

# Veritas™ Dynamic Multi-Pathing Release Notes

AIX

5.1 Service Pack 1

# Veritas Dynamic Multi-Pathing Release Notes

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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:

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- 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:

[docs@symantec.com](mailto:docs@symantec.com)

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](mailto:customercare_apac@symantec.com)

Europe, Middle-East, and Africa [semea@symantec.com](mailto:semea@symantec.com)

North America and Latin America [supportsolutions@symantec.com](mailto:supportsolutions@symantec.com)

# Dynamic Multi-Pathing Release Notes

This document includes the following topics:

- [About this document](#)
- [About Veritas Dynamic Multi-Pathing](#)
- [About Symantec Operations Readiness Tools](#)
- [Important release information](#)
- [System requirements](#)
- [Software limitations](#)
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## About this document

This document provides important information about Veritas Dynamic Multi-Pathing (Dynamic Multi-Pathing) version for AIX. Review this entire document before you install Dynamic Multi-Pathing.

The information in the Release Notes supersedes the information provided in the product documents for Dynamic Multi-Pathing.

This is Document version: 5.1SP1.3 of the *Veritas Dynamic Multi-Pathing Release Notes*. Before you start, ensure that you are using the latest version of this guide. The latest product documentation is available on the Symantec Web site at:

<http://www.symantec.com/business/support/overview.jsp?pid=15107>

## About Veritas Dynamic Multi-Pathing

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.

In previous Veritas releases, DMP was only available as a feature of Veritas Volume Manager (VxVM). DMP supported VxVM volumes on DMP metadevices, and Veritas File System (VxFS) file systems on those volumes.

This release extends DMP metadevices to support OS native logical volume managers (LVM). You can create LVM volumes and volume groups on DMP metadevices.

In this release, Veritas Dynamic Multi-Pathing does not support Veritas File System (VxFS) on DMP devices.

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 set of Web-based tools and services that lets you proactively manage your Symantec enterprise products. SORT automates and simplifies administration tasks, so you can manage your data center more efficiently and get the most out of your Symantec products. SORT lets you do the following:

- Collect, analyze, and report on server configurations across UNIX or Windows environments. You can use this data to do the following:
  - Assess whether your systems are ready to install or upgrade Symantec enterprise products
  - Tune environmental parameters so you can increase performance, availability, and use
  - Analyze your current deployment and identify the Symantec products and licenses you are using
- Upload configuration data to the SORT Web site, so you can share information with coworkers, managers, and Symantec Technical Support
- Compare your configurations to one another or to a standard build, so you can determine if a configuration has "drifted"

- Search for and download the latest product patches
- Get notifications about the latest updates for:
  - Patches
  - Hardware compatibility lists (HCLs)
  - Array Support Libraries (ASLs)
  - Array Policy Modules (APMs)
  - High availability agents
- Determine whether your Symantec enterprise product configurations conform to best practices
- Search and browse the latest product documentation
- Look up error code descriptions and solutions

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**Note:** Certain features of SORT are not available for all products.

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To access SORT, go to:

<http://sort.symantec.com>

## Important release information

- The latest product documentation is available on the Symantec Web site at: <http://www.symantec.com/business/support/overview.jsp?pid=15107>
- For important updates regarding this release, review the Late-Breaking News TechNote on the Symantec Technical Support website: <http://entsupport.symantec.com/docs/334998>
- For the latest patches available for this release, go to: <http://sort.symantec.com/>

## 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/TECH74012>

## Supported AIX operating systems

This section lists the supported operating systems for this release of Veritas products.

Product installation scripts verify the required update levels. The installation process terminates if the target systems do not meet the maintenance level requirements.

The minimum system requirements for this release are as follows:

For Power 6 or earlier processors at one of the following levels:

- AIX 6.1 TL2
- AIX 5.3 at one of the following levels:
  - TL7 with SP6 or later
  - TL8 with SP4 or later

For Power 7 processors at one of the following levels:

- AIX 6.1 TL5 with Service Pack 1 or later
- AIX Version 5.3 executing in POWER6 or POWER6+ compatibility at the following levels:
  - TL11 with Service Pack 2 or later
  - TL10 with Service Pack 4 or later

For important updates regarding this release, review the Late-Breaking News TechNote on the Symantec Technical Support website:

<http://entsupport.symantec.com/docs/334998>

## Veritas Storage Foundation memory requirements

A minimum of 1 GB of memory is strongly recommended.

# Software limitations

This section covers the software limitations of this release.

See [“Documentation”](#) on page 18.

## 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.

## 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 1-1**

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:

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

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

```
# vxddpadm gettune dmp_restore_interval
# vxddpadm gettune dmp_path_age
```

## DMP support in AIX virtualization environment (2038475)

A single enclosure cannot have both NPIV and vSCSI LUNs. Each enclosure can have either vSCSI or NPIV LUNs. DMP does not support a mixed configuration.

## 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.

## Known issues

This section covers the known issues in this release.

See the corresponding Release Notes for a complete list of known issues related to that product.

See [“Documentation”](#) on page 18.

## 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 dmxxvg hdisk110
dmxxvg

# lspv | egrep "hdisk110|hdisk123|hdisk136|hdisk149"
hdisk110      00c492ed6fbda6e3      dmxxvg      active
```

```

hdisk123          none          None
hdisk136          none          None
hdisk149          none          None

```

```
# vxdisk scandisks
```

```
# vxddmpadm 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 dmxxvg
```

- 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.

```
# vxddmpadm 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	-

## I/O fails on some paths after array connectivity is restored, due to high restore daemon interval (2091619)

If a path loses connectivity to the array, the path is marked with the `NODE_SUSPECT` flag. After the connectivity is restored, the restore daemon detects that the path is restored when the restore daemon probes the paths. The restore daemon clears the `NODE_SUSPECT` flag and makes the path available for

I/O. The restore daemon probes the paths at the interval set with the tunable parameter `dmp_restore_interval`. If you set the `dmp_restore_interval` parameter to a high value, the paths are not available for I/O until the next interval.

## Node is not able to join the cluster with high I/O load on the array with Veritas Cluster Server (2124595)

When the array has a high I/O load, the DMP database exchange between master node and joining node takes a longer time. This situation results in VCS resource online timeout, and then VCS stops the join operation.

### Workaround:

Increase the online timeout value for the HA resource to 600 seconds. The default value is 300 seconds.

### To set the `OnlineTimeout` attribute for the HA resource type `CVMCluster`

- 1 Make the VCS configuration to be read/write:

```
# haconf -makerw
```

- 2 Change the `OnlineTimeout` attribute value of `CVMCluster`:

```
# hatype -modify CVMCluster OnlineTimeout 600
```

- 3 Display the current value of `OnlineTimeout` attribute of `CVMCluster`:

```
# hatype -display CVMCluster -attribute OnlineTimeout
```

- 4 Save and close the VCS configuration:

```
# haconf -dump -makero
```

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

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

[Table 1-2](#) shows the Hitachi arrays that have new array names.

**Table 1-2** 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. The persistence of the enclosure name is achieved with the `/etc/vx/array.info` file, which stores the mapping between cabinet serial number and array name. 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 5.1 SP1. 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`.

```
# vxddmpadm 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.

## vxconfigd hang with path removal operation while IO is in-progress (1932829)

In AIX with HBA firmware version SF240\_320, vxdisk scandisks (device discovery) takes a long time when a path is disabled from the switch or from the array.

### **Workaround:**

To resolve this issue, upgrade the HBA firmware version to SF240\_382.

## 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 behaviour.

## Issues related to installation

This section describes the known issues during installation and upgrade.

### **Installation precheck can cause the installer to throw a license package warning (2320279)**

If the installation precheck is attempted after another task completes (for example checking the description or requirements) the installer throws the license package warning. The warning reads:

```
VRTSvlic fileset not installed on system_name
```

### **Workaround:**

The warning is due to a software error and can be safely ignored.

### **While configuring authentication passwords through the Veritas product installer, the double quote character is not accepted (1245237)**

The Veritas product installer prompts you to configure authentication passwords when you configure Veritas Cluster Server (VCS) as a secure cluster, or when you configure Symantec Product Authentication Service (AT) in authentication broker

(AB) mode. If you use the Veritas product installer to configure authentication passwords, the double quote character (") is not accepted. Even though this special character is accepted by authentication, the installer does not correctly pass the characters through to the nodes.

**Workaround:** There is no workaround for this issue. When entering authentication passwords, do not use the double quote character (").

### **Incorrect error messages: error: failed to stat, etc. (2120567)**

During installation, you may receive errors such as, "error: failed to stat /net: No such file or directory." Ignore this message. You are most likely to see this message on a node that has a mount record of /net/x.x.x.x. The /net directory, however, is unavailable at the time of installation.

### **EULA changes (2161557)**

The locations for all EULAs have changed.

The English EULAs now appear in */product\_dir/EULA/en/product\_eula.pdf*

The EULAs for Japanese and Chinese now appear in those language in the following locations:

The Japanese EULAs appear in */product\_dir/EULA/ja/product\_eula.pdf*

The Chinese EULAs appear in */product\_dir/EULA/zh/product\_eula.pdf*

### **NetBackup 6.5 or older version is installed on a VxFS file system (2056282)**

NetBackup 6.5 or older version is installed on a VxFS file system. Before upgrading to Veritas Storage Foundation (SF) 5.1, the user umounts all VxFS file systems including the one which hosts NetBackup binaries (*/usr/opensv*). While upgrading SF 5.1, the installer fails to check if NetBackup is installed on the same machine and uninstalls the shared infrastructure packages *VRTSpxb*, *VRTSat*, and *VRTSicisco*, which causes NetBackup to stop working.

**Workaround:** Before you umount the VxFS file system which hosts NetBackup, copy the two files */usr/opensv/netbackup/bin/version* and */usr/opensv/netbackup/version* to the */tmp* directory. After you umount the NetBackup file system, manually copy these two version files from the */tmp* directory to their original path. If the path does not exist, make the same directory path with the command: `mkdir -p /usr/opensv/netbackup/bin` and `mkdir -p /usr/opensv/netbackup/bin`. Run the installer to finish the upgrade process. After upgrade process is done, remove the two version files and their directory paths.

How to recover from systems that are already affected by this issue: Manually install `VRTSspbx`, `VRTSat`, and `VRTSiccco` filesets after the upgrade process is done.

### **During product migration the installer overestimates disk space use (2088827)**

The installer displays the space that all the product filesets and patches needs. During migration some filesets are already installed and during migration some filesets are removed. This releases disk space. The installer then claims more space than it actually needs.

**Workaround:** Run the installer with `-nospacecheck` option if the disk space is less than that installer claims but more than actually required.

### **The VRTSacclib fileset is deprecated (2032052)**

The VRTSacclib fileset is deprecated. For installation, uninstallation, and upgrades, note the following:

- Fresh installs: Do not install VRTSacclib.
- Upgrade: Uninstall old VRTSacclib and install new VRTSacclib.
- Uninstall: Ignore VRTSacclib.

### **The `-help` option for certain commands prints an erroneous argument list (2138046)**

For `installsf`, `installat`, and the `installdmp` scripts, although the `-help` option prints the `-security`, `-fencing`, `-addnode` options as supported, they are in fact not supported. These options are only applicable for high availability products.

### **Ignore VRTSgms request to boot during installation (2143672)**

During installation, you may see this error which you can ignore.

```
VRTSgms: old driver is still loaded...  
VRTSgms: You must reboot the system after installation...
```

## **Documentation**

Product guides are available on the documentation disc in PDF formats. Symantec recommends copying pertinent information, such as installation guides and release notes, from the disc to your system's `/opt/VRTS/docs` directory for reference.

## Documentation set

[Table 1-3](#) lists the documentation for Veritas Dynamic Multi-Pathing.

**Table 1-3** Veritas Dynamic Multi-Pathing documentation

Document title	File name
<i>Veritas Dynamic Multi-Pathing Release Notes</i>	dmp_notes_51SP1_aix.pdf
<i>Veritas Dynamic Multi-Pathing Installation Guide</i>	dmp_install_51SP1_aix.pdf
<i>Veritas Dynamic Multi-Pathing Administrator's Guide</i>	dmp_admin_51SP1_aix.pdf

[Table 1-4](#) lists the documentation for Symantec Product Authentication Service (AT).

**Table 1-4** Symantec Product Authentication Service documentation

Title	File name
<i>Symantec Product Authentication Service Release Notes</i>	vxat_notes.pdf
<i>Symantec Product Authentication Service Administrator's Guide</i>	vxat_admin.pdf

## 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.

