Symantec™ Dynamic Multi-Pathing 6.2 Release Notes - Solaris

Symantec.

Symantec™ Dynamic Multi-Pathing Release Notes

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Product version: 6.2

Document version: 6.2 Rev 1

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■ Hardware information

- Available memory, disk space, and NIC information
- Operating system
- Version and patch level
- Network topology
- Router, gateway, and IP address information
- Problem description:
  - Error messages and log files
  - Troubleshooting that was performed before contacting Symantec
  - Recent software configuration changes and network changes

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Documentation

Product guides are available on the media in PDF format. Make sure that you are using the current version of the documentation. The document version appears on

page 2 of each guide. The latest product documentation is available on the Symantec website.

https://sort.symantec.com/documents

Your feedback on product documentation is important to us. Send suggestions for improvements and reports on errors or omissions. Include the title and document version (located on the second page), and chapter and section titles of the text on which you are reporting. Send feedback to:

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https://www-secure.symantec.com/connect/storage-management/
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http://www.symantec.com/connect/storage-management

Support agreement resources

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Asia-Pacific and Japan	customercare_apj@symantec.com
Europe, Middle-East, and Africa	semea@symantec.com
North America and Latin America	supportsolutions@symantec.com

Dynamic Multi-Pathing Release Notes

This document includes the following topics:

About this document

This document provides important information about Symantec Dynamic Multi-Pathing (DMP) version 6.2 for Solaris. Review this entire document before you install or upgrade DMP.

The information in the Release Notes supersedes the information provided in the product documents for DMP.

This is "Document version: 6.2 Rev 1" of the *Symantec Dynamic Multi-Pathing Release Notes*. Before you start, make sure that you are using the latest version of this guide. The latest product documentation is available on the Symantec Web site at:

https://sort.symantec.com/documents

About Symantec Dynamic Multi-Pathing (DMP)

Symantec Dynamic Multi-Pathing (DMP) provides multi-pathing functionality for the operating system native devices that are configured on the system. DMP creates DMP metadevices (also known as DMP nodes) to represent all the device paths to the same physical LUN.

DMP is also available as a standalone product, which extends DMP metadevices to support ZFS. You can create ZFS pools on DMP metadevices. Starting with Solaris 11 update 1, DMP supports both root and non-root ZFS pools. For earlier versions of Solaris, DMP supports only non-root ZFS file systems.

Symantec Dynamic Multi-Pathing can be licensed separately from Storage Foundation products. Veritas Volume Manager and Veritas File System functionality is not provided with a DMP license.

DMP functionality is available with a Storage Foundation (SF) Enterprise license, an SFHA Enterprise license, and a Storage Foundation Standard license.

Veritas Volume Manager (VxVM) volumes and disk groups can co-exist with ZFS pools, but each device can only support one of the types. If a disk has a VxVM label, then the disk is not available to ZFS. Similarly, if a disk is in use by ZFS, then the disk is not available to VxVM.

About Symantec Operations Readiness Tools

Symantec Operations Readiness Tools (SORT) is a website that automates and simplifies some of the most time-consuming administrative tasks. SORT helps you manage your datacenter more efficiently and get the most out of your Symantec products.

SORT can help you do the following:

Prepare for your next installation or upgrade	■ List product installation and upgrade requirements, including operating system versions, memory, disk space, and architecture.
	■ Analyze systems to determine if they are ready to install or upgrade Symantec products and generate an Installation and Upgrade custom report.
	■ List patches by product or platform, and in the order they need to be installed. Display and download the most recent patches or historical patches.
	■ Display Array Support Library (ASL) details by vendor, platform, or Storage Foundation and High Availability (SFHA) version. ASLs make it easier to manage arrays that are connected to SFHA-based servers.
	■ List VCS and ApplicationHA agents, documentation, and downloads based on the agent type, application, and platform.
Identify risks and get server-specific recommendations	■ Analyze your servers for potential environmental risks. Generate a Risk Assessment custom report with specific recommendations about system availability, storage use, performance, and best practices.
	■ Display descriptions and solutions for thousands of Symantec error codes.
Improve efficiency	■ Get automatic email notifications about changes to patches, array-specific modules (ASLs/APMs/DDIs/DDLs), documentation, product releases, Hardware Compatibility Lists (HCLs), and VCS/ApplicationHA agents.
	■ Quickly gather installed Symantec product and license key information from across your production environment. Generate a License/Deployment custom report that includes product names, versions, and platforms, server tiers, Symantec Performance Value Units (SPVUs), and End of Service Life dates.
	■ List and download Symantec product documentation including product guides, manual pages, compatibility lists, and support articles.
	■ Access links to important resources on a single page, including Symantec product support, SymConnect forums, customer care, Symantec training and education, Symantec FileConnect, the licensing portal, and my.symantec.com. The page also includes links to key vendor support sites.
	■ Use a subset of SORT features from your iOS device. Download the application at: https://sort.symantec.com/mobile

> **Note:** Certain features of SORT are not available for all products. Access to SORT is available at no extra cost.

To access SORT, go to:

https://sort.symantec.com

Important release information

- For important updates regarding this release, review the Late-Breaking News TechNote on the Symantec Technical Support website:
  http://www.symantec.com/docs/TECH225259
- For the latest patches available for this release, go to:
  https://sort.symantec.com/
- The hardware compatibility list contains information about supported hardware and is updated regularly. For the latest information on supported hardware, visit the following URL:
  http://www.symantec.com/docs/TECH211575
- The software compatibility list summarizes each Storage Foundation and High Availability (SFHA) Solutions product stack and the product features, operating system versions, and third-party products it supports. For the latest information on supported software, visit the following URL:
  http://www.symantec.com/docs/TECH225258

> **Note:** Before you install or upgrade SFHA Solutions products, review the current compatibility lists to confirm the compatibility of your hardware and software.

Changes introduced in 6.2

This section lists the changes in Symantec Dynamic Multi-Pathing 6.2.

Changes related to installation and upgrades

The product installer includes the following changes in 6.2.

Connecting to the SORT website through a proxy server

The product installer connects to the Symantec Operations Readiness Tools (SORT) website for several purposes, such as downloading latest installer patches, and uploading installer logs; Deployment Server can connect to SORT to automatically

download Maintenance or Patch release images. In this release, before running
the product installer or Deployment Server, you can use the following proxy settings
to connect to SORT through proxy servers:

```
# https_proxy=http://proxy_server:port
# export https_proxy
# ftp_proxy=http://proxy_server:port
# export ftp_proxy
```

Support for centralized installations using the Deployment Server

The Deployment Server is a script that makes it easier to install or upgrade SFHA
releases. The Deployment Server lets you store multiple release images in one
central location and deploy them to systems of any supported UNIX or Linux platform
(6.1 or later). Prior to 6.1, releases still require the same platform, architecture,
distribution, and version of the operating system. You can use the Deployment
Server if you want to install or upgrade multiple releases and or multiple platforms.

The Deployment Server lets you do the following as described in Table 1-1.

Table 1-1   Deployment Server functionality

Feature	Description
Install or Upgrade systems with Install Bundle and Install Template	■ Install or upgrade systems with an Install Bundle. ■ Install packages on systems based on the information stored in Install Template.
Define or modify Install Bundles	Define or modify Install Bundles and save them using the Deployment Server.
Create Install Templates	Discover installed components on a running system that you want to replicate on to new systems.
Connecting the Deployment Server to SORT using a proxy server	Use a proxy server, a server that acts as an intermediary for requests from clients, for connecting the Deployment Server to the Symantec Operations Readiness Tools (SORT) website.
Platform Filtering	In Set Preference menu, choose Selected Platforms to filter the platforms that are currently being used in the deployment environment.

Note: The Deployment Server is available only for the script-based installer, not the web-based installer.

See the *Installation Guide* for more information.

Support for upgrading DMP using the web-based installer for Solaris 10 Live Upgrade

You can use the Symantec web-based installer to upgrade DMP as part of the Live Upgrade.

Run the web-based installer on the DVD to upgrade DMP.

The program uninstalls the existing version of DMP on the alternate boot disk during the process. At the end of the process, DMP 6.2 is installed on the alternate boot disk.

Support for upgrading DMP using the web-based installer for Boot Environment on Solaris 11

You can use the Symantec product installer to upgrade DMP on a BE.

Run the web-based installer on the DVD to upgrade DMP.

At the end of the process, the DMP 6.2 is installed on the alternate BE.

Release level terminology changes

With the 6.2 release, terms that are used to describe patch-based releases have changed as follows:

Table 1-2   Release level terminology changes

Pre 6.0.1	6.0.x, 6.1, 6.1.x	6.2 and forward	Status	Available from
P-Patch	Public hot fix	Patch	Official	SORT
Hot fix	Private hot fix	Hot fix	Unofficial	Customer support

Official patch releases are available from SORT. This release was previously referred to as a P-Patch or a Public hot fix and is now referred to as a Patch. Unofficial patch releases are available from customer support. Hot fix is the only unofficial patch release.

Support for setting up ssh and rsh connection using the pwdutil.pl utility

The password utility, `pwdutil.pl`, is bundled in the 6.2 release under the scripts directory. The users can run the `pwdutil.pl` utility to set up the ssh and rsh connection automatically.

System requirements

This section describes the system requirements for this release.

Hardware compatibility list

The compatibility list contains information about supported hardware and is updated regularly. For the latest information on supported hardware go to the following URL:

http://www.symantec.com/docs/TECH211575

Supported Solaris operating systems

This section lists the supported operating systems for this release of Symantec products. For current updates, visit the Symantec Operations Readiness Tools Installation and Upgrade page: https://sort.symantec.com/land/install_and_upgrade.

Table 1-3 shows the supported operating systems for this release.

Table 1-3   Supported operating systems

Operating systems	Levels	Chipsets
Solaris 10	Update 9, 10, and 11	SPARC
Solaris 11	Solaris 11.1 and up to Support Repository Update (SRU) 11.1.21.0.4.1	SPARC
	Solaris 11.2 and up to Support Repository Update (SRU) 11.2.2.0.8.0	

This release is not supported on the x86-64 architecture.

Supported Oracle VM Server for SPARC

Supported Oracle VM Server for SPARC versions are OVM 2.0, OVM 2.1, OVM 2.2, OVM 3.0, and OVM 3.1.

For supported OS version for Oracle VM Server for SPARC, refer to *Oracle VM server for SPARC Release Notes*.

The version of the Oracle Solaris operating system (OS) that runs on a guest domain is independent of the Oracle Solaris OS version that runs on the primary domain. Therefore, if you run the Oracle Solaris 10 OS in the primary domain, you can still run the Oracle Solaris 11 OS in a guest domain. Likewise if you run the Oracle Solaris 11 OS in the primary domain, you can still run the Oracle Solaris 10 OS in a guest domain.

The only difference between running the Oracle Solaris 10 OS or the Oracle Solaris 11 OS on the primary domain is the feature difference in each OS.

Fixed issues

This section covers the incidents that are fixed in this release.

Installation and upgrades fixed issues

This section describes the incidents that are fixed related to installation and upgrades in this release.

Table 1-4   Fixed issues related to installation and upgrades

Incident	Description
3325954	On Solaris 10 `xprtld` will not be started if user use jumpstart to install product
3326196	Rolling upgrade may encounter a problem if open volumes from different disk groups have the same name.
3442070	If you select rolling upgrade task from the Install Bundles menu, the Installer exits with an error.

Dynamic Multi-Pathing fixed issues

This section describes the incidents that are fixed for Dynamic Multi-Pathing in this release.

Table 1-5   Dynamic Multi-Pathing fixed issues

Incident	Description
3565212	IO failure during controller giveback operations on Netapp FAS31700 in ALUA mode.
3544980	vxconfigd V-5-1-7920 di_init() failed message after SAN tape online event.

Table 1-5   Dynamic Multi-Pathing fixed issues *(continued)*

Incident	Description
3544972	620:dmp:coredump while rebooting the OS after dmp installation.
3543284	FIO device not visible.
3542713	vxdmpadm listenclosure all displays a different ENCL from array console/VOM.
3526500	DMP I/O getting timeout lot earlier than 300 seconds if I/O statistics daemon is not running.
3520991	vxconfigd core dumps during vxdisk scandisks.
3502923	ESX panic while running add/remove devices from smartpool with no license installed on server.
3399323	The reconfiguration of DMP DB failed.
3373208	DMP wrongly sends APTPL bit 0 to array.

Known issues

This section covers the known issues in this release.

Installation known issues

This section describes the known issues during installation and upgrade.

vxlustart failed due to lumount error when performing Live Upgrade to Solaris 10 Update 11 (3035982)

Live Upgrade (LU) to Solaris 10 Update 11 using `vxlustart` fails with following error:

```
# lumount -n dest.7667 /altroot.5.10
ERROR: mount point directory </altroot.5.10> is not empty
ERROR: failed to create mount point </altroot.5.10> for file system
</dev/dsk/c1t1d0s0>
ERROR: cannot mount boot environment by name <dest.7667>
ERROR: vxlustart: Failed: lumount -n dest.7667 /altroot.5.10
```

Workaround: To perform Live Upgrade to Solaris 10 Update 11, use one of the following procedures for your operating system version.

To perform Live Upgrade from Solaris 10 Update 10 to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Use `vxlustart` to upgrade to Solaris 10 Update 11.

To perform Live Upgrade from Solaris 10 Update 9 or below to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Use `vxlustart` to upgrade to Solaris 10 Update 11.

To perform Live Upgrade from Solaris 9 to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Install the patch 121430-72. (Do NOT patch to a higher version of 121430, such as 121430-92.)

3   Use `vxlustart` to upgrade to Solaris 10 Update 11.

`installer -requirements` does not list RHEL 6 Update 6 and Oracle Linux 7 as supported platforms (3657260)

The `installer -requirements` command does not list RHEL 6 Update 6 and Oracle Linux 7 as supported platforms though they are qualified with version 6.2.

Workaround: The correct supported list is mentioned in the latest version of the product Release Notes. See the latest Release Notes on the Symantec website for the updated list.

https://sort.symantec.com/documents

On Solaris 11, if a reboot is performed during upgrade from 6.0PR1 to 6.2, the pkg verify VRTSsfmh command results in an error (3624856)

On Solaris 11, if a reboot is performed during upgrade from 6.0PR1 to 6.2, the `pkg verify VRTSsfmh` command results in the following error:

```
pkg verify VRTSsfmh
    PACKAGE
STATUS
```

```
    pkg://Symantec/VRTSsfmh
ERROR
        dir: var/opt/VRTSsfmh
             Group: 'root (0)' should be 'other (1)'
        dir: var/opt/VRTSsfmh/etc
             Missing: directory does not exist
        dir: var/opt/VRTSsfmh/logs
             Group: 'root (0)' should be 'other (1)'
        dir: var/opt/VRTSsfmh/tmp
             Group: 'root (0)' should be 'other (1)'
        file: opt/VRTSsfmh/web/operator/cgi-bin/firedrill.pl
             Missing: regular file does not exist
```

Workaround:

- Set the "Symantec" publisher repository pointing to `VRTSpkgs.p5p`.

  ```
  # pkg set-publisher -P -g /mnt/release_train/sol/6.2/
  SxRT-6.2-2014-10-01a/dvd1-sol_sparc/sol11_sparc/pkgs/VRTSpkgs.p5p
  Symantec
  ```

- Run the `pkg fix VRTSsfmh` command.

  ```
  # pkg fix VRTSsfmh
  ```

On Solaris 11, when you install the operating system together with SFHA products using Automated Installer, the local installer scripts do not get generated. (3640805)

On Solaris 11, when you use Automated Installer (AI) to install the Solaris 11 operating system together with SFHA products, the local installer scripts fail to get generated.

Workaround:

On the target system(s), execute the following script:

`/opt/VRTSsfcpi62/bin/run-once`

Installing VRTSvlic package during live upgrade on Solaris system non-global zones displays error messages [3623525]

While installing VRTSvlic package during live upgrade on Solaris system with non-global zones following error messages are displayed:

```
cp: cannot create /a/sbin/vxlicinst: Read-only file system
cp: cannot create /a/sbin/vxlicrep: Read-only file system
cp: cannot create /a/sbin/vxlictest: Read-only file system
```

Workaround: This message can be ignored. The vxlicinst, vxlicrep, vxlictest utilities are present in /opt/VRTSvlic/sbin/ inside a non-global zone.

On Sparc, Live Upgrade from Solaris 9 to Solaris 10 Update 10 may fail (2424410)

On Sparc, Live Upgrade from Solaris 9 to Solaris 10 Update 10 may fail with the following error:

```
Generating file list.
Copying data from PBE <source.24429> to ABE <dest.24429>.
99% of filenames transferredERROR: Data duplication process terminated
unexpectedly.
ERROR: The output is </tmp/lucreate.13165.29314/lucopy.errors.29314>.

29794 Killed
Fixing zonepaths in ABE.
Unmounting ABE <dest.24429>.
100% of filenames transferredReverting state of zones in PBE
<source.24429>.
ERROR: Unable to copy file systems from boot environment <source.24429>
to BE <dest.24429>.
ERROR: Unable to populate file systems on boot environment <dest.24429>.
Removing incomplete BE <dest.24429>.
ERROR: Cannot make file systems for boot environment <dest.24429>.
```

This is a known issue with the Solaris lucreate command.

Workaround: Check with Oracle for possible workarounds for this issue.

Upgrade or uninstallation of Dynamic Multi-Pathing may encounter module unload failures (2159652)

When you upgrade or uninstall Dynamic Multi-Pathing, some modules may fail to unload with error messages similar to the following messages:

```
fdd failed to stop on node_name
vxfs failed to stop on node_name
```

The issue may be observed on any one or all the nodes in the sub-cluster.

Workaround: After the upgrade or uninstallation completes, follow the instructions provided by the installer to resolve the issue.

Live Upgrade to Solaris 10 Update 10 fails in the presence of zones (2521348)

SFCFSHA Live Upgrade from Solaris 10 Update 7 5.1SP1 to Solaris 10 Update 10 using the `vxlustart` commands fails in the presence of zones with the following error message:

```
ERROR: Installation of the packages from this media of the media failed;
pfinstall returned these diagnostics:
Processing default locales
        - Specifying default locale (en_US.ISO8859-1)
Processing profile
ERROR: This slice can't be upgraded because of missing usr packages for
the following zones:
ERROR:    zone1
ERROR:    zone1
ERROR: This slice cannot be upgraded because of missing usr packages for
one or more zones.
The Solaris upgrade of the boot environment <dest.27152> failed.
```

This is a known issue with the Solaris `luupgrade` command.

Workaround: Check with Oracle for possible workarounds for this issue.

On Solaris 10, a flash archive installed through JumpStart may cause a new system to go into maintenance mode on reboot (2379123)

If a Flash archive is created on a golden host with encapsulated root disks, when this Flash archive is installed onto another host through JumpStart, the new system may go to maintenance mode when you initially reboot it.

This problem is caused by the predefined root disk mirror in the Flash archive. When the archive is applied to a clone system, which may have different hard drives, the newly cloned system may get stuck at root disk mirroring during reboot.

Workaround: Create the Flash archive on a golden host with no encapsulated root disks. Run `vxunroot` to clean up the mirrored root disks before you create the Flash archive.

Web installer does not ask for authentication after the first session if the browser is still open (2509330)

If you install or configure DMP and then close the Web installer, if you have other browser windows open, the Web installer does not ask for authentication in the subsequent sessions. Since there is no option to log out of the Web installer, the session remains open as long as the browser is open on the system.

Workaround: Make sure that all browser windows are closed to end the browser session and subsequently log in again.

Stopping the Web installer causes Device Busy error messages (2633924)

If you start the Web installer, and then perform an operation (such as prechecking, configuring, or uninstalling), you may get an error message saying the device is busy.

Workaround: Do one of the following:

- Kill the start.pl process.
- Start the webinstaller again. On the first Web page you see that the session is still active. Either take over this session and finish it or terminate it directly.

After Live Upgrade to Solaris 10 Update 10/Update 11, boot from an alternate boot environment fails [2370250]

If your setup involves volumes in a shared disk group that are mounted as CFS in a cluster, then during Live Upgrade using the `vxlustart` command from any supported Solaris version to Solaris 10 Update 10/11, boot from an alternate boot environment may fail.

Workaround:

1 Run the `vxlufinish` command. Enter:

   ```
   # vxlufinish
   ```

2 Manually delete the entries of all the volumes of shared disks that are mounted as CFS in the `/altroot.5.10/etc/vfstab` directory. Enter:

   ```
   rm -rf /altroot.5.10/etc/vfstab
   ```

3 Restart the system.

vxlustart failed due to lumount error when performing Live Upgrade to Solaris 10 Update 11 (3035982)

Live Upgrade (LU) to Solaris 10 Update 11 using `vxlustart` fails with following error:

```
# lumount -n dest.7667 /altroot.5.10
ERROR: mount point directory </altroot.5.10> is not empty
ERROR: failed to create mount point </altroot.5.10> for file system
</dev/dsk/c1t1d0s0>
ERROR: cannot mount boot environment by name <dest.7667>
ERROR: vxlustart: Failed: lumount -n dest.7667 /altroot.5.10
```

Workaround: To perform Live Upgrade to Solaris 10 Update 11, use one of the following procedures for your operating system version.

To perform Live Upgrade from Solaris 10 Update 10 to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Use `vxlustart` to upgrade to Solaris 10 Update 11.

To perform Live Upgrade from Solaris 10 Update 9 or below to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Use `vxlustart` to upgrade to Solaris 10 Update 11.

To perform Live Upgrade from Solaris 9 to Solaris 10 Update 11

1   Install the Solaris 10 Update 10 LU packages (SUNWlucfg, SUNWlur, SUNWluu) instead of the Solaris 10 Update 11 LU packages.

2   Install the patch 121430-72. (Do NOT patch to a higher version of 121430, such as 121430-92.)

3   Use `vxlustart` to upgrade to Solaris 10 Update 11.

Migration of I/O fencing-enabled disks of VxVM disk group from EMC PowerPath TPD to VxVM DMP fails [3528561]

If I/O Fencing is enabled on some disks from VxVM disk group, migration of those disks from EMC PowerPath TPD to VxVM DMP fails with the following error messages:

```
VXFEN vxfenconfig NOTICE Driver will use SCSI-3 compliant disks.
VXFEN vxfenconfig ERROR V-11-2-1090 Unable to register with a
Majority of the coordination points.
```

Workaround: Restart the server.

Symantec has reported the issue to EMC PowerPath Engineering.

For Solaris 11.1 or later, the system can panic when system is rebooted after turning dmp_native_support to on (3341674)

For Solaris 11.1 or later when more than 512 LUNs are configured, the system can panic when the system is rebooted after setting the tunable parameter `dmp_native_support` to `on`.

Workaround:

For Solaris 11.1 or later, DMP native support for ZFS is restricted to set-ups with no more than 512 LUNs.

Importing an exported zpool can fail when DMP native support is on (3133500)

On Solaris, when the tunable `dmp_native_support` is set to `on`, importing an exported zpool using the command `zpool import` *poolname* can fail with following error:

```
Assertion failed: rn->rn_nozpool == B_FALSE, file
../common/libzfs_import.c,
line 1084, function zpool_open_func
Abort (core dumped)
```

Workaround:

Import the zpool using the following command, specifying the DMP device directory:

```
# zpool import -d /dev/vx/dmp poolname
```

Creating a zpool fails with a incorrect disk size error (2277875)

When the tunable parameter dmp_native_support is turned on, creating a zpool on DMP devices may fail with the following error:

```
one or more devices is less than the minimum size (64 M)
```

This error may occur even if the device size is greater than the required minimum size.

Workaround:

To resolve this issue, use one of the following commands:

- # **vxdisk scandisks**

- # **format -e *dmp_device***

DMP aggregates EFI labelled LUNS to a 0_0 disk (2558408)

While performing `vxdiskunsetup` of some luns, if you format and label the disks as EFI, all the EFI labelled luns are aggregated to a 0_0 disk.

Workaround:

When changing the label of a disk from SMI to EFI, or vice-versa, Symantec recommends that the label be changed on all accessible paths to a disk. That is, use the `format -e` command to stamp the new label on all accessible paths. For Active/Passive (A/P) class of arrays, this should be done only on the active paths. For other arrays, all paths should be labeled.

Symantec also recommends the installation of the patch provided by Oracle for EFI label issues (IDR144101-01 or IDR144249-01 or release kernel patch 142909-17). If this patch is installed, you can run the `format -e` command only on one path. After that, perform a read operation (such as `dd if=/dev/rdsk/<path> of=/dev/null count=1`) on the other accessible paths to propagate the label.

Splitting a mirror from a zpool causes a core dump (2273367)

The following operation to split a mirror from a zpool fails:

zpool split my_pool new_pool mirror

This issue is an Oracle issue with zpool. This issue occurs whether DMP is controlling the devices or not. That is, whether the dmp_native_support tunable is on or off.

Suppressing the primary path of an encapsulated SAN boot disk from Veritas Volume Manager causes the system reboot to fail (1933631)

If you suppress the primary path of an array from VxVM control and then reboot the system, the system boot fails.

If you have an encapsulated SAN boot device with multiple primary paths, the issue occurs when you suppress the first primary path. When you configure a SAN boot device, the primary path is set as a boot device. In general, the first path of the SAN

boot device corresponds to the first configured path during SAN boot. Even if another primary path is configured as a boot device, suppressing the first device from VxVM causes the boot to fail.

Workaround:

When the boot device is suppressed from VxVM, change the OS boot device sequencing accordingly.

For Solaris SPARC system, use the `eeprom` *boot-device* command to set the boot device sequencing.

Changes in enclosure attributes are not persistent after an upgrade from release prior to VxVM 5.1SP1 (2082414)

The Veritas Volume Manager (VxVM) 6.2 includes several array names that differ from the array names in releases 5.1SP1 or prior. Therefore, if you upgrade to VxVM 6.2 from a release 5.1SP1 or earlier, changes in the enclosure attributes may not remain persistent. Any enclosure attribute set for these arrays may be reset to the default value after an upgrade to VxVM 6.2.

Workaround:

Manually reconfigure the enclosure attributes to resolve the issue.

Table 1-6 shows the Hitachi arrays that have new array names.

Table 1-6   Hitachi arrays with new array names

Previous name	New name
TagmaStore-USP	Hitachi_USP
TagmaStore-NSC	Hitachi_NSC
TagmaStoreUSPV	Hitachi_USP-V
TagmaStoreUSPVM	Hitachi_USP-VM
Hitachi AMS2300 Series arrays	New array names are based on the Model Number 8x. For example, AMS_100, AMS_2100, AMS_2300, AMS_2500, etc.

In addition, the Array Support Library (ASL) for the enclosures XIV and 3PAR now converts the cabinet serial number that is reported from Hex to Decimal, to correspond with the value shown on the GUI. Because the cabinet serial number has changed, any enclosure attribute set for these arrays may be reset to the default value after an upgrade to VxVM 6.2. Manually reconfigure the enclosure attributes to resolve the issue.

The cabinet serial numbers are changed for the following enclosures:

- IBM XIV Series arrays
- 3PAR arrays

MPxIO device names shown in error state (3169587)

In this release, DMP does not support extended attributes like AVID for Solaris MPxIO devices. Up until the 5.1SP1 release, DMP used to support AVID for the MPxIO devices. When you upgrade from 5.1SP1 or prior release to 6.0 or later release, DMP assigns new names to the MPxIO devices.

The MPxIO device may go into an error state after the upgrade, if a persistent disk access record (entry in `/etc/vx/darecs`) exists with the old name, and the device was assigned a new name.

The same issue may occur if the MPxIO device name changes for another reason, such as the changed cabinet serial numbers for 3PAR or XIV devices from 6.0.

Workaround:

Use the following procedure to remove the persistent disk access record and resolve the issue.

To resolve the issue with MPxIO devices in error state

1   Remove the following file:

   # **rm /etc/vx/darecs**

2   Reset the `vxconfigd` daemon:

   # **vxconfigd -kr reset**

Adding a DMP device or its OS device path as a foreign disk is not supported (2062230)

When DMP native support is enable, adding a DMP device or its OS device path as a foreign disk using the `vxddladm addforeign` command is not supported. Using this command can lead to unexplained behavior.

ZFS pool creation on a DMP device fails when the LUN size is between 1 TB and 2TB (2010919)

Creating a ZFS pool on a DMP device using the whole disk of size > 1TB and < 2TB that contains a SMI SUN label fails. The issue is that zpool create on a whole disk changes the device label from SMI to EFI. This causes confusion between the

OS device paths of the same DMP device due to a bug in the Sun SCSI layer. This is due to SUN BugID: 6912703.

After excluding devices managed by PowerPath from VxVM, the devices still show as DMP devices (2494632)

The issue happens after EMC PowerPath is installed and all devices are under PowerPath control. If you want to maintain the devices under PowerPath control, you use the following command to exclude the device that is managed by PowerPath from VxVM:

```
# vxdmpadm exclude dmpnodename=PowerPath_device _name
```

After system reboot, the PowerPath device still shows as a DMP device, although the device is managed by EMC PowerPath.

Workaround:

This issue is seen only during the first bootup discovery after reboot. To resolve the issue, manually trigger DMP device discovery:

```
 # vxdisk scandisks
```

For Solaris 11.1 or later, after enabling DMP native support for ZFS, only the current boot environment is bootable (3157394)

After enabling DMP native support for ZFS on Solaris 11.1 or later, only the current boot environment (BE) is bootable. Any alternate BEs in the same root pool are not bootable. This situation occurs because the DMP native support configures the ZFS root pool so that only DMP can import the root pool. If you attempt to boot the system from the alternate BE, the system panics with the following message:

```
NOTICE: zfs_parse_bootfs: error 19
Cannot mount root on rpool/193 fstype zfs

panic[cpu0]/thread=10012000: vfs_mountroot: cannot mount root

Warning - stack not written to the dumpbuf
000000001000fa00 genunix:main+17c (1, 100dc958, 12d5c00, 124702c, 0, 10828000)
  %l0-3: 0000000010010000 0000000000000000 00000000100dc800 0000000000000000
  %l4-7: 0000000010012000 0000000000000000 000000001038f7c0 000000000104c800
```

Workaround:

To enable booting from another BE, configure the ZFS root pool so that it can be imported without DMP.

To configure ZFS root pool to enable booting from all the BEs

1   At the OBP PROM, run the following command to list all the BEs:

    ```
    ok> boot -L
    ```

2   Use the following command to boot from the BE for which DMP native support for ZFS is enabled.

    ```
    ok> boot -Z rpool/ROOT/BE_name
    ```

3   After booting through new BE, disable the DMP native support using the following command:

    ```
    # vxdmpadm settune dmp_native_support=off
    ```

    The system is now bootable from any BEs in the ZFS root pool.

When dmp_native_support is set to on, commands hang for a long time on SAN failures (3084656)

When dmp_native_support is set to on, on SAN failures, commands that do I/O operations to the root file system or I/O to disks that contain the root pool may hang for about 1-5 minutes. The commands include commands like "zpool status", or telnet initiated to connect the system. The hang is seen because the drivers below the DMP layer take more time to report the I/O failure when some of the paths to the disk containing the root pool are disconnected. This situation should not lead to any root pool data corruption.

Workaround:

This hang cannot be avoided but the hang time can be reduced by tuning the following parameters

To tune the parameters

1   In the `/kernel/drv/fp.conf` file, set

`fp_offline_ticker=15`

2   In the `/kernel/drv/fcp.conf` file, set

`fcp_offline_dely=10`

3   Reboot the sytem to apply the changes.

These steps reduce the hang time to a maximum of 1 minute.

For Solaris 11.1 or later, system hangs when both QLogic and Emulex HBAs are present and dmp_native_support is turned on (3138703)

For Solaris 11.1 or later, the system may hang when both QLogic and Emulex HBAs are present, and **dmp_native_support** is turned on.

Workaround:

The system hang is not seen if all of the HBAs are either from Emulex or from QLogic. Do not combine both HBAs on the same system.

For Solaris 11.1 or later, enabling DMP native support requires steps to enable booting from alternate root pools (3133514)

For Solaris 11.1 or later, if the tunable parameter dmp_native_support is set to on, using the following command causes alternate root pools on OS devices to migrate to DMP devices:

zpool import -d /dev/vx/dmp

After the above command is run, the system cannot boot using these alternate root pools because the DMP driver is not configured for these root pools. This scenario is shown by the following output.

zpool status

```
pool: crpool
 state: ONLINE
  scan: none requested
config:

      NAME                    STATE   READ WRITE CKSUM
```

```
                            crpool                      ONLINE  0     0      0
                              /dev/vx/dmp/disk_0s0  ONLINE  0     0      0
```

Workaround:

To boot using the alternate root pools, export and re-import the root pools using the OS device.

To boot using the alternate root pools

1 Export the root pool:

```
# zpool export crpool
```

2 Display the OS path name for the device:

```
# vxdmpadm getsubpaths dmpnodename=disk_0
NAME      STATE[A]   PATH-TYPE[M] CTLR-NAME ENCLR-TYPE ENCLR-NAME ATTRS
=====================================================================
c3t2d0s2 ENABLED(A) -            c3        Disk       disk       -
```

3 Re-import the root pools using the OS device.

```
# zpool import crpool -d /dev/dsk/c3t2d0s0
```

The system is now bootable using the alternate root pools.

For Solaris 11.1 or later, uninstalling DMP or disabling DMP native support requires steps to enable booting from alternate root pools (3178642)

For Solaris 11.1 or later, after you uninstall the VxVM package or after you turn off DMP native support, you may see this issue. After reboot, the root pool containing the active boot environment is migrated to the OS device but alternate root pools continue to show DMP device. The status of the alternate root pools and their DMP devices is shown as "UNAVAIL".

```
pool: crpool
 state: UNAVAIL
status: One or more devices are unavailable in response to persistent
        errors. There are insufficient replicas for the pool to continue
        functioning.
action: Destroy and re-create the pool from a backup source. Manually
        marking the device repaired using 'zpool clear' or 'fmadm repaired'
        may allow some data to be recovered.
        Run 'zpool status -v' to see device specific details.
```

```
  scan: none requested
config:
```

NAME	STATE	READ	WRITE	CKSUM
crpool	UNAVAIL	0	0	0
emc_clariion1_82s0	UNAVAIL	0	0	0

The tunable parameter `dmp_native_support` only unconfigures DMP for the single root pool containing the active boot environment. If the setup has any alternate root pools, for which DMP native support was enabled, then the alternate root pools continue to show the DMP device. If the alternate root pool is configured in the current boot environment and DMP support is removed, the DMP devices required for ZFS are not found. The DMP devices and the root pools display the state as "UNAVAIL".

Workaround:

Even though the status of alternate root pool is "UNAVAIL", the system is bootable using the disk containing the alternate root pool. Reboot the system with the disk containing the alternate root pool. The system comes up with the root pool using the DMP device.

The DMP EMC CLARiiON ASL does not recognize mirror view not ready LUNs (3272940)

On hosts that have EMC CLARiiON mirror view not ready LUNs, if you enable or disable the switch port and then issue the `vxdisk scandisks` or `vxdctl enable` command, I/O error messages are written continuously in the syslog.

The dynamic multi-pathing (DMP) request for providing information to identify mirror view not ready LUNs through in-band SCSI command is pending with EMC engineering. Not ready LUNs are special kind of LUNs which reject all kinds of I/O requests.

Because DMP does not recognize not ready LUNs, Veritas Volume Manager (VxVM) tries to bring them online. As part of the online process, VxVM issues I/Os to read the disk private region. These I/Os fail and generate error messages in syslog.

Because of events that are generated as part of the online process, the `vxattachd` script triggers the vxdisk scandisks command again. This cycle causes continuous I/O error messages. This problem can also cause other commands to run slowly because the VxVM configuration daemon (`vxconfigd`) is busy servicing `vxdisk scandisks`.

Workaround: Stop the `vxattachd` script and set EMC CLARiiON values, as follows:

1   Disable the vxattachd process.

    For more information on how to disable vxattachd and what features you lose
    if vxattachd is disabled, see the vxattachd man page

2   Set the following EMC CLARiiON values:

    ■   recoveryoption=fixedretry

    ■   retrycount=5

    Enter:

    **vxdmpadm setattr enclosure *enclosure_name* recoveryoption=fixedretry \
    retrycount=5**

The administrator must explicitly enable and disable support for a clone device created from an existing root pool (3152984)

A non-rpool is a clone of the existing root pool. When native support is enabled,
DMP does not touch the clone root pool because the clone may or may not have
the VxVM package.

Workaround: To add or remove DMP support for a clone boot device, the
administrator must boot through the clone and turn on/off dmp_native_support.

Virtualization known issues

There are no new virtualization known issues in this release of Symantec Dynamic
Multi-Pathing (DMP).

Software limitations

This section covers the software limitations of this release.

See the corresponding Release Notes for a complete list of software limitations
related to that component or product.

See "Documentation" on page 33.

DMP does not support devices in the same enclosure that are configured in different modes (2643506)

DMP does not support the configuration where two devices in the same enclosure are configured in different modes. For example, if one device is configured as ALUA and another one is configured as Active/Passive (A/P).

DMP support for the Solaris format command (2043956)

When DMP is enabled to support Solaris ZFS pools, the Solaris `format` command displays either a path or the corresponding dmpnode. The result depends on the order in which the `format` command parses the entries in the `/dev/rdsk` directory.

DMP settings for NetApp storage attached environment

To minimize the path restoration window and maximize high availability in the NetApp storage attached environment,change the default values for the DMP tunable parameters.

Table 1-7 describes the DMP tunable parameters and the new values.

Table 1-7   DMP settings for NetApp storage attached environment

Parameter name	Definition	New value	Default value
dmp_restore_interval	DMP restore daemon cycle	60 seconds.	300 seconds.
dmp_path_age	DMP path aging tunable	120 seconds.	300 seconds.

The change is persistent across reboots.

To change the tunable parameters

1   Issue the following commands:

    # **vxdmpadm settune dmp_restore_interval=60**

    # **vxdmpadm settune dmp_path_age=120**

2   To verify the new settings, use the following commands:

    # **vxdmpadm gettune dmp_restore_interval**

    # **vxdmpadm gettune dmp_path_age**

ZFS pool in unusable state if last path is excluded from DMP (1976620)

When a DMP device is used by a ZFS pool, do not exclude the last path to the device. This can put the ZFS pool in an unusable state.

When an I/O domain fails, the vxdisk scandisks or vxdctl enable command take a long time to complete (2791127)

When an I/O domain fails, the vxdisk scandisks or vxdctl enable from the Oracle VM Server for SPARC guest take a long time to complete. `vdc_ioctls` like `DKIOCGGEOM` and `DKIOCINFO` also take more time to return. These issues seem to be due to retry operations performed at the Solaris operating system layer.

Reducing the vdc_timeout value to lower value might help to bring down time. Dynamic multi-pathing (DMP) code is optimized to avoid making such `vdc_ioctl` calls in an Oracle VM Server for SPARC guest environment as much possible. This change considerably reduces delays.

A complete resolution to this issue may require changes at the Solaris operating system level.

Documentation

Product guides are available in the PDF format on the software media in the `/docs/product_name` directory. Additional documentation is available online.

Make sure that you are using the current version of documentation. The document version appears on page 2 of each guide. The publication date appears on the title page of each document. The latest product documentation is available on the Symantec website.

http://sort.symantec.com/documents

Documentation set

Each product in the Storage Foundation and High Availability Solutions product line includes release notes, an installation guide, and additional documents such as administration and agent guides. In most cases, you may also need to refer to the documentation for the product's components.

The SFHA Solutions documents describe functionality and solutions that apply across the product line. These documents are relevant whichever SFHA Solutions product you use.

Note: The GNOME PDF Viewer is unable to view Symantec documentation. You must use Adobe Acrobat to view the documentation.

Symantec Dynamic Multi-Pathing documentation

Table 1-8 lists the documentation for Symantec Dynamic Multi-Pathing.

Table 1-8   Symantec Dynamic Multi-Pathing documentation

Document title	File name	Description
Symantec Dynamic Multi-Pathing Release Notes	dmp_notes_62_sol.pdf	Provides release information such as system requirements, changes, fixed incidents, known issues, and limitations of the product.
Symantec Dynamic Multi-Pathing Installation Guide	dmp_install_62_sol.pdf	Provides information required to install the product.
Symantec Dynamic Multi-Pathing Administrator's Guide	dmp_admin_62_sol.pdf	Provides information required for administering the product.

Veritas Operations Manager (VOM) is a management tool that you can use to manage Symantec Storage Foundation and High Availability Solutions products. If you use VOM, refer to the VOM product documentation at:

https://sort.symantec.com/documents

Manual pages

The manual pages for Symantec Storage Foundation and High Availability Solutions products are installed in the `/opt/VRTS/man` directory.

Set the `MANPATH` environment variable so the `man`(1) command can point to the Symantec Storage Foundation manual pages:

- For the Bourne or Korn shell (`sh or ksh`), enter the following commands:

  ```
  MANPATH=$MANPATH:/opt/VRTS/man
    export MANPATH
  ```

- For C shell (`csh or tcsh`), enter the following command:

  ```
  setenv MANPATH ${MANPATH}:/opt/VRTS/man
  ```

See the `man`(1) manual page.

The latest manual pages are available online in HTML format on the Symantec website at:

https://sort.symantec.com/documents