

Symantec™ Dynamic Multi-Pathing 6.1 Release Notes - AIX

Symantec™ Dynamic Multi-Pathing Release Notes

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For information about Symantec's support offerings, you can visit our website at the following URL:

www.symantec.com/business/support/index.jsp

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Contacting Technical Support

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www.symantec.com/business/support/contact_techsupp_static.jsp

Before contacting Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Product release level
- 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

Licensing and registration

If your Symantec product requires registration or a license key, access our technical support Web page at the following URL:

www.symantec.com/business/support/

Customer service

Customer service information is available at the following URL:

www.symantec.com/business/support/

Customer Service is available to assist with non-technical questions, such as the following types of issues:

- Questions regarding product licensing or serialization
- Product registration updates, such as address or name changes
- General product information (features, language availability, local dealers)
- Latest information about product updates and upgrades
- Information about upgrade assurance and support contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs or manuals

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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For information regarding the latest HOWTO articles, documentation updates, or to ask a question regarding product documentation, visit the Storage and Clustering Documentation forum on Symantec Connect.

<https://www-secure.symantec.com/connect/storage-management/forums/storage-and-clustering-documentation>

About Symantec Connect

Symantec Connect is the peer-to-peer technical community site for Symantec's enterprise customers. Participants can connect and share information with other product users, including creating forum posts, articles, videos, downloads, blogs and suggesting ideas, as well as interact with Symantec product teams and Technical Support. Content is rated by the community, and members receive reward points for their contributions.

<http://www.symantec.com/connect/storage-management>

Support agreement resources

If you want to contact Symantec regarding an existing support agreement, please contact the support agreement administration team for your region as follows:

Asia-Pacific and Japan	customercare_apac@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](#)
- [About Symantec Dynamic Multi-Pathing \(DMP\)](#)
- [About Symantec Operations Readiness Tools](#)
- [Important release information](#)
- [Changes introduced in Symantec Dynamic Multi-Pathing 6.1](#)
- [System requirements](#)
- [Fixed issues](#)
- [Known issues](#)
- [Software limitations](#)
- [Documentation](#)

About this document

This document provides important information about Symantec Dynamic Multi-Pathing (DMP) version 6.1 for AIX. 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: 6.1 Rev 3" 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 the OS native logical volume manager (LVM). You can create LVM volumes and volume groups on DMP metadevices.

DMP supports the LVM volume devices that are used as the paging devices.

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 LVM volumes and volume groups. But, each device can only support one of the types. If a disk has a VxVM label, then the disk is not available to LVM. Similarly, if a disk is in use by LVM, 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/TECH211540>
- 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/TECH213121>

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 Symantec Dynamic Multi-Pathing 6.1

This section lists the changes in Symantec Dynamic Multi-Pathing 6.1.

Changes related to installation and upgrades

The product installer includes the following changes in Symantec Dynamic Multi-Pathing 6.1.

Support for SFHA 6.1 installations from any supported operating system to any other supported operating system

You can use the Deployment Server or the web-based installer to install your 6.1 Symantec products on a target system that runs any supported UNIX or Linux platform, even if the source system and target system are running on different UNIX or Linux platforms. Prior to 6.1, releases still require the same platform, architecture, distribution, and version of the operating system.

See the *Installation Guide* for more information.

Improved patching and updating process

You can now download product maintenance releases and public hot fix releases directly from the Symantec Operations Readiness Tools (SORT) website using the installer. When you use the `installer` command with the `-version` option, the installer now lists the available GA releases, maintenance releases, and hot fix releases. If you have Internet access, you can follow the installer prompts to download available patches and hot fixes to your local system.

Downloading patches and hot fixes requires the installer to make outbound networking calls. If you know your systems are behind a firewall, or do not want the installer to make outbound networking calls, you can disable external network attempts by running the installer using the no Internet patch center (`-noipc`) option. When using the `-noipc` option, the installer does not try to connect to SORT website. For example:

```
# ./installer -version -noipc system1 system2
```

See the *Installation Guide* for more information.

Automatic download of installer hot fixes

If you are running the 6.1 product installer, and your system has Internet access, the installer automatically imports any needed installer hot fix, and begins using it.

If your system does not have Internet access, you can still download installer hot fixes manually using the [Symantec Operations Readiness Tools](#) patch finder tool.

Automatic downloading of installer hot fixes requires the installer to make outbound networking calls. If you know your systems are behind a firewall, or do not want the installer to make outbound networking calls, you can disable external network attempts by running the installer using the no Internet patch center (`-noipc`) option.

See the *Installation Guide* for more information.

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 operating system (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
Manage release images	<ul style="list-style-type: none"> ■ View available Storage Foundation releases. ■ Download maintenance and hot fix release images from the Symantec Operations Readiness Tools (SORT) website into a repository. ■ Load the downloaded release image files from FileConnect and SORT into the repository. ■ View and remove release image files stored in the repository.
Check versions	<ul style="list-style-type: none"> ■ Discovers filesets and patches installed on designated systems and informs you of the product and version installed, including installed hot fixes. ■ Identify base, maintenance, and hot fix level upgrades to your system and download maintenance and hot fix releases. ■ Query SORT for the most recent updates.
Install or upgrade systems	<ul style="list-style-type: none"> ■ Install or upgrade a release stored in the repository on selected systems. ■ In release 6.1 and later: <ul style="list-style-type: none"> ■ Install hot fix level releases. ■ Install SFHA from any supported UNIX or Linux operating system to any other supported UNIX or Linux operating system. ■ Automatically load the script-based installer hot fixes that apply to that release.

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 simultaneously installing or upgrading base releases, maintenance patches, and hot fixes

Beginning with version 6.1, Symantec offers you a method to easily install or upgrade your systems directly to a base, maintenance, or hot fix level in one step using Install Bundles. Install Bundles is the ability for installers to merge so customers can install or upgrade directly to maintenance or hot fix levels in one execution. Install Bundles consists of executing the installer from a GA release with a pointer to a higher maintenance or hot fix release. The installer installs them both as if they were combined in the same release image. The various scripts, filesets, and patch components are merged and multiple releases are installed together as if they are one install entity.

Note: This feature is not supported by the Deployment Server.

There are five possible methods of integration. All upgrades must be executed from the highest level script.

- Base + maintenance
- Base + hot fix
- Maintenance + hot fix
- Base + maintenance + hot fix
- Base or maintenance + multiple hot fixes

See the *Installation Guide* for more information.

Enhancements to DMP support for rootvg on AIX

The root volume group (rootvg) is supported on DMP devices. This release includes the following enhancements:

- The operating system commands `bosboot`, `ADI`, `mksysb restore`, and related operations no longer require an additional DMP step. In previous releases, these operations required some steps to run the `vxdmpadm native release` command and the `vxdmpadm native acquire` command. These steps are no longer required. The commands `extendvg` and `reducevg`, which are less frequently used than other boot management commands, still require steps to release and acquire the device paths. See the administrator's guide for detailed steps.

- The outputs for the `lspv` command and the `lsvg` command are changed for the rootvg devices that DMP controls. In previous releases, the output showed the DMP device name. In this release, the output shows the device path names.
- Certain upgrade paths require that you uninstall the `VRTSvxvm` fileset. In previous releases, uninstalling the `VRTSvxvm` fileset failed if the DMP root support was enabled. The upgrade required that you disable DMP root support first, which required an additional reboot of the system. In this release, uninstalling the `VRTSvxvm` fileset automatically disables DMP root support and the uninstallation succeeds. Removing a `VRTSvxvm` patch also automatically disables DMP root support, even if the `vxconfigd` daemon is not running. The new behavior reduces the number of reboots that are required to uninstall or upgrade.

Changes related to product name branding

Beginning with the 6.1 release, Storage Foundation and High Availability Solutions product names are rebranded.

[Table 1-2](#) lists the rebranded Storage Foundation and High Availability Solutions products.

Table 1-2 Rebranded Storage Foundation and High Availability Solutions products

Old product name	New product names with Symantec branding
Veritas Storage Foundation	Symantec Storage Foundation (SF)
Veritas Dynamic Multi-Pathing	Symantec Dynamic Multi-Pathing (DMP)
Veritas Replicator Option	Symantec Replicator Option
Veritas Volume Replicator	Symantec Volume Replicator (VVR)
Veritas Storage Foundation Cluster File System HA	Symantec Storage Foundation Cluster File System HA (SFCFSHA)
Veritas Storage Foundation for Oracle RAC	Symantec Storage Foundation for Oracle RAC (SFRAC)
Veritas Storage Foundation HA	Symantec Storage Foundation HA (SFHA)
Veritas Cluster Server	Symantec Cluster Server (VCS)
Veritas Disaster Recovery Advisor	Symantec Disaster Recovery Advisor (DRA)
Veritas Storage Foundation and High Availability Solutions	Symantec Storage Foundation and High Availability Solutions (SFHAS)

Table 1-2 Rebranded Storage Foundation and High Availability Solutions products (*continued*)

Old product name	New product names with Symantec branding
Veritas High Availability Agent Pack	Symantec High Availability Agent Pack
Veritas File System Software Development Kit	Symantec File System Software Development Kit

Symantec rebranding does not apply to the following:

- Product acronyms
- Command names
- Error messages
- Alert messages
- Modules and components
- Feature names
- License key description
- Veritas Operations Manager product branding

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 AIX 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
AIX 7.1	TL0, TL1, or TL2	Power 5, Power 6, or Power 7
AIX 6.1	TL6, TL7, or TL8	Power 5, Power 6, or Power 7

AIX 6.1 TL6, AIX 6.1 TL7, AIX 7.1 TL0 and AIX 7.1 TL1 require an additional IBM APAR to be installed. Contact IBM to get the necessary APAR for your level.

Required attributes of LUNs for DMP devices

When the `reserve_policy=single_path` and `reserve_lock=yes`, the SCSI-2 reserve may be placed on the device, which affects I/O load balancing and performance. To prevent the impact to load balancing and performance, set the `reserve_policy=no_reserve` and `reserve_lock=no` for the devices that are managed by DMP.

Set the following attributes for LUNs

1 Set the following attributes:

- If the path has the `reserve_policy` attribute set, change the `reserve_policy` attribute to `no_reserve` for all the paths.

```
# lsattr -E1 hdisk557 | grep res
reserve_policy single_path
Reserve Policy True

# chdev -l hdisk557 -a reserve_policy=no_reserve -P
hdisk557 changed
```

- If the path has the `reserve_lock` attribute set, change the `reserve_lock` attribute to `no`.

```
# lsattr -E1 hdisk558 | grep reserve_lock
reserve_lock yes
Reserve Device on open True

# chdev -l hdisk558 -a reserve_lock=no -P
hdisk558 changed
```

2 Reboot the system for the changes to take effect.

Fixed issues

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

Installation and upgrades fixed issues

There are no install and upgrade fixed issues in this release.

Dynamic Multi-Pathing fixed issues

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

Table 1-4 Dynamic Multi-Pathing fixed issues

Incident	Description
3331765	Failed to create a create boot image while restoring <code>mksysb</code> on a disk with multiple paths with <code>AIX61TL8SP3</code> because AIX did not save the <code>reserve_policy</code> attribute.
3263095	The following error message is seen on the console, even with a non-MPIO disk while enabling the DMP path: <code>VxVM vxdump V-5-3-0 dmp_indirect_ioctl: Ioctl Failed for 19/0x49 with error 22</code>
3261601	<code>dmp_destroy_dmpnode</code> trying to free an already freed address.
3240858	The <code>/etc/vx/vxesd/.udev_lock</code> file may have different permissions at different instances.
3236773	Multiple error messages of format <code>vxdump V-5-3-0 dmp_indirect_ioctl: Ioctl Failed</code> can be seen during <code>set/get failover-mode</code> for EMC ALUA disk array.
3218013	Dynamic Reconfiguration (DR) Tool does not delete stale OS (Operating System) device handles.
3205490	OS hangs at bootup when the boot LUN is shared across multiple nodes.
3194358	Continuous I/O error messages on OS device and DMP node can be seen in the syslog associated with the EMC Symmetrix not-ready (NR) LUNs.
3185199	Failed to restore <code>mksysb</code> when the target disk has multiple paths.

Table 1-4 Dynamic Multi-Pathing fixed issues (*continued*)

Incident	Description
3162418	The <code>vxconfigd(1M)</code> command dumps core due to an incorrect check in the <code>ddl_find_cdevno()</code> function.
3139983	Fix the design issues w.r.t to fixed, timebound and <code>path_busy</code> error retry.
3137603	VxDMP module not getting loaded after bundle installation and reboot.
3063378	Some DMP commands run slowly when EMC PowerPath presents and manages "read only" devices such as EMC SRDF-WD or BCV-NR.
3038684	Restore daemon enables the paths of BCV NR devices.
3020015	With the OS naming scheme, the procedure of putting root disk under DMP control does not work properly.
3002770	While issuing a SCSI inquiry command, NULL pointer dereference in DMP causes system panic.
2992667	When new disks are added to the SAN framework of the Virtual Intelligent System (VIS) appliance and the Fibre Channel (FC) switcher is changed to the direct connection, the <code>vxdisk list</code> command does not show the newly added disks even after the <code>vxdisk scandisks</code> command is executed.
2970368	Enhance handling of SRDF-R2 Write-Disabled devices in DMP.
2969844	The device discovery failure should not cause the DMP database to be destroyed completely.
2959733	Handling the device path reconfiguration in case the device paths are moved across LUNs or enclosures to prevent the <code>vxconfigd(1M)</code> daemon coredump.
2946440	Add back the support for "INF" for LSI and ENGENIO VIDs to the LSI ASL.
2925893	Make changes to Huawei APM to skip re-registering the keys on Secondary during failover.
2884122	VIOS:unwanted event messages seen on console.
2882908	Machine failed to bootup with error <code>PreP-BOOT : Unable to load full PreP image</code> .
2753954	At cable disconnect on port1 of dual-port FC HBA, paths via port2 marked SUSPECT.
2643506	<code>vxconfigd</code> core dumps when different LUNs of same enclosure are configured with different array modes.

Table 1-4 Dynamic Multi-Pathing fixed issues (*continued*)

Incident	Description
2567618	The VRTSexplorer dumps core in <code>vxcheckhbaapi/print_target_map_entry</code> .
2510928	The extended attributes reported by <code>vxdisk -e list</code> for the EMC SRDF luns are reported as <code>tdev mirror</code> , instead of <code>tdev srdf-rl</code> .
1289985	<code>vxconfigd</code> core dumps upon running the <code>vxctl enable</code> command.

Known issues

This section covers the known issues in this release.

Installation known issues

This section describes the known issues during installation and upgrade.

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.

The VRTSsfcp<oldversion> fileset is retained after you upgrade to Symantec Dynamic Multi-Pathing 6.1 on an alternate disk (2811749)

On AIX, if you run the command `alt_disk_scenario` to perform a disk clone and upgrade from 6.0 or later to 6.1, the older version of the VRTSsfcp fileset is retained.

Workaround: Optionally uninstall the older VRTSsfcp<oldversion> fileset after upgrading. Retaining the older version will not cause any harm.

If you have a non-shared (detached) WPAR configured, when you install, upgrade, or install any Symantec product, the filesets in the WPAR cannot be installed, upgraded, or uninstalled correspondingly (3313690)

On AIX, if you have a non-shared (detached) workload partition (WPAR) configured, when you perform an install, upgrade, or uninstall task on any Symantec product by the Symantec product installer, the filesets cannot be installed, upgraded, or uninstalled inside the WPAR correspondingly.

Workaround: There is no workaround for this issue.

If you have a shared (system) WPAR configured, when you install, upgrade, or uninstall any Symantec product, the filesets in the WPAR are not synchronized correspondingly (3313690)

On AIX, if you have a shared (system) workload partition (WPAR) configured, when you perform an install, upgrade, or uninstall task on any Symantec product by the Symantec product installer, the filesets may not be installed, upgraded, or uninstalled correspondingly.

Workaround: After an install, upgrade, or uninstall task, execute the following command to synchronize your WPAR with global systems:

```
# /usr/sbin/syncwpar -A
```

DMP does not support disks from SEAGATE which do not give unique NAA IDs (3343009)

DMP does not support disks from SEAGATE which do not give unique NAA IDs.

Workaround:

There is no workaround for this issue.

For HP 3PAR array with firmware 3.1.2, all subpaths are not enabled after the reboot of the array controller (3049401)

This issue occurs on the AIX platform with the HP 3PAR array with firmware 3.1.2. After an array controller is rebooted, some of the paths through that controller remain in disabled state even after the controller is up.

Workaround:

After the controller is rebooted, use the following command to enable all of the paths:

```
# vxdisk scandisks
```

Some paths in DMP can get DISABLED if LVM volume group is created on OS device path (1978941)

On AIX, when an LVM volume group is created directly on the OS device path, the SCSI driver performs SCSI2 reservation on the rest of the paths to that LUN. As a result, some of the paths of the corresponding DMP devices may be disabled, as shown by the `vxmpadm getsubpaths` command output. For some arrays, the `vxdisk list` command shows the device in the 'error' state.

This issue is not seen when LVM volume groups are created on the DMP devices.

Example of this issue:

```
# vxdisk list | grep emc0_00bc
emc0_00bc      auto:none      -              -              online invalid

# vxmpadm getsubpaths dmpnodename=emc0_00bc
NAME          STATE[A]  PATH-TYPE[M]  CTLR-NAME  ENCLR-TYPE  ENCLR-NAME  ATTRS
=====
hdisk110     ENABLED(A)  -             fscsi0     EMC         emc0        -
hdisk123     ENABLED(A)  -             fscsi0     EMC         emc0        -
hdisk136     ENABLED(A)  -             fscsi1     EMC         emc0        -
hdisk149     ENABLED(A)  -             fscsi1     EMC         emc0        -

# vxdisk rm emc0_00bc

# mkvg -y dmvg hdisk110
dmvg

# lspv | egrep "hdisk110|hdisk123|hdisk136|hdisk149"
hdisk110      00c492ed6fbda6e3      dmvg      active
hdisk123      none                   None
```

```
hdisk136      none          None
hdisk149      none          None
```

```
# vxdisk scandisks
```

```
# vxmpadm getsubpaths dmpnodename=emc0_00bc
```

NAME	STATE [A]	PATH-TYPE [M]	CTLR-NAME	ENCLR-TYPE	ENCLR-NAME	ATTRS
hdisk110	ENABLED (A)	-	fscsi0	EMC	emc0	-
hdisk123	DISABLED	-	fscsi0	EMC	emc0	-
hdisk136	DISABLED	-	fscsi1	EMC	emc0	-
hdisk149	DISABLED	-	fscsi1	EMC	emc0	-

To recover from this situation

- 1 Varyoff the LVM volume group:

```
# varyoffvg dmxvg
```

- 2 Remove the disk from VxVM control.

```
# vxdisk rm emc0_00bc
```

- 3 Trigger DMP reconfiguration.

```
# vxdisk scandisks
```

- 4 The device which was in DISABLED state now appears as ENABLED.

```
# vxmpadm getsubpaths dmpnodename=emc0_00bc
```

NAME	STATE [A]	PATH-TYPE [M]	CTLR-NAME	ENCLR-TYPE	ENCLR-NAME	ATTRS
hdisk110	ENABLED (A)	-	fscsi0	EMC	emc0	-
hdisk123	ENABLED (A)	-	fscsi0	EMC	emc0	-
hdisk136	ENABLED (A)	-	fscsi1	EMC	emc0	-
hdisk149	ENABLED (A)	-	fscsi1	EMC	emc0	-

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

The Veritas Volume Manager (VxVM) 6.1 includes several array names that differ from the array names in releases 5.1SP1 or prior. Therefore, if you upgrade to VxVM 6.1 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 6.1. Manually reconfigure the enclosure attributes to resolve the issue.

Table 1-5 shows the Hitachi arrays that have new array names.

Table 1-5 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
<New Addition>	Hitachi_R700
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 6.1. 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

MPIO device names shown in error state (3169587)

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

The MPIO 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 MPIO device name changes for another reason, such as the changed cabinet serial numbers for 3PAR or XIV devices.

Workaround:

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

To resolve the issue with MPIIO 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.

Devices unmanaged from PowerPath go into error state (2482308)

After unmanaging devices from PowerPath, devices go into an error state.

Workaround:

Reboot the system to enabled DMP to claim the devices.

Mksysb restore fails if physical volumes have identical PVIDs (3133542)

When you have multiple paths to the rootvg devices, restoring a `mksysb` backup file fails with the following error:

```
0516-1775 /usr/sbin/varyonvg: Physical volumes hdisk2 and hdisk18 have identical PVIDs.
```

This error is caused by an issue with IBM AIX.

Workaround:

Contact IBM support to obtain the fix. Refer to IBM APAR IV25286 for more details.

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 `vxctl 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 other commands to run slowly because the VxVM configuration daemon (`vxconfigd`) is busy servicing `vxdisk scandisks`.

Workaround: Stop the `vxattachd` script and:

- 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:

```
vxddmpadm setattr enclosure enclosure_name recoveryoption=fixedretry \  
retrycount=5
```

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 27.

Limitation with device renaming on AIX 6.1TL6

If you rename an operating system (OS) path with the `rendev` command on AIX 6.1TL6, the operation might remove the paths from DMP control. DMP cannot discover these paths.

Upgrade of secure clusters not supported using native operating system tools

This release does not support the upgrade of secure clusters using native operating system tools such as Alternate Disk Installation (ADI) and Network Install Manager Alternate Disk Migration (NIMADM).

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 1-6](#) describes the DMP tunable parameters and the new values.

Table 1-6 DMP settings for NetApp storage attached environment

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

The change is persistent across reboots.

To change the tunable parameters

- 1 Issue the following commands:

```
# vxddmpadm settune dmp_restore_interval=60  
  
# vxddmpadm settune dmp_path_age=120
```

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

```
# vxddmpadm gettune dmp_restore_interval  
  
# vxddmpadm gettune dmp_path_age
```

DMP support in AIX virtualization environment (2138060)

DMP does not support exporting paths to the same LUN through both vSCSI and NPIV interfaces.

DMP treats the same LUN seen through vSCSI and NPIV interfaces as two separate LUNs, because the behavior of the LUN at the VIOC level is different due to the intermediate SCSI interface at the VIOS level for vSCSI devices.

LVM volume group in unusable state if last path is excluded from DMP (1976620)

When a DMP device is used by a native LVM volume group, do not exclude the last path to the device. This can put the LVM volume group in an unusable state.

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.

Symantec Dynamic Multi-Pathing documentation

[Table 1-7](#) lists the documentation for Symantec Dynamic Multi-Pathing.

Table 1-7 Symantec Dynamic Multi-Pathing documentation

Document title	File name	Description
<i>Symantec Dynamic Multi-Pathing Release Notes</i>	dmp_notes_61_aix.pdf	Provides release information such as system requirements, changes, fixed incidents, known issues, and limitations of the product.
<i>Symantec Dynamic Multi-Pathing Installation Guide</i>	dmp_install_61_aix.pdf	Provides information required to install the product.
<i>Symantec Dynamic Multi-Pathing Administrator's Guide</i>	dmp_admin_61_aix.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>