypassed Drives Are Displayed as Missing

Bug 6371462 - The switch setting 2 Gbits/sec or 4 Gbits/sec applies to the speed of the internal FC data path to disk drives. When a 2-Gbits/sec drive is set to 4 Gbits/sec, the drive enters a status of Bypassed.

Volumes on Bypassed drives are marked as Missing and lose their pool assignments. They are displayed on a separate Ghost Volumes list, with minimal info available.

Following Login Timeout, The Login Page Is Redirected Into The Browser Main Frame

Bug 6413457 - If two browsers are open and one user logs out, when the other user initiates any action in the browser, the login page is displayed in the browser's main content frame instead of on its own page. This has also been seen to happen with single user login time outs. This requires the user to relaunch the application.

Workaround: Click on the Console button in the masthead (the top frame of the browser). The browser redisplays the web console page, where you must click on the management software link to relaunch the application.

Right-Clicking To Open A Component Causes Errors

Bug 6429827 - The browser function to right-click the mouse and open a page in a new window or tab function is not supported and can display the wrong page.

Workaround - Do not use the right-click function to open in a new window or tab.

Reliability Reporting not Supported

Bug 6544649 - Reliability Reporting service selection is listed on the Sun Connection registration window, but is not supported. Do not check this feature.

Installation Issues

This section describes issues related to Common Array Manager installation.

Unable To Install Java Web Console On Windows With Directory Or File Name White Spaces.

Bug 6425924 - In Windows, you are unable to install Java Web Console with a directory or file name that has white spaces.

Workaround – Remove spaces from affected directories and filenames.

No Notification When Free Disk Space is Not Adequate

Bug 6465219 – When an install fails because there is not enough disk space, there is no indication why it failed other than that InstallShield suddenly starts its rollback process to return the host to its pre-install condition and reports that the installation was cancelled. No specific messages about the disk/filesystem being full are displayed or written to the install log.

Workaround – Ensure that there is sufficient space available on the host machine to perform a full install of the Common Array Manager package. See "File Space Requirements" on page 9.

Admin Name With Space Characters Causes Error

Bug 6458282 – If the installer is run by a Windows admin user with a space character in the user name, when any user tries to log in there will be a system error and the login will fail.

Workaround – The installer must be run by an administrative user without space characters in the user name.

Solaris OS 10 Issues

This section describes issues related to Solaris OS 10 incompatibilities.

Java Console Cannot Upgrade on (Early) Solaris 10

Bug 6442868 - Common Array Manager cannot be installed in a non-global zone on early versions of Solaris 10 when the Java Console needs to be upgraded, because the Java Console cannot upgrade as part of the Common Array Manager installation (Java Console requires installation in a global zone).

Workaround - Common Array Manager now supports Java Console 3.x. In Solaris 10 Update 3, Java Console is pre-installed. In earlier Solaris 10 versions, perform an upgrade of the Java Console to 3.0 or later in a global zone before installing the Common Array Manager. The Java Console 3.0 packages can be accessed from the extracted Common Array Manager distribution under /var/opt/CommonArrayManager/Host_Software_5.1.0.xx/components/lockhartSolaris. Use the setup script under lockhartSolaris (**not** the Common Array Manager installer setup script) to install the core packages. The localization packages need to be installed manually.

Storage Configuration Issues

This section describes known issues and bugs related to storage configuration.

Modifying the "Disk Scrubbing With Redundancy Enabled" Parameter Does Not Work

Bug 6408489 - When you use the software to set the Disk Scrubbing With Redundancy Enabled parameter from True to False while the Disk Scrubbing Enabled parameter is set to False, the page reports success, but the value of Disk

Scrubbing Enabled remains False. When you make this change using the CLI, the prompt returns without a message, but the disk scrubbing setting remains the same as it was.

Co-ordinate Configuration Changes

Bugs 6246249, 6335727 - While multiple management stations can access the array, the array reservation message only appears on the local host.

Workaround - Co-ordinate with users of other management stations before you make changes that affect array operations to prevent conflicting configuration changes.

Firmware Issues

System Restarts when IOM is Reinserted

Bug 6518063 - When replacing an IOM unit after removing it earlier, the unit will will subsequently beep and restart the array.

Workaround – Remove the IOM and reinsert it.

When Reinserting Two Drives, Only One Rebuilds

Bug 6502481 - Reinserting two drives into two critical LUNs will cause the system to rebuild only one of the LUNs. The other LUN will stay in the critical/degraded state.

LUN Map/Unmap or AVT Event causes Host Side FC Bus to Reset

Bug 6518942 - Whenever a LUN is mapped or unmapped and also when an AVT event occurs, the controllers host ports can reset the bus after the events occur. This occurs no matter how many volumes are already mapped to a host.

Failure or Replacement of PSU in CSM200 Tray Is Not Logged

Bug 6509206 - When there is a power failure or a replacement of a power supply in a CSM200 tray, the event is not logged in syslog nor is there an email notice of the failure or replacement.

Problem Reconciling LUNS When Initiators are Assigned to Hosts on an Array

Bug 6503637 - MPP is only able to reconcile 2 out of the 4 LUNs when 4 initiators are assigned to 2 hosts on the same array.

Workaround - Perform the following:

1. **Assign all 4 initiators to just one host.**

2. **Assign different LUN numbers to the volumes from each host.**

3. **Assign both hosts to a host group then map the volumes to that host group.**

Incorrect `Filesystem is Full` Message

Bug 6517078 - The system can send email message stating a log of a critical error that the filesystem is full, even though the filesystem is not full.

Problems Restoring LUN Paths with a CSM200 Expansion Tray Behind a 6130 Controller

Bug 6520741- Can not restore LUN paths after removing controller B and reinserting it. An empty (ghost) LUN appears.

Workaround - This condition requires a service call.

LUN Remains in Degraded State after Reinserting Multiple Drives

Bug 6502481 – Removing multiple hotspare drives from a CSM200 tray and reinserting them can result in one drive causing its LUN to remain in a degraded state.

The I/O Fails On The 6130 Array With Multiple Volume Mappings To The Host

Bug 6486677 – When creating another volume on the 6130 and mapping it to the host instead of the host group, the I/O terminates with errors.

Workaround – Map volume to corresponding host group instead of the host itself.

Documentation Issues

The former Getting Started Guide for the 6140 array is no longer valid for 5.x Releases and are superseded by the *Sun StorageTek Common Array Manager Software Installation Guide*. Installation of array hardware is now covered in Hardware Installation Guides for these arrays. Refer to the *Sun StorageTek Common Array Manager Software Installation Guide* for information about Common Array Manager software installation and logging into the browser interface and sscs CLI man pages.

Storage Profile Summary List Update

The storage profile summary shown in Table 5-1 in the Common *Array Manager Software Installation Guide* needs to be updated with the following table:

TABLE 12 Predefined Storage Profiles for the Sun StorageTek 6540, 6140, 6130 and 2540 Arrays

Name	RAID Level	Segment Size	Read-Ahead Mode	Drive Type	Number of Drives
Default	RAID-5	512 KB	Enabled	ANY	Variable
High_Capacity_Computing	RAID-5	512 KB	Enabled	SATA	Variable
High_Performance_Computing	RAID-5	512 KB	Enabled	SAS	Variable
Mail_Spooling	RAID-1	512 KB	Enabled	SAS	Variable
Microsoft_Exchange	RAID-5	32 KB	Enabled	SAS	4
Microsoft_NTFS	RAID-5	64 KB	Enabled	ANY	4
Microsoft_NTFS_HA	RAID-1	64 KB	Enabled	2500: SAS Others: FC	Variable
NFS_Mirroring	RAID-1	512 KB	Enabled	SAS	Variable
NFS_Striping	RAID-5	512 KB	Enabled	SAS	Variable
Oracle__10_ASM_VxFS_HA	RAID-5	256 KB	Enabled	SAS	5
Oracle__8_VxFS	RAID-5	128 KB	Enabled	SAS	4
Oracle__9_VxFS_HA	RAID-5	128 KB	Enabled	SAS	Variable
Oracle_DSS	RAID-5	512 KB	Enabled	SAS	Variable
Oracle_OLTP	RAID-5	512 KB	Enabled	SAS	Variable
Oracle_OLTP_HA	RAID-1	512 KB	Enabled	SAS	Variable
Random_1	RAID-1	512 KB	Enabled	SAS	Variable
Sequential	RAID-5	512 KB	Enabled	SAS	Variable
Sun_SAM-FS	RAID-5	128 KB	Enabled	ANY	4

TABLE 12 Predefined Storage Profiles *(Continued)*for the Sun StorageTek 6540, 6140, 6130 and 2540 Arrays

Name	RAID Level	Segment Size	Read-Ahead Mode	Drive Type	Number of Drives
Sun_ZFS	RAID-5	128 KB	Enabled	ANY	4
Sybase_DSS	RAID-5	512 KB	Enabled	SAS	Variable
Sybase_OLTP	RAID-5	512 KB	Enabled	SAS	Variable
Sybase_OLTP HA	RAID-1	512 KB	Enabled	SAS	Variable
VxFS	RAID-5	128 KB	Enabled	ANY	4

Profile Segment Size Mentioned in Help Not Available

Bug 6442690 – The Common Array Manager online help for creating a profile mentions a segment size option of 8 kb. The 8k segment size is not available, since it was removed from the product due to other issues.

Domains and Premium Features

The Common Array Manager online help refers to a default of eight domains for 6140 and 6540 arrays. Only the 6130 array has a default of eight domains. The 6140 and 6540 arrays have only one default domain each, and it is not a storage domain. Storage domains can be purchased in the following allotments:

- 6130:16/64 domains
- 6140-2Gb: 4/8/16 domains
- 6140-4Gb: 4/8/16/64 domains
- 6540: 4/8/16/64 domains
- 2500 Series: 4/8/16 domains

Storage domains and other premium features require *licenses*. You can purchase additional domain and premium feature licenses at any time from your Sun Sales office.

Localization Issues

This section describes known issues and bugs related to localization.

Common Array Manager Installation Fails on Localized Version of Windows

Bug 6498568 – Common Array Manager can not be installed on any non-English, fully localized version of Windows. It can be installed only on English base versions of Windows that have language packs.

Workaround – Install the English version of the Windows server with the appropriate language pack.

Java Web Console Not Localized on Windows

Bug 6442523 – There are no localized versions of Java Web Console that can be installed on Windows. Therefore a localized version of Common Array Manager cannot be enabled on a Windows server.

Workaround – Use the English version of the product on a Windows server.

Non-ASCII Characters Not Supported in CLI Commands

Bug 6447044 – Non-ASCII characters are not supported in CLI commands.

Workaround – Use ASCII characters only in CLI applications and for array and volume names. Also, the CLI does not support double-byte character set array data, such as Korean. In cases such as this, use the browser user interface.

SuSE Linux Displays Chinese Characters as Square

Bug 6495952 – SuSe Linux displays square for Chinese characters when installing the Common Array Manager 5.1 software. The same problem occurs on the pie charts after installation.There is no Java Asian support on SuSE Linux.

Workaround – Use Red Hat Linux on server for Chinese or Japanese locale.

Zh Locale Installation Result Page Shows Garbled Characters

Bug 6444324 – In the zh (Chinese) locale, when an installation is finished the results page shows garbled characters.

Characters Appear as Squares When Locale is English

Bug 6516766 – Localized characters are displayed as small squares on the pie charts when server locale is English.

Workaround – Use the supported locale for server.

Service Advisor Files Only Partially Translated

Bug 6520459 – Service Advisor files are partially translated for Release 5.1.2.

Operational Information

This section provides useful operational information not documented elsewhere.

Using Operating System Features for Firmware Rollbacks

Each release or patch of the Sun StorageTek Common Array Manager software spools the latest firmware on the management host during the software or patch installation. When you upgrade firmware from the management software, the software recommends needed upgrades and installs the new firmware on the array from the spooled firmware on the host.

In the unlikely event that updating the firmware on an array results in a performance or operational issue, you may want to revert back to the previous version of the array firmware by either rolling back to the previous version of the management software or backing out the firmware patch and then performing the update array function.

Such rollbacks or backouts must be planned in advance and implemented using tools and functions of the operating system on the management software host.

Each host platform that supports the Sun StorageTek Common Array Manager software offers its own facilities and methods (some by third party) for applying and backing out updates to installed software. On Solaris, for example, Live Upgrade can be used to perform upgrades of installed software such that the user can revert back to the previous version of the software by re-activating the previous environment and rebooting. Solaris also can apply and backout patches through the use of the `patchadd` and `patchrm` commands.

Refer to the operating system documentation for more information about implementing software rollback features. Such practices should be part of comprehensive software lifecycle management procedures and polices for your production environment.

Firefox And Mozilla Browsers Share Session Information

Firefox and Mozilla browsers on the same machine share session information among multiple tabs or browser windows when pointed to the Common Array Manager URL. For example, 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 and you do not have to log in again. The Current Logins field in the Common Array Manager does not increment to include the new window as another login.

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 could also open a new session that way.

When Performing an Array Import Using the CLI, do not Modify Management Objects

If you create management objects while an "import array" job is running, it might interfere with the import. Be sure that everyone who uses the destination array does not modify or create any objects (including volumes, initiators, mappings, and so on) while the import is in progress.

Registration Page Displays Upon Initial Installation

When you install the Common Array Manager software for the first time, upon logging into the browser user interface, a registration page will display. Fill out the information before continuing.

Release Documentation

Following is a list of documents related to the Sun StorageTek Common Array Manager. For any document number with *nn* as a version suffix, use the most current version available.

Application	Title	Part Number
CLI command reference	*Sun StorageTek Common Array Manager sscs (1M) CLI Quick Reference*	820-0029-*nn*
Installation and initial configuration instructions	*Sun StorageTek Common Array Manager Software Installation Guide*	820-0213-*nn*

In addition, the Common Array Manager software includes online help and man pages for CLI commands.

For array hardware information, refer to the array's release notes and hardware installation guide.

You can search for this documentation online at `http://www.sun.com/documentation.`

Firmware Files

This section lists the firmware files included in the Common Array Manager 5.1.2, by array type.

The firmware files are named as follows:

- `CRM-F/` contains controller firmware
- `CRM-F-NVSRAM/` contains controller non-volatile system random access memory (NVSRAM)
- `IOM/` contains the FC switched bunch of disks (SBOD) input/output module (IOM) firmware
- `DISK/` contains disk drive firmware

Firmware file directories each contain a link, `image.fw,` that points to the firmware image, as well as a text file, `baseline.txt,` that contains the version of the firmware image.

TABLE 13 lists the firmware files for the StorEdge 6130 Array included in this release. After you install the CAM software, these files will be located in:

- Solaris: `/var/sadm/swimages/6130`

- Windows: <system drive>:\Program Files\Sun\Common Array Manager\Component\SunStorageTekArrayFirmware\

- Linux: /opt/sun/cam/share/fw/

TABLE 13   6130 Array and Disk Firmware

Type	Version
CRM-F-NVSRAM	N2882-619843-001
CRM-F	06.19.25.10
DISK/HDS7240SBSUN400G	KFAOAC7A
DISK/HDS7250SASUN500G	0604
DISK/HUS1014FASUN146G	2A08
DISK/HUS1073FASUN72G	2A08
DISK/MAT3073FSUN72G	1403
DISK/MAT3147FSUN146G	1403
DISK/MAT3300FSUN300G	1403
DISK/MAW3147FCSUN146G	1303
DISK/MAW3073FCSUN72G	1303
DISK/MAW3300FCSUN300G	1303
DISK/ST314680FSUN146G	0407
DISK/ST373307FSUN72G	0407
DISK/ST373453FSUN72G	0449
DISK/ST314670FSUN146G	055A
DISK/ST314685FSUN146G	042D
DISK/ST314695FSUN146G	0409
DISK/ST330000FSUN300G	055A
DISK/ST373207FSUN72G	055A
DISK/ST373454FSUN72G	042D
DISK/ST373554FSUN72G	0409

TABLE 13   6130 Array and Disk Firmware *(Continued)*

Type	Version
IOM	9884
IOM-F	9643
IOM-S	9726

TABLE 14 lists the firmware files for the StorageTek 6140 Array included in this release. After you install the CAM software, these files will be located in:

- Solaris: `/var/sadm/swimages/6140`
- Windows: <system drive>:\Program Files\Sun\Common Array Manager\Component\SunStorageTekArrayFirmware\
- Linux: `/opt/sun/cam/share/fw/`

TABLE 14   6140 Array and Disk Firmware

Type	Version
CRM-F-NVSRAM	N399X-619843-004
CRM-F	06.19.25.10
DISK/HDS7240SBSUN400G	KFAOAC7A
DISK/HDS7250SBSUN500G	0604
DISK/HUS1014FASUN146G	2A08
DISK/HUS1073FASUN72G	2A08
DISK/MAT3073FSUN72G	1403
DISK/MAT3147FSUN146G	1403
DISK/MAT3300FSUN300G	1403
DISK/MAW3073FCSUN72G	1303
DISK/MAW3300FCSUN300G	1303
DISK/MAW3147FCSUN146G	1303
DISK/ST314680FSUN146G	0407
DISK/ST373307FSUN72G	0407
DISK/ST373453FSUN72G	0449
DISK/ST314670FSUN146G	055A
DISK/ST314685FSUN146G	042D
DISK/ST314695FSUN146G	0409
DISK/ST330000FSUN300G	055A

TABLE 14   6140 Array and Disk Firmware *(Continued)*

Type	Version
DISK/ST373207FSUN72G	055A
DISK/ST373454FSUN72G	042D
DISK/ST373554FSUN72G	0409
IOM	9884
IOM-F	9643
IOM-S	9726

TABLE 15 lists the firmware files for the StorageTek 6540 Array included in this release. After you install the CAM software, these files will be located in:

- Solaris: `/var/sadm/swimages/6540`
- Windows: <system drive>:\Program Files\Sun\Common Array Manager\Component\SunStorageTekArrayFirmware\
- Linux: /opt/sun/cam/share/fw/

TABLE 15   6540 Array and Disk Firmware

Type	Version
CRM-F-NVSRAM	N6091-619843-002
CRM-F	06.19.25.10
DISK/HDS7240SBSUN400G	KFAOAC7A
DISK/HDS7250SBSUN500G	0604
DISK/HUS1014FASUN146G	2A08
DISK/HUS1073FASUN72G	2A08
DISK/MAT3073FSUN72G	1403
DISK/MAT3147FSUN146G	1403
DISK/MAT3300FSUN300G	1403
DISK/MAW3073FCSUN72G	1303
DISK/MAW3147FCSUN146G	1303
DISK/MAW3300FCSUN300G	1303
DISK/ST314680FSUN146G	0407
DISK/ST373307FSUN72G	0407
DISK/ST373453FSUN72G	0449
DISK/ST314670FSUN146G	055A

TABLE 15 6540 Array and Disk Firmware *(Continued)*

Type	Version
DISK/ST314685FSUN146G	042D
DISK/ST314695FSUN146G	0409
DISK/ST330000FSUN300G	055A
DISK/ST373207FSUN72G	055A
DISK/ST373454FSUN72G	042D
DISK/ST373554FSUN72G	0409
IOM	9884
IOM-F	9643
IOM-S	9726

TABLE 16 lists the firmware files for the StorageTek 2540 Array included in this release. After you install the CAM software, these files will be located in:

- Solaris: `/var/sadm/swimages/2540`
- Windows: <system drive>:\Program Files\Sun\Common Array Manager\Component\SunStorageTekArrayFirmware\
- Linux: /opt/sun/cam/share/fw/

TABLE 16 2540 Array and Disk Firmware

Type	Version
CRM-F	06.17.52.10
CRM-F-NVSRAM	N1932-617843-002
CRM-F-NVSRAM-S	N1932-617843-903
DISK/ST330055SSUN300G	0791
DISK/ST314655SSUN146G	0791
DISK/ST373455SSUN72G	0791
IOM	0166

TABLE 17 lists the firmware files for the StorageTek 2530 Array. After you install the CAM software, these files will be located in:

- Solaris: `/var/sadm/swimages/2540`
- Windows: <system drive>:\Program Files\Sun\Common Array Manager\Component\SunStorageTekArrayFirmware\
- Linux: /opt/sun/cam/share/fw/

TABLE 17   2530 Array and Disk Firmware

Type	Version
CRM-F	06.17.52.10
CRM-F-NVSRAM	N133X-617843-003
CRM-F-NVSRAM-S	N133X-617843-904
DISK/ST330055SSUN300G	0791
DISK/ST314655SSUN146G	0791
DISK/ST373455SSUN72G	0791
IOM	0166

Service Contact Information

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

`http://www.sun.com/service/contacting`

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 that are 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 that are available on or through such sites or resources.

Adding User Roles to Windows

This appendix provides the information you need to create users in Windows and assign them to groups for privileges. The created users can sign into the Java Web Console to access the Sun StorageTek Common Array Manager software.

This appendix contains the following section:

- "Adding an Administrator User" on page 37
- "Adding New Users" on page 40

Adding an Administrator User

The Sun StorageTek Common Array Manager software needs a user with Windows administrative privileges to be available for the initial installation.

These instructions show you an example of how to configure a administrative user in Windows XP Pro. Other versions of Windows software may vary slightly. Consult the Windows documentation.

This example sets up a root user with Windows administrator privileges. Normally root Is a role associated with Unix. By using the root user concept with Windows you can have a common storage administrator's role across platforms.

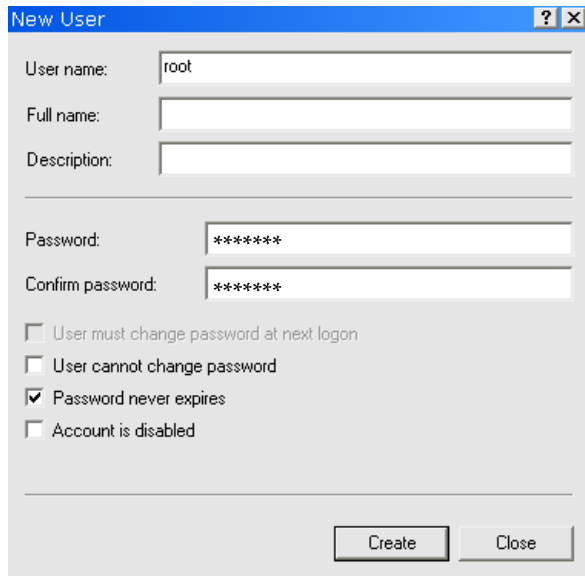1. **Click Start and select Administrative Tools -> Computer Management.**

The Computer Management window displays.

2. In the Computer Management window, select Local Users and Groups -> Users.
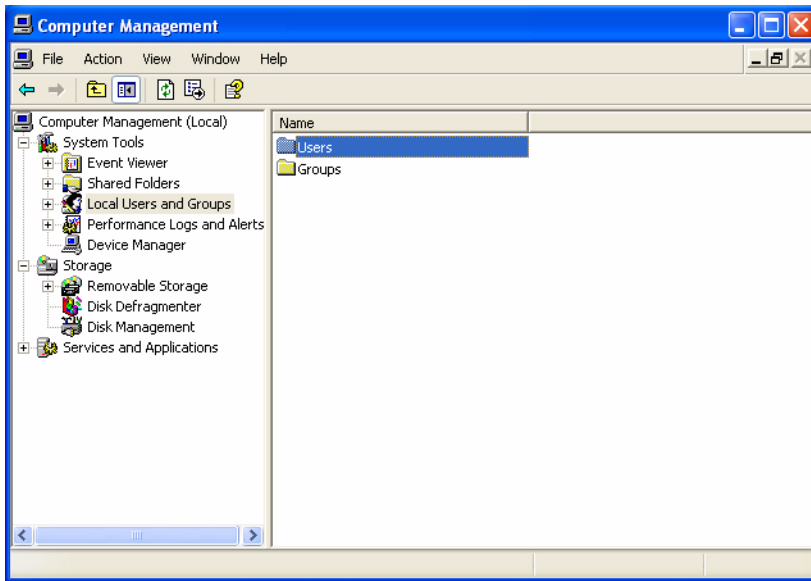
**3. Right click and select New User.**

The New User window displays.

4. **Complete the New User window as follows:**

   a. **Enter** `root` **in the User name box.**

   b. **Create a password and confirm it.**

   c. **Uncheck the box labeled User must change password at next login.**

   d. **Check Password never expires.**

   e. **Click Create.**

   The Computer Management window displays.

   f. **Select Users, right click on root, and select Properties.**
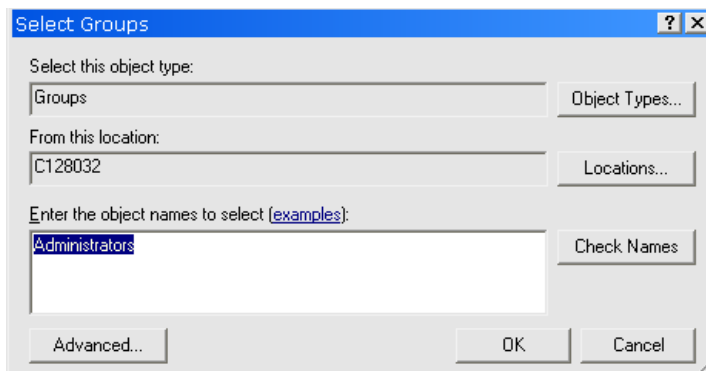
   The Root Properties window displays.
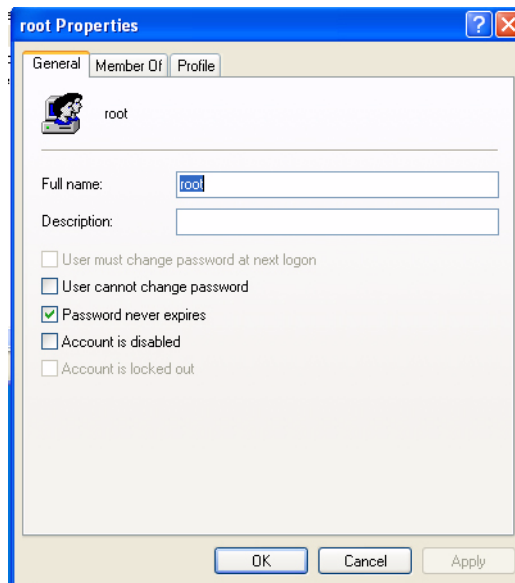
5. **Select the Member Of tab.**

6. **Select Add.**

   The `Select Groups` window displays.

7. **In the Enter the object names box, type Administrators and click Check Names.**

   The system displays the *computer-name*\Administrator group in the box labeled "Enter the object names to select".

8. **Click OK.**

   The root Properties window shows that root is a member of the Users and Administrators groups. The root user now has Windows Administrator privileges.

Note – To maintain security on the server running the management host software, only use the root user name and password the first time you log in. After the first login, create at least one user and assign it to the storage group. The storage role can perform all available management functions, including adding or modifying users.

Adding New Users

You will need a `storage` user and other users in Windows. To set up subsequent users, follow the same steps as "Adding an Administrator User" on page 37, but substitute a *user name* for `root` and `storage` for the `Administrator` role.

Note – Do not create Windows administrator users with space characters in the user name. Space characters in Windows admin user names can cause system errors later on.

When done, check the *user* Properties window and Member of tab to verify that the user is assigned to the Users and storage groups.

Using Sun Connection for Auto Service Requests

Auto Service Request (ASR) is a new feature of the array management software that monitors the array system health and performance and automatically notifies the Sun Technical Support Center when critical events occur. Critical alarms generate an automatic Service Request case. The notifications enable Sun Service to respond faster and more accurately to critical on-site issues.

You manage the Auto Service Request (ASR) capability by using a Sun StorageTek Common Array Manager software feature, Sun Connection, to complete information to register devices to participate in the ASR service.

ASR uses SSL security and leverages Sun online account credentials to authenticate transactions. The service levels are based on contract level and response times of the connected devices.

ASR is available to all customers with current StorageTek Warranty or StorageTek Spectrum Contracts. The service runs continuously from activation until the end of warranty or contract period.

Full product details and Security documentation are available online at http://www.sun.com/service/remoteconnectstorage.

This appendix contains the following section:

Supported Arrays

ASR works on all arrays supported by Sun StorageTek Common Array Manager software, version 5.1 or above, including Sun StorageTek 6130, 6140, 6540, 2530, and 2540 Arrays.

Event Information Collected

Only the event information listed in the following table is collected.
Your stored data is not read and remains secure.

The event information is sent by secure connection to
https://cns-services.sun.com.

TABLE B-1   Event Information Collected by ARS

Information	Purpose
Activation Event	Static information collected for purpose of client registration and entitlement.
Heart Beat Event	Dynamic pulse information periodically collected to establish whether a device is capable of connecting.
Alarm Event	Critical events trigger Service Requests and generate a case. Additional events are collected to provide context for existing or imminent cases.

Managing the ASR Service

Use the Sun Connection feature of the Sun StorageTek Common Array Manager software to manage the Auto Service Request feature.

After you activate the service, an email announcing the ASR activation will be sent to the contact listed in the Site Information of the management software. If you do not receive the email, the service did not activate. Refer to "Resubmitting the Activation Request" on page 46

Requirements:

- Sun StorageTek Common Array Manager software, version 5.1 and higher

- A Sun Online Account login (used for downloads and service).

  To obtain an account, go to: https://reg.sun.com/register

- The management software host must be able to establish an outbound-only connection over port 443 using HTTPS (HTTP with TLS) to communicate with https://cns-services.sun.com.

  The connection can be direct or via a proxy.

- The management software host should be able to perform Domain Name Service lookups (to resolve the base URL: cns-service.sun.com).

▼ To Enable or Disable the Service:

1. **Log into the Sun StorageTek Common Array Manager software as documented in the** *Sun StorageTek Common Array Manager Software Installation Guide***.**

2. **In the navigation pane, select General Configuration and Sun Connection.**

3. **In the Sun Online Account Information section, verify or re-enter the Sun Online Account name and password.**

4. **Verify the Internet Connection information.**

   If your connection uses a proxy server, fill out the Proxy Host Name and Proxy Port. If you need to enable Proxy Authentication, supply a user name and password.

5. **Complete one of the following to enable or disable ARS.**

   a. **To enable ARS, verify that Fault Reporting is selected.**

   b. **To disable ARS, deselect Fault Reporting.**

Note – Reliability Reporting is not currently in use. Do not select it.

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6. **Read the Purpose Statement.**

7. **Click OK to submit the request.**

   An email announcing the ASR activation or deactivation will be sent to the contact listed with the Site Information in the Sun StorageTek Common Array Manager software.

> **Note –** If you do not receive the email confirmation within 30 minutes of registering a new or existing array, you will need to resubmit the activation request as noted in the following procedure.

▼ Resubmitting the Activation Request

1. **Login to the Sun StorageTek Common Array Manager software.**

2. **In the navigation pane, expand General Configuration and choose Sun Connection.**

3. **Press the** `Clear Configuration` **button.**

4. **In the Sun Online Account Information section, re-enter all Sun Online Account information, the Account password, the internet connection settings (including proxy information, if appropriate), and check the fault reporting check-box.**

5. **Click OK to submit the request.**

   If you still do not receive an email confirmation within 30 minutes, contact your local Sun Service Support.