

Sun Storage 6580 and 6780 Arrays

Hardware Release Notes, Release 6.10



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Sun Storage 6580 and 6780 Array Hardware Release Notes

This document contains important release information about Oracle's Sun Storage 6580 and 6780 arrays running Sun Storage Common Array Manager (CAM), Version 6.10. Read about issues or requirements that can affect the installation and operation of the array.

The release notes consist of the following sections:

- ["What's In This Firmware Release" on page 1](#)
- ["Cache Battery Expiration Notification" on page 2](#)
- ["About the Array" on page 2](#)
- ["System Requirements" on page 3](#)
- ["ALUA/TPGS Multipathing with VMware" on page 9](#)
- ["Restrictions and Known Issues" on page 12](#)
- ["Product Documentation" on page 25](#)
- ["Documentation, Support, and Training" on page 26](#)

What's In This Firmware Release

Array controller firmware version 07.84.53.10 is delivered with CAM 6.10. It provides enhancements and bug fixes as described in the *Sun Storage Common Array Manager Software Release Notes*.

Downloading Firmware

Download the latest firmware from My Oracle Support (MOS) <https://support.oracle.com>. For detailed download steps, see the knowledge article 1296274.1 available on MOS.

- How to Download Common Array Manager (CAM) Software and Patches [ID 1296274.1]

Each array should be managed by one CAM management host only. Installing the management software on more than one host to manage the same array can cause discrepancies in the information reported by CAM.

Cache Battery Expiration Notification

Sun Storage 6580 and 6780 arrays use smart battery technology which maintains and reports its own status, providing a more accurate reporting of battery status. When a battery can no longer hold a charge, the battery is flagged for replacement, rather than a battery expiration report provided by the array firmware.

For more information, refer to the knowledge article: SMART Battery Functionality in Sun StorageTek 2500 and Sun Storage 6000 Arrays (Doc ID 1207186.1) available at My Oracle Support (MOS) <https://support.oracle.com>.

About the Array

The Sun Storage 6580 and 6780 array models are compared in [TABLE 1](#).

TABLE 1 Comparison of Sun Storage 6580 and 6780 Array Configurations

	6580	6780
Total cache size per array	8, 16, or 32 Gbytes	8, 16, 32, or 64 Gbytes
Number of host ports	4-Gbit/second or 8 G-bit/second	8 or 16 4-Gbit/second or 8-Gbit/second
Host interface cards	2	2 or 4
Maximum number of drives supported	256	448

TABLE 1 Comparison of Sun Storage 6580 and 6780 Array Configurations (*Continued*)

	6580	6780
Disk reads	IOPS* 115K Throughput 3000 MB/second	IOPS* 175K Throughput 6400 MB/second
Maximum array configuration	1x16	1x28
Maximum raw capacity	512 Tbytes	896 Tbytes

* Input/output operations per second.

Note – Upgrading from a 61x0 array to a Sun Storage 6580 or 6780 array is a data-in-place migration.

System Requirements

The software and hardware products that have been tested and qualified to work with the Sun Storage 6580 and 6780 arrays are described in the following sections.

- [“Firmware Requirements” on page 3](#)
- [“Supported Disk Drives and Tray Capacity” on page 4](#)
- [“Array Expansion Module Support” on page 4](#)
- [“Data Host Requirements” on page 5](#)

Firmware Requirements

The Sun Storage 6580 and 6780 arrays firmware version 07.84.53.10 is delivered with Sun Storage Common Array Manager (CAM) 6.10. The firmware is bundled with the CAM software download package.

▼ Updating Controller Firmware

To update controller firmware on an existing array:

1. **Download the software as described in [“Downloading Firmware” on page 2](#).**
2. **Log into Sun Storage Common Array Manager.**
3. **Select the check box to the left of the array you want to update.**

4. Click Install Firmware Baseline.
5. Follow the wizard instructions.

Supported Disk Drives and Tray Capacity

For the latest disk drive information, go to the Oracle System Handbook at:

Sun Storage 6580

(https://support.oracle.com/handbook_private/Systems/6580/6580.html)

Sun Storage 6780 array

(https://support.oracle.com/handbook_private/Systems/6780/6780.html)

Array Expansion Module Support

To add capacity to a Sun Storage 6580 or 6780 array, refer to the following Service Advisor procedures:

- Adding Expansion Trays
- Upgrade Firmware

Caution – To add trays with existing stored data, contact Oracle Support for assistance to avoid data loss.

TABLE 2 Supported Expansion Trays and IOM Codes

Array Controller	Firmware	Expansion Tray	IOM Code
Sun Storage 6580 and Sun Storage 6780	07.84.53.10	CSM200	98G0
		CSM100 FC	9682
		CSM100 iSATA	9728

Note – FLAxxx and FLCxxx expansion trays are not supported on Sun Storage 6580 and Sun Storage 6780 arrays with this firmware release.

For additional baseline firmware information, such as controller, NVSRAM, disk drive, version, and firmware file, see *Sun Storage Array Baseline Firmware Reference*.

Data Host Requirements

This section describes supported data host software, HBAs, and switches.

- “Multipathing Software” on page 5
- “Supported Host Bus Adaptors (HBAs)” on page 6
- “Supported FC and Multilayer Switches” on page 8
- “Supported Premium Features” on page 8

Multipathing Software

You must install multipathing software on each host that accesses data on the Sun Storage 6580 and 6780 arrays.

- For host version details, see the Sun StorageTek 6580/6780 Multipath Software Compatibility Matrix:
Sun Storage 6580/6780 array
(<https://support.oracle.com/epmos/faces/DocContentDisplay?id=1484869.1>)
- Download the latest RDAC/MPP, or MPIIO failover driver from MOS:
<https://support.oracle.com>
- MPxIO driver is included with the Solaris OS
- Single path data connections are not recommended. For more information, see “Single Path Data Connections” on page 13.

TABLE 3 Supported Data Host OS and Multipathing Software

Operating System	Multipathing Software
Solaris 11 11/11*	MPxIO
Solaris 11 11/11* ALUA/TPGS	MPxIO (TPGS)
Solaris 10u5 (minimum) [†]	MPxIO
Oracle Linux 6.5, 6.4, 6.3, 6.2, 6.1, 6.0	RDAC or DMMP
Oracle Linux 5.9, 5.8, 5.7, 5.6, 5.5	RDAC
Oracle Unbreakable Linux	DMMP
Oracle Unbreakable Linux 2	
Oracle VM 3.1.1	DMMP

TABLE 3 Supported Data Host OS and Multipathing Software (Continued)

Operating System	Multipathing Software
Oracle VM 2.2.2	RDAC
RHEL 6.5, 6.4, 6.3, 6.2, 6.1, 6.0	RDAC or DMMP
RHEL 5.9, 5.8, 5.7, 5.6, 5.5	RDAC
SLES 10.4, 10.3, 10.2, 10.1, 10.0	RDAC or MPP
SLES 11.3, 11.2, 11.1, 11.0	RDAC or DMMP
VMware ESXi 4.1 update 1 and 5.0	Native Multipathing (NMP)
Windows 2003 SP2 R2 Non-clustered	MPIO
Windows 2003/2008 MSCS Cluster	MPIO
Windows 2008 SP1 R2 (64-bit only)	MPIO

* Initial release.

† Oracle recommends installing the latest Solaris update.

Note – The multipathing driver for the IBM AIX platform is Veritas DMP, bundled in Veritas Storage Foundation 5.0 for the Sun Storage 6580 and 6780 arrays. Check with Veritas for firmware versions and array types that are supported. Download the Array Support Library (ASL) from <http://support.veritas.com/>.

Supported Host Bus Adaptors (HBAs)

TABLE 4, TABLE 5, and TABLE 6 list supported HBAs and other data host platform elements by operating system.

To obtain the latest HBA firmware:

- For Fibre Channel HBAs, download firmware from My Oracle Support using keyword “HBA.” For download instructions, see “What’s In This Firmware Release” on page 1.
- For other HBA support information, refer to the manufacturer’s web site.
- You must install multipathing software before you install any OS patches.
- Download operating system updates from the web site of the operating system company.

TABLE 4 Supported HBAs for Solaris Data Host Platforms

Oracle 2-Gbit HBAs	Oracle 4-Gbit HBAs	Oracle 8-Gb HBAs
SG-XPCI1FC-QL2 (6767A)	SG-XPCIE1FC-QF4	SG-XPCIE1FC-QF8-Z
SG-XPCI2FC-QF2-Z (6768A)	SG-XPCIE2FC-QF4	SG-XPCIE2FC-QF8-Z
SG-XPCI1FC-EM2	SG-XPCIE1FC-EM4	SG-XPCIE1FC-EM8-Z
SG-XPCI2FC-EM2	SG-XPCIE2FC-EM4	SG-XPCIE2FC-EM8-Z
	SG-XPCI1FC-QF4	SG-XPCIEFCGBE-Q8
	SG-XPCI2FC-QF4	SG-XPCIEFCGBE-E8
	SG-XPCI1FC-EM4	
	SG-XPCI2FC-EM4	
	SG-XPCIE2FCGBE-Q-Z	
	SG-XPCIE2FCGBE-E-Z	

TABLE 5 Supported HBAs for Microsoft Windows Data Host Platforms

HBAs*	Oracle 2-Gb HBAs	Oracle 4-Gb HBAs	Oracle 8-Gb HBAs
QLogic:	SG-XPCI1FC-EM2	SG-XPCIE1FC-QF4	SG-XPCIE1FC-QF8-Z
QLE 256x	SG-XPCI2FC-EM2	SG-XPCIE2FC-QF4	SG-XPCIE2FC-QF8-Z
QLE246x	SG-XPCI1FC-QL2	SG-XPCIE1FC-EM4	SG-XPCIE1FC-EM8-Z
QLA 246x	SG-XPCI2FC-QF2-Z	SG-XPCIE2FC-EM4	SG-XPCIE2FC-EM8-Z
QLA 234x		SG-XPCI1FC-QF4	SG-XPCIEFCGBE-E8
QLA 2310F		SG-XPCI2FC-QF4	SG-XPCIEFCGBE-Q8
Emulex:		SG-XPCI1FC-EM4	
LP982/LP9802/9802DC		SG-XPCI2FC-EM4	
LP9002/LP9002DC/LP952		SG-XPCIE2FCGBE-Q-Z	
LP10000/10000DC/LP1050		SG-XPCIE2FCGBE-E-Z	
LP11000/LP11002/LP1150			
Lpe11000/LPe11002/ LPe1150/Lpe12000/ LPe12002/Lpe1250			

* Refer to the HBA manufacturer's web site for support information.

TABLE 6 Supported HBAs for Linux Data Host Platforms

HBAs*	Oracle 2-Gb HBAs	Oracle 4-Gb HBAs	Oracle 8-Gb HBAs
QLogic:	SG-XPCI1FC-EM2	SG-XPCIE1FC-QF4	SG-XPCIE1FC-QF8-Z
QLE 256x	SG-XPCI2FC-EM2	SG-XPCIE2FC-QF4	SG-XPCIE2FC-QF8-Z
QLE246x	SG-XPCI1FC-QL2	SG-XPCIE1FC-EM4	SG-XPCIE1FC-EM8-Z
QLA 246x	SG-XPCI2FC-QF2-Z	SG-XPCIE2FC-EM4	SG-XPCIE2FC-EM8-Z
QLA 234x		SG-XPCI1FC-QF4	SG-XPCIEFCGBE-E8
QLA 2310F		SG-XPCI2FC-QF4	SG-XPCIEFCGBE-Q8
Emulex:		SG-XPCI1FC-EM4	
LP982/LP9802/9802DC		SG-XPCI2FC-EM4	
LP9002/LP9002DC/LP952		SG-XPCIE2FCGBE-Q-Z	
LP10000/10000DC/LP1050		SG-XPCIE2FCGBE-E-Z	
LP11000/LP11002/LP1150			
Lpe11000/LPe11002/ LPe1150/Lpe12000/ LPe12002/Lpe1250			

* Refer to the HBA manufacturer's web site for support information.

Supported FC and Multilayer Switches

The following FC fabric and multilayer switches are compatible for connecting data hosts and Sun Storage 6580 and 6780 arrays:

- Sun StorEdge Network 2 Gb FC Switch - 8, 16, and 64
- Brocade SilkWorm 200E/300/4100/4900/5000/5100/5300/7500/48000/DCX
- Cisco 9124/9134/9216/9216i/9222i/9506/9509/9513
- McDATA 6140/i10K/QPM 4 Gb blade for 6140
- QLogic SANBox 5602/9000

Supported Premium Features

Tier 1 Support

The Sun Storage 6180 arrays support the Tier 1 classified licensable features. Tier 1 classified arrays include the StorageTek 6140 and Sun Storage 6180 arrays.

Available licenses for the Sun Storage 6180:

- Domains: Base 8 domains

- Domains Upgrade: Upgrade from 8 to 128 domains
- Copy Services: Snapshot and Volume Copy
- Disk Encryption Service
- Remote Volume Mirroring

Tier 2 Support

The Sun Storage 6580 and 6780 arrays support the below Tier 2 classified arrays licensable features. Tier 2 classified arrays include the StorageTek 6540, Sun Storage 6580, and Sun Storage 6780 arrays.

Available licenses for the Sun Storage 6580 and 6780 arrays:

- Domains: Base 16 domains
- Domains Upgrade: Upgrade from 16 to 256 domains
- Domains Upgrade: Upgrade from 256 to 512 domains
- Copy Services: Snapshots and Volume Copy
- Disk Encryption Service
- Remote Volume Mirroring

ALUA/TPGS Multipathing with VMware

The following procedures describe how to add ALUA/TPGS multipathing with VMware support to any array. Starting with firmware 07.84.44.10, multipathing to ALUA/TPGS enabled arrays is provided by the VMW_SATP_ALUA plug-in. Arrays with firmware *previous* to 07.84.44.10 use the VMW_SATP_LSI plug-in.

Prerequisite:

- Array controller has firmware version previous to 07.84.44.10
- Array currently uses the standard VMW_SATP_LSI plug-in
- CAM management host is available
- All I/O to the array is stopped

For more information, refer to one of the following guides:

VMware Compatibility Guide for 6580 arrays:

(<http://www.vmware.com/resources/compatibility/detail.php?deviceCategory=san&productid=10010&deviceCategory=san&partner=>

393&keywhttp://www.vmware.com/resources/compatibility/detail.php
?deviceCategory=san&productId=9272&deviceCategory=san&partner=
393&keyword=6580&isSVA=1&page=1&display_interval=10&sortColumn=
Partner&sortOrder=Asc)

VMware Compatibility Guide for 6780 arrays:

(http://www.vmware.com/resources/compatibility/detail.php?deviceCategory=san&productId=9271&deviceCategory=san&partner=393&keyword=6780&isSVA=1&page=1&display_interval=10&sortColumn=Partner&sortOrder=Asc)

Note – The path policy supported is Round-Robin (RR) or Most Recently Used (MRU).

Procedure for ESX4.1U2 and ESXi5.0

VMware versions ESX4.1u1/u2 and ESXi5.0 (and earlier) do not automatically enable ALUA/TPGS multipathing for arrays that offer this feature. You must manually enable multipathing as described below.

VID/PID values:

- 2540-M2 array—SUN/LCSM100_F
- 2530-M2 array—SUN/LCSM100_S

1. Install CAM software with firmware version 07.84.44.10 (minimum) on the management host.

2. To enable ALUA/TPGS multipathing support for ESX 4.1Ux or ESX 5.0:

- For ESX 4,1, open a terminal to the ESX host and run the commands:

```
# esxcli nmp satp deleterule -s VMW_SATP_LSI -V SUN -M  
LCSM100_F
```

```
# esxcli nmp satp addrule -s VMW_SATP_LSI -V SUN -M LCSM100_F  
-c tpgs_off
```

Reboot the ESX host.

- For ESXi 5.0, open a terminal to the ESX host and run the following command:

```
# esxcli storage nmp satp rule add -s VMW_SATP_ALUA -V SUN  
-M LCSM100_F -c tpgs_on
```

Reboot the ESX host.

3. Verify the claim rule is added in ESX.

For ESX 4.1:

- a. Show a list of all the claim rules:

```
# esxcli nmp satp listrules
```

- b. List only the claim rules for the VMW_SATP_LSI:

```
# esxcli nmp satp listrules -s VMW_SATP_LSI
```

- c. Verify the VID/PID is SUN/LCSM100_F for 2540-M2 (or SUN/LCSM100_S for 2530-M2) and the Claim Options flag `tpgs_off` is set.

For ESXi 5.0:

- a. Show a list of all the claim rules:

```
# esxcli storage nmp satp rule list
```

- b. List only the claim rules for the VMW_SATP_ALUA:

```
# esxcli storage nmp satp rule list -s VMW_SATP_ALUA
```

- c. Verify the VID/PID for VMW_SATP_ALUA is SUN/LCSM100_F for 2540-M2 (or SUN/LCSM100_S for 2530-M2) and the Claim Options flag `tpgs_on` is set.

4. Upgrade the controller firmware to 07.84.44.10 (minimum) and its corresponding NVSRAM version via the management host. The controller firmware and NVSRAM are part of the CAM baseline.
5. Using CAM, verify the VM host initiator host type is set to VMWARE. Starting with firmware 07.84.44.10, the VMWARE host type defaults to ALUA/TPGS multipathing.
6. On the ESX host, perform a manual re-scan.
7. Verify the 7.84 ALUA-enabled arrays have the VMW_SATP_ALUA plug-in, as follows.
 - For ESX 4.1, run the command:

```
# esxcli nmp device list
```
 - For ESXi 5.0, run the command:

```
# esxcli storage nmp device list
```

For LUNs from arrays with firmware version 07.84.44.10 (and later), the value is VMW_SATP_ALUA. For LUNs from arrays with firmware version *previous* to 07.84.44.10, the value is VMW_SATP_LSI.

Procedure for ESX4.1U3 and ESXi5.0U1

Starting with ESX4.1U3 and ESXi5.0 U1, VMware automatically enables the VMW_SATP_ALUA plug-in for arrays that offer ALUA/TPGS multipathing.

1. Install CAM software with firmware version 07.84.44.10 (minimum) on the management host.
2. Upgrade the controller firmware to 07.84.44.10 (minimum) and its corresponding NVSRAM version via the management host. The controller firmware and NVSRAM are part of the CAM baseline.
3. Using CAM, verify the VM host initiator host type is set to VMWARE. Starting with firmware 07.84.44.10, the VMWARE host type defaults to ALUA/TPGS multipathing.
4. On the ESX host, perform a manual re-scan.
5. Verify the VMW_SATP_ALUA plug-in is enabled.
 - For ESX 4.1, run the command:

```
# esxcli nmp device list
```
 - For ESXi 5.0, run the command:

```
# esxcli storage nmp device list
```

For LUNs from arrays with firmware version 07.84.44.10 (and later), the value is VMW_SATP_ALUA. For LUNs from arrays with firmware version *previous* to 07.84.44.10, the value is VMW_SATP_LSI.

Restrictions and Known Issues

The following sections provide information about restrictions, known issues, and bugs (or CRs) filed against this product release. If a recommended workaround is available for a bug, it follows the bug description.

- [“Installation and Hardware Related Issues” on page 12](#)
- [“Controller Issues” on page 13](#)
- [“Documentation Issues” on page 24](#)

For information about bug fixes in this release, see the *Sun Storage Common Array Manager Software Release Notes*.

Installation and Hardware Related Issues

This section describes known issues and bugs related to installing and initially configuring Sun Storage 6580 and 6780 arrays. This section describes general issues related to Sun Storage 6580 and 6780 array hardware and firmware.

Single Path Data Connections

In a single path data connection, a group of heterogeneous servers is connected to an array through a single connection. Although this connection is technically possible, there is no redundancy, and a connection failure will result in loss of access to the array.

Caution – Because of the single point of failure, single path data connections are not recommended.

Setting the Tray Link Rate

When setting the tray link rate for an expansion tray, all expansion trays connected to the same drive channel must be set to operate at the same data transfer rate (speed).

For details about how to set the tray link rate, see “Setting the Tray Link Rate” in the *Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays*.

Controller Issues

Log Events Using SLES 11.1 With smartd Monitoring Enabled

Bug 15693183 (CR7014293) – When volumes are mapped to a SLES 11.1 host with smartd monitoring enabled, on either a Sun Storage 2500-M2 or 6780 array, it is possible to receive “IO FAILURE” and “Illegal Request ASC/ASCQ” log events.

Workaround – Either disable smartd monitoring or disregard the messages. This is an issue with the host OS.

After Re-Installing the Oracle Virtual Machine (OVM) Manager, International Standards Organizations (ISO) Files Are Listed by Universally Unique Identifier (UUID) Rather Than by Friendly Name

Operating System

- Oracle OVM 3.0.3

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you re-install the OVM manager on the host using the same ID as the previous installation. ISO file systems that were imported with the previous OVM manager are now renamed with their UUIDs rather than their friendly names. This makes it difficult to identify the ISO file systems.

Workaround

None.

After Un-Mapping a Volume from an Oracle Virtual Machine (OVM) Server, the Volume Continues to Appear in the Storage Database on the Server

Operating System

- OVM 3.0.3 with the generic SCSI plug-in

Hardware/Software/Firmware

- All controllers

Problem or Restriction

This problem occurs when you un-map a volume on an OVM server. The OVM manager continues to show the volume along with those that are still mapped to the server. When you try to assign one of the affected volumes to a virtual machine, you see this error message:

```
disk doesn't exist
```

Workaround

After you un-map the volumes, use the OVM manager to remove those volumes from the storage database on the server.

In the Oracle Virtual Machine (OVM) Manager User Interface, Only One Drive at a Time Can Be Selected for Deletion

Operating System

- OVM 3.0.3 with the generic SCSI plug-in

Hardware/Software/Firmware

- All controllers

Problem or Restriction

In the OVM user interface, only one drive at a time can be selected for deletion.

Workaround

None.

Kernel Panics During Controller Firmware (CFW) Download

Operating System

- Oracle Linux 5.7 with UEK kernel release 2.6.32-200.13.1.el5uek

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you upgrade CFW. The kernel panics on an attached host when downloading the CFW and shows the following message:

```
Kernel panic - not syncing: Fatal exceptionBUG: unable to handle
kernel NULL pointer dereference at 0000000000000180IP:
[<ffffffff8123450a>] kref_get+0xc/0x2aPGD 3c275067 PUD 3c161067 PMD
00ops: 0000 [#1] SMPlast sysfs file: /sys/block/sdc/dev
```

Workaround

To avoid this problem, do not perform a CFW upgrade on a storage array that is attached to hosts running the affected operating system version. If the problems occurs, power cycle the host.

BCM Driver Fails to Load

Operating System

- Windows Server 2012 build 9200

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you attempt to install the BCM driver on a server. The driver installs, but the component reports one of the following errors:

This device is not configured correctly. (Code1)The system cannot find the file specified.

or

The drivers for this device are not installed. (Code 28)The system cannot find the file specified.

Workaround

None.

Kernel Panics During Controller Firmware Download

Operating System

- Oracle Linux 5.8 with UEK kernel release 2.6.32-300.10.1.el5uek
- Oracle Linux 6.2 with UEK kernel release 2.6.32-300.3.1.el6uek
- Device Mapper MultiPath release 0.4.9-23.0.9.el5 and release 0.4.9-46.0.1.el6)

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you upgrade controller firmware. A host with the affected kernel with UEK support experiences a devloss error for one of the world-wide port numbers (WWPNs) followed by a kernel panic.

Workaround

To avoid this problem, upgrade the host kernel to release 2.6.32-300.23.1.

If the problems occurs, power cycle the host.

Network Interface on Device eth0 Fails to Come Online When Booting a Host

Operating System

- Oracle Linux 5.8 with UEK kernel release 2.6.32-300.10.1.el5ue

Hardware/Software/Firmware

- Controller firmware release 7.84

Problem or Restriction

This problem occurs during a host boot process when a large number (112+) of volumes are mapped to the host. At the point in the boot process where the network interface should be brought online, the host displays the following message:

```
Bringing up interface eth0: Device eth0 has different MAC address than expected. [FAILED]
```

The network interface does not come online during the boot process, and cannot subsequently be brought online.

Workaround

To avoid this problem, reduce the number of volumes mapped to host with the affected version of Oracle Linux. You can map additional volumes to the host after it boots.

When Over 128 Volumes are Mapped to a Host, Paths to Only the First 128 Volumes are Restored after the Controller is Reset

Operating System

- Oracle Linux 5.8 with UEK kernel release 2.6.32-300.10.1.el5uek

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you have more than 128 volumes mapped to a host, both controllers reboot, and only one controller comes back online. Only the first 128 volumes mapped to the host are accessible to the host for input/output (I/O)

operations after the reboot. During the controller reboot, there might be a delay before any of the volumes are accessible to the host. I/O timeouts occur when the host tries to communicate with the inaccessible volumes.

Workaround

You can avoid this problem by mapping no more than 128 volumes to a host with the affected operating system release. If the problem occurs, run the multipath command again after the controller comes back online.

Unable to Add More Than 117 Volumes to the Oracle Virtual Machine (OVM) Manager Database

Operating System

- Oracle VM 3.0.3

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you attempt to add more than 117 volumes to the database of the OVM manager. When the OVM manager scans for the additional volumes, it returns the following error:

```
OSCPugin.OperationFailedEx:'Unable to query ocfs2 devices'
```

Workaround

You can avoid this problem by deleting volumes from the OVM manager database when those volumes are no longer mapped to the OVM server.

Write-Back Cache is Disabled after Controllers Reboot with Multiple Failed Volumes in a Storage Array

Operating System

- All

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when power is turned off and then back on to a controller-drive tray while there are failed volumes in the storage array. When the controllers reboot after the power cycle, they attempt to flush restored cache data to disk. If the controllers are unable to flush the cache data because of failed volumes, all of the volumes in the storage array remain in write-through mode after the controllers reboot. This will cause a substantial reduction in performance on input/output operations.

Workaround

None.

During Multiple Node Failover/Failback Events, Input/Output (I/O) Operations Time Out Because a Resource is Not Available to a Cluster

Operating System

- Red Hat Enterprise Linux 6.2 with DMMP and SteelEye LifeKeeper Clustering application

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when a cluster loses access to a file system resource. A message similar to the following appears in the cluster log:

```
Device /dev/mapper/mpathaa not found. Will retry wait to see if it
appears. The device node /dev/mapper/mpathaa was not found or did
not appear in the udev create time limit of 60 secondsFri Apr 27
18:45:08 CDT 2012 restore: END restore of file system /home/smashmnt11
(err=1) ERROR: restore action failed for resource /home/smashmnt11
/opt/LifeKeeper/bin/lcdmachfail: restore in parallel of resource
"dmp19021"has failed; will re-try seriallyEND vertical parallel
recovery with return code -1
```

You might experience I/O timeouts.

Workaround

If this problem occurs, restart I/O operations on the storage array.

After an NVSRAM Download, a Controller Reboots a Second Time when the NVSRAM is Activated

Operating System

- All

Hardware/Software/Firmware

All controllers

- Controller firmware releases 7.80 through 7.84
- Problem or Restriction

This problem occurs when a controller detects corruption in the signature of the NVSRAM loaded on the controller. The controller restores the NSVRAM from the physical drive, and then reboots.

Workaround

The controller recovers and continues normal operations.

When a Controller is Not Set Offline Before Being Replaced, an Exception Occurs when the Replacement Controller is Brought Online

Operating System

- All

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when you fail to follow standard procedures when replacing a controller. If you do not set a controller offline before you replace it, and the replacement controller has a difference firmware level from the remaining controller, the firmware mismatch is not properly detected.

Workaround

You can avoid this problem by following the standard procedure for replacing a controller. If this problem occurs, the replacement controller reboots after the exception and the storage array returns to normal operations.

Input/Output (I/O) Errors Occur when a Cable is Disconnected between a Host and a Controller, and the Alternate Controller is Unavailable

Operating System

- Red Hat Enterprise Linux operating systems with Device Mapper Multipath (DMMP)

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when the maximum number of volumes (256) is mapped to a host. If you disconnect the cable between a controller and a host, and then reconnect the cable, I/O errors occur if the alternate controller becomes unavailable before the host can rediscover all of the volumes on the connection.

Workaround

After some delay, the host will rediscover all of the volumes and normal operations will resume.

Backup Failure or I/O Errors with Snapshot Creation or Mounting Failure During Backup of Cluster Shared Volumes (CSV)

Operating System

- Windows 2008 R2 Server (all editions) running Hyper-V cluster with CSV

Problem or Restriction

This problem occurs when a backup operation of CSVs begins. The backup application talks to the VSS provider and initiates the backup operation. The creation of a snapshot volume or mounting of a snapshot volume fails. The backup application then tries to backup the CSVs instead of a snapshot of the CSVs. If the Retry option is set with lock, the application hosted on the CSVs or data written to or read from these volumes might throw an error. If the Retry option is set without lock, the backup skips files. This error occurs because the backup application and the application hosted on the CSVs or data being written to or read from the CSVs tries to "lock" the volume or file, which results in a conflict.

Users encounter this issue whenever there is a resource conflict between the backup operation and the application trying to perform write or read operations to the volume undergoing a backup operation.

Depending on the option the customers choose, the backup operation reports one of these conditions:

- Skipped files
- Application reports errors
- Write or read operation to the volume under backup reports errors

Workaround

Run the backup operation at a time when the application is not doing write or read intensive work on the CSV undergoing backup.

Also, when using the option "Without Lock," files will be skipped and the user can then create another backup operation with the skipped files. For more information, see <http://www.symantec.com/docs/TECH195868>

Data is Misread when a Physical Drive Has an Unreadable Sector

Operating System

- Red Hat Enterprise Linux 6.x

Hardware/Software/Firmware

- All controllers
- Controller firmware release 7.84

Problem or Restriction

This problem occurs when issuing a read to a location where the length of the read includes an unreadable sector. The host operating system assumes that data up to the unreadable sector was read correctly, but this might not be the case. A bug has been opened with Red Hat.

Go to this site for more information:

(http://bugzilla.redhat.com/show_bug.cgi?id=845135)

Workaround

Replace any drives that have media errors.

Solaris 10 Guest in Fault Tolerant Mode Is Unable to Relocate Secondary Virtual Machine (VM) Upon Host Failure

Operating System

- Solaris 10 VM

Hardware/Software/Firmware

- ESXi 5.1 hosts in HA cluster configuration configured in fault tolerant mode with heavy I/O

Problem or Restriction

This problem occurs when the host fails while the host was running a secondary VM for a Solaris 10 (u10) guest. The message in the event log for that VM that reads as follows:

No compatible host for the Fault Tolerant secondary VM

When this problem occurs, the secondary VM for the guest is stuck in an Unknown status and cannot re-enable Fault Tolerance for this VM. An attempt to disable and then re-enable Fault Tolerance fails because it cannot relocate the secondary VM from a host that is not responding. Also Fault Tolerance cannot be completely turned off on the VM for the same reason.

The main problem is that the HA service reports that there are not enough resources available to restart the secondary VM. However, even after reducing all used resources in the cluster to a level so that there is an overabundance of resources, the HA service still reports that there are not enough and therefore no available host in the cluster on which to run the secondary VM. After the VM fails completely, however, the VM can be restarted and put into Fault Tolerance mode again.

The shutdown of the VM is something that always happens if a Fault Tolerance enabled VM is running unprotected without a linked secondary VM and the host on which the primary VM is running fails for any reason. The failure of the secondary VM in a node failure scenario for Solaris 10 guests can be regularly reproduced.

When a node failure happens, the customer sees that Solaris 10 guests can have issues restoring a secondary VM for Fault Tolerance enabled VMs. This is seen by reviewing the vSphere client in the cluster VM view as well as in the event log for the VM.

Workaround

In most cases, the customer can correct the problem by performing one of the following actions in the order shown. Perform one action and if that does not work, proceed to the next until the problem is resolved.

1. Disable and re-enable fault tolerance on the affected VM.
2. Turn off fault tolerance for the VM altogether and turn it back on.
3. Attempt to live vMotion the VM and try action 1 and action 2 again.

It is possible that either the host CPU model is not compatible with turning Fault Tolerance off and on for running VMs, or that, even after performing the previous action, a secondary VM still does not start. If the secondary VM does not start, the customer needs to briefly shut down the affected VM, perform action 2, and then restart the VM.

Documentation Issues

This section describes issues related to Sun Storage 6580 and 6780 array documentation.

Total Cache Size Specification for Sun Storage 6780 Array

In Table 1-1 of the Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays (820-5773-11), the value for "Total cache size" is incorrectly reported as "16 Gbytes or 32 Gbytes." As of the CAM 6.6 release, the revised value is "8, 16, 32, or 64 Gbytes." The revised value is documented in [TABLE 1](#) of this document.

Inaccurate Cabling Diagrams in Hardware Installation Guide

The *Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays* (p/n 820-5773-11) show inaccurate cabling for Controller A. Figure B-13 show two cables incorrectly routed and two other cables that are missing. On Controller A both drive ports 2 and 3 go to Array 7 and Array 6 respectively, but should go to Array 11 and Array 10. Also, the data path cable from Controller A to either Array 6 or Array 7 is missing.

Workaround: Use the cabling matrix (Figure B-14) as your cabling guide. The cabling matrix is correct.

Product Documentation

Product documentation for the Sun Storage 6580 and 6780 arrays is available at:

<http://download.oracle.com/docs/cd/E19368-01/index.html>

<http://download.oracle.com/docs/cd/E19537-01/index.html>

Product documentation for Sun Storage Common Array Manager is available at:

<http://www.oracle.com/technetwork/documentation/disk-device-194280.html>

Application	Title
Site planning information	<i>Site Planning Guide for Sun Storage 6580 and 6780 Arrays</i>
Regulatory and safety information	<i>Sun Storage Regulatory and Safety Compliance Manual</i>
Installation overview for rack-mounted arrays	<i>Getting Started Guide for Sun Storage 6580 and 6780 Rack Mounted Arrays</i>
	<i>Getting Started Guide for Sun Storage 6580 and 6780 Rack Ready Arrays</i>
Rack installation instructions	<i>Sun Rack II User's Guide</i>
Rail kit installation instructions	<i>Sun Modular Storage Rail Kit Installation Guide</i>
PDU installation instructions	<i>Power Distribution Unit Installation Guide for Sun Storage 6580 and 6780 Arrays and Sun StorageTek 2500 and 6000 Array Series</i>
Array installation instructions	<i>Hardware Installation Guide for Sun Storage 6580 and 6780 Arrays</i>
Upgrade a Sun StorageTek 6540 array to a Sun Storage 6580 or 6780 array	<i>Sun Storage 6000 Series Hardware Upgrade Guide</i>
Release-specific information for the Sun Storage Common Array Manager	<i>Sun Storage Common Array Manager Release Notes</i>
CAM software installation and initial configuration instructions	<i>Sun Storage Common Array Manager Quick Start Guide</i>
	<i>Sun Storage Common Array Manager Software Installation and Setup Guide</i>
Command line management interface reference	<i>Sun Storage Common Array Manager CLI Guide</i>

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation <http://www.oracle.com/technetwork/documentation/oracle-unified-ss-193371.html>
- Support <https://support.oracle.com>
- Training <https://education.oracle.com>