Veritas™ Dynamic Multi-Pathing 6.0.1 Release Notes - AIX

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Symantec™

Veritas™ Dynamic Multi-Pathing Release Notes

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Document version: 6.0.1 Rev 3

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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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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.

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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/forums/storage-and-clustering-documentation

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

Support agreement resources

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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 Veritas Dynamic Multi-Pathing (DMP) version 6.0.1 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: 6.0.1 Rev 3" of the *Veritas 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 Veritas Dynamic Multi-Pathing (DMP)

Veritas Dynamic Multi-Pathing (DMP) provides multi-pathing functionality for the operating system native devices 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 stand-alone 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 LVM volume devices that are used as the paging devices.

Veritas 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, a SF HA 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 Web site 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. ■ Download the latest patches, documentation, and high availability agents from a central repository. ■ Access up-to-date compatibility lists for hardware, software, databases, and operating systems.
Manage risks	■ Get automatic email notifications about changes to patches, array-specific modules (ASLs/APMs/DDIs/DDLs), and high availability agents from a central repository. ■ Identify and mitigate system and environmental risks. ■ Display descriptions and solutions for hundreds of Symantec error codes.
Improve efficiency	■ Find and download patches based on product version and platform. ■ List installed Symantec products and license keys. ■ Tune and optimize your environment.

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/TECH164885
- 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/TECH170013

Before installing or upgrading Storage Foundation and High Availability Solutions products, review the current compatibility list to confirm the compatibility of your hardware and software.

Changes introduced in DMP 6.0.1

This section lists the changes in Veritas Dynamic Multi-Pathing 6.0.1.

New versioning process for SFHA Solutions products

Symantec made some changes to simplify the versioning process to ensure that customers have a unified experience when it comes to deploying our different products across Storage, Availability, Backup, Archiving and Enterprise Security products. With this change, all the products will have a 3 digit version. In complying with this approach, the current SFHA Solutions release is available as version 6.0.1.

New directory location for the documentation on the software media

The PDF files of the product documentation are now located in the `/docs` directory on the software media. Within the `/docs` directory are subdirectories for each of the bundled products, which contain the documentation specific to that product. The `sfha_solutions` directory contains documentation that applies to all products.

Dynamic Reconfiguration tool

Dynamic Multi-Pathing provides a Dynamic Reconfiguration tool. The Dynamic Reconfiguration tool is an interactive tool to automate dynamic reconfiguration of LUNs or HBAs. Dynamic reconfiguration includes addition, removal or replacement of LUNs, and replacement of certain HBAs, without requiring a reboot. The Dynamic Reconfiguration tool simplifies the process, so that you do not need a complex set of DMP and operating system related commands.

Changes related to installation and upgrades

The product installer includes the following changes in 6.0.1.

Locally-installed installation and uninstallation scripts now include the release version

When you run local scripts (/opt/VRTS/install) to configure Veritas products, the names of the installed scripts now include the release version.

Note: If you install your Veritas product from the install media, continue to run the `installdmp` command without including the release version.

To run the script from the installed binaries, run the `installdmp<version>` command.

Where *<version>* is the current release version with no periods or spaces.

For example, to configure the 6.0.1 version of your product, run this command:

```
# /opt/VRTS/install/installdmp601 -configure
```

Support for tunables file templates

You can use the installer to create a tunables file template. If you start the installer with the `-tunables` option, you see a list of all supported tunables, and the location of the tunables file template.

Additional installation postcheck options

The `postcheck` option has been enhanced to include additional checks.

You can use the installer's post-check option to perform the following checks:

- General checks for all products.
- Checks for Volume Manager (VM).
- Checks for File System (FS).
- Checks for Cluster File System (CFS).

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/TECH170013

Supported AIX operating systems

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

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

Table 1-1 Supported operating systems

Operating systems	Levels	Chipsets
AIX 7.1	TL0 or TL1	Any chipset that the operating system supports
AIX 6.1	TL5	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.

DMP: issues fixed in 6.0.1

This section covers the incidents that are fixed in DMP 6.0.1.

Installation and upgrades: issues fixed in 6.0.1

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

Table 1-2 Fixed issues related to installation and upgrades

Incident	Description
2627076	Incorrect server names sometimes display if there is a clock synchronization issue.
2526709	DMP-OSN tunable value not get persistence after upgrade from 5.1SP1 to 6.0.
2088827	During product migration the installer overestimates disk space use.

Installation and upgrades: Issues fixed in 6.0 RP1

There are no new fixed incidents for installation and upgrades in 6.0 RP1.

Dynamic Multi-Pathing: issues fixed in 6.0.1

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

Table 1-3 Veritas Dynamic Multi-Pathing fixed issues

Incident	Description
2826958	pwwn no is not displayed in the output of command "vxdmpadm list dmpnode dmpnodename=".
2818840	Enhance the vxdmpraw utility to support permission and root:non-system ownership be set and make it persistent.
2792242	I/O hang after performing zone remove/add operations.
2743926	DMP restored fails to restart during system boot in 6.0.
2729501	exclude path not working properly and can cause system hang while coming up after enabling native support.
2727590	STRATUS: vxconfigd dumped core after renaming iscsi device from OS side.
2700086	EMC BCV (NR) established devices are resulting in multiple dmp events messages (paths being disabled/enabled).
2652485	Inactive snapshot luns cause trespassing.
2626199	vxdmpadm list dmpnode printing incorrect path-type.
2564092	[VxVM][Usability]Automate the lun provisioning (addition) / removal steps using vxdiskadm /or new VxVM CLI command.
2556467	DMP-ASM: disable all paths and reboot host cause /etc/vx/.vxdmprawdev records losing.

Known issues

This section covers the known issues in this release.

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 `vxdmpadm 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

# vxdmpadm 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 dmxvg hdisk110
dmxvg

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

# vxdisk scandisks

# vxdmpadm 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.

```
# vxdmpadm 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 to VxVM 6.0.1 (2082414)

The Veritas Volume Manager (VxVM) 6.0.1 includes several array names that differ from the array names in releases prior to release 5.1SP1. Therefore, if you upgrade from a previous release to VxVM 6.0.1, 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 6.0.1. Manually reconfigure the enclosure attributes to resolve the issue.

Table 1-4 shows the Hitachi arrays that have new array names.

Table 1-4 Hitachi arrays with new array names

Previous name	New name
TagmaStore-USP	Hitachi_USP
TagmaStore-NSC	Hitachi_NSC
TagmaStoreUSPV	Hitachi_USP-V

Table 1-4 Hitachi arrays with new array names *(continued)*

Previous name	New name
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 6.0.1. 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

DS4K series array limitations

In case of DS4K array series connected to AIX host(s), when all the paths to the storage are disconnected and reconnected back, the storage does not get discovered automatically. To discover the storage, run the `cfgmgr` OS command on all the affected hosts. After the `cfgmgr` command is run, the DMP restore daemon brings the paths back online automatically in the next path restore cycle. The time of next path restore cycle depends on the restore daemon interval specified (in seconds) by the tunable dmp_restore_interval.

```
# vxdmpadm gettune dmp_restore_interval
        Tunable           Current Value  Default Value
------------------------  -------------  -------------
dmp_restore_interval           300            300
```

On DS4K array series connected to AIX host(s) DMP is supported in conjunction with RDAC. DMP is not supported on DS4K series arrays connected to AIX hosts In MPIO environment.

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.

Continuous trespass loop when a CLARiiON LUN is mapped to a different host than its snapshot (2761567)

If a CLARiiON LUN is mapped to a different host than its snapshot, a trespass on one of them could cause a trespass on the other. This behavior could result in a loop for these LUNs, as DMP tries to fail back the LUNs if the primary paths are available.

Workaround:

To avoid this issue, turn off the `dmp_monitor_ownership` tunable:

```
# vxdmpadm settune dmp_monitor_ownership=off
```

In some cases with large LUN setup, the storage disappears after DMP device scan (2828328)

This issue is typically seen on a large LUN setup. In some cases, the storage disappears after the DMP device scan. The DMP device scan is generated with the `vxdisk scandisks` command or the `vxdctl enable` command. Even if the OS command `ioscan` can discover devices, VxVM/DMP cannot.

Workaround:

Restarting the `vxconfigd` daemon on the affected node may resolve the issue. If that does not work, you must reboot the system.

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 VRTSsfcpi60 6.0.0.0 fileset is retained after you upgrade to 6.0.1 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 6.0.1, the older version of the VRTSsfcpi fileset is retained.

Workaround: Optionally uninstall the older VRTSsfcpi60 fileset after upgrading. Retaining the older version will not cause any harm.

Perl module error on completion of DMP installation (2873102)

When you install, configure, or uninstall DMP, the installer prompts you to optionally upload installation logs to the Symantec Web site. If the installer encounters connectivity problems, you may see an error similar to the following:

```
Status read failed: Connection reset by peer at
<midia_path>/../perl/lib/5.14.2/Net/HTTP/Methods.pm line 269.
```

Workaround:

Ignore this error. It is harmless.

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 20.

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, set the following DMP tunables:

Table 1-5

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
```

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.

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).

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

Table 1-6 lists the documentation for Veritas Dynamic Multi-Pathing.

Table 1-6 Veritas Dynamic Multi-Pathing documentation

Document title	File name
Veritas Dynamic Multi-Pathing Release Notes	dmp_notes_601_aix.pdf
Veritas Dynamic Multi-Pathing Installation Guide	dmp_install_601_aix.pdf
Veritas Dynamic Multi-Pathing Administrator's Guide	dmp_admin_601_aix.pdf

If you use Veritas Operations Manager (VOM) to manage Veritas Storage Foundation and High Availability products, refer to the VOM product documentation at:

http://sort.symantec.com/documents

Manual pages

The manual pages for Veritas 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 Veritas 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.