Veritas™ Dynamic Multi-Pathing for Windows Release Notes

Windows Server 2008 (x64), Windows Server 2008 R2 (x64)

6.0.1

October 2012

Symantec

Veritas™ Dynamic Multi-Pathing for Windows Release Notes

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Product version: 6.0.1

Document version: 6.0.1 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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Support agreement resources

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Documentation

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

Release Notes

This document includes the following topics:

Introduction

This document provides important information regarding Veritas Dynamic Multi-Pathing 6.0.1 for Windows (DMPW). Please review this entire document before using this product.

The information in the Release Notes supersedes the information provided in the product documents. You can download the latest version of this document from the Symantec SORT Web site:

https://sort.symantec.com

For the latest information on updates, patches, and other issues regarding this release, see the following Technote:

http://www.symantec.com/docs/TECH161556

Overview and features

This section provides an overview of Veritas Dynamic Multi-Pathing for Windows (DMPW) and describes its main features.

DMPW overview

Veritas Dynamic Multi-Pathing for Windows (DMPW) adds additional fault tolerance to disk storage by making use of multiple paths between a server/host computer and a disk in a storage array. A path is a connection between the server/host computer and the storage array's disks and consists of a host adapter and a SCSI bus connection to one or more SCSI disks or a fiber optic channel connected to a hub, switch, or array. Thus, multiple paths are made possible by connecting two or more host bus adapters with either SCSI or fiber optic cabling to the storage array. DMPW manages the multiple paths so that the data on each of the array's disks is accessible to the host computer. If a path to a disk fails, Dynamic Multi-Pathing automatically transmits data to and from the disk over an alternate path.

The paths on an array are set up to work in two ways—either in Active/Active mode, which provides load balancing of the data between multiple paths, or in Active/Passive mode, in which only one path is active and any remaining paths are backups.

DMPW is implemented through Veritas Dynamic Multi-Pathing for Windows Device Specific Modules (DMPW DSMs). DMP DSMs are designed to support a multipath disk storage environment set up with the Microsoft Multipath I/O (MPIO) solution. DMP DSMs work effectively with Windows to provide a fault tolerant multipath disk storage environment.

DMPW major features

The major features of Veritas Dynamic Multi-Pathing for Windows (DMPW) are the following:

- Fault tolerance

Provides fault tolerance to a disk system by using multiple paths to each disk. If the primary path fails, either at the card level or in the cabling from the card to the disk, a secondary path is automatically used.

- Load balancing in Active/Active configurations
  When a system is configured as Active/Active, Dynamic Multi-Pathing makes use of all the paths to a disk for the transfer of I/O to and from the disk.
- Support for multiple paths
  With DMP DSMs, the maximum number of I/O paths you can have is 16.
- Dynamic recovery
  If an active path to a disk fails, Dynamic Multi-Pathing automatically flags the failed path and no longer attempts to transfer data on it. The failed path is monitored and is automatically restored to service when Dynamic Multi-Pathing detects that the path is functioning correctly. Dynamic Multi-Pathing automatically updates path status on the user display when a path fails or is restored to service.
- Dynamic path recognition
  If you add a new path to your Dynamic Multi-Pathing configuration, running a rescan or rebooting your system causes Dynamic Multi-Pathing to detect the new path and display its status. If a failed or disabled path is restored to service, Dynamic Multi-Pathing automatically detects the status change and updates the display.

Requirements

For the latest information on supported hardware, see the Hardware Compatibility List (HCL) at:

http://www.symantec.com/docs/TECH152806

New features and changes for 6.0.1

This section describes the new features and changes introduced in Veritas Dynamic Multi-Pathing for Windows (DMPW) 6.0.1.

Enhancements to the product installer

The following changes have been introduced in the product installer in this release:

- Product Updates
  In this release, a new feature is added that allows you to check for available product updates that can be downloaded and installed on the system. The

product installer searches for the available product updates on the SORT website.

- Product Improvement Program
  This release has a new feature called Product Improvement Program. The focus of this feature is to provide data collection and upload capabilities for the product installations.
  When you install the product, you see an additional checkbox, **Participate in the Symantec Product Improvement Program by submitting system and usage information anonymously**, that asks you to allow the upload of installation data to Symantec. The collected information helps identify how customers deploy and use the product. You also have the option to opt out of enabling this feature. If you choose to enable this feature, the collection runs during the installation only.

New features and changes for 6.0

This section describes the new features and changes introduced in Veritas Dynamic Multi-Pathing for Windows (DMPW) 6.0.

Configuring DSMs without storage connection

On Windows Server 2008 R2, DMP DSM will enable configuration of some DSM settings without a storage connection. When a storage array is later connected to a host under a MPIO management, the connected storage array will inherit the policy that has been previously set in a DSM.

Support for DSM settings without storage connection applies to operations that are general for storage devices without specific knowledge of a DMP path of a storage device.

The following are settings you can configure for a DSM without storage connection:

- Load balances: Active/Active, Active/Passive without choosing a primary path, Least Block, Balanced Path and Least Queue. The specific settings for Round Robin with Subset or Weighted Path load balances cannot be configured without a storage connection because the settings require the specific knowledge of a DMP path of a disk which does not exist yet.
- SCSI-3: Enabling or disabling the setting for SCSI-3 support.

The VEA DSM Configuration command enables viewing a list of installed DSMs on a system and applying load balance settings and SCSI-3 support settings to the selected DSMs. These capabilities are also available through the `vxdmpadm` utility in the command line interface (CLI). In addition, you can use the CLI

`vxdmpadm getdsmattrib` command to view existing settings for the installed DSMs.

MPIO timer parameter settings

New DMP DSM CLI commands are provided for viewing and changing Microsoft MultiPath Input/Output (MPIO) timer parameter settings:

- `vxdmpadm getmpioparam`
- `vxdmpadm setmpioparam`

Warning: Symantec DSMs always use the default MPIO parameters. Attempting to change these MPIO parameters would affect the behavior of a DSM for I/O error, path failover, and DSM performance. Therefore, MPIO parameter settings should not be changed unless a customer has been advised by Microsoft to change the settings for debugging purposes. The `vxdmpadm setmpioparam` command provides a parameter to restore the default settings.

MPIO timer parameter settings are as follows (see MPIO timer on the Microsoft website for more details):

- PathVerifyEnabled: When enabled, MPIO will perform path verification for the amount of time specified in PathVerificationPeriod.
- PathVerificationPeriod: Specifies the amount of time MPIO will perform the path verification, if enabled.
- PDORemovePeriod: Specifies the amount of time an MPIO pseudo LUN, which represents a disk under MPIO control, will stay in memory after all paths of a disk have been removed from the system. It also specifies how long the pending I/O should fail after all paths have been removed from a disk.
- RetryCount: Specifies the number of times DSM will ask MPIO to retry the I/O when an I/O error occurs.
- RetryInterval: Specifies the amount of time MPIO should retry a failed I/O.

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. ■ 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

Software limitations

The following limitations apply to DMP DSMs.

NBU restore changes the disk path and UUID due to which VMwareDisks resource reports an unknown state

When you restore a VMware virtual machine using NetBackup (NBU), it changes the path and UUID of disks because of which the VMwareDisks agent resource goes into an unknown state as it has the old path and UUID configured in its “DiskPaths” attribute. As a workaround, you need to manually provide the new disk path in the “DiskPaths” attribute of the affected VMwareDisks resource and delete the incorrect UUID (and the colon after it) from the attribute. (2913645)

DSM ownership of LUNs

Do not use a DMP DSM together with a third-party DSM for the same array. Only one DSM at a time can claim the LUNs in an array. According to Microsoft Multipath I/O (MPIO) documentation, if multiple DSMs are installed, the Microsoft MPIO framework contacts each DSM to determine which is appropriate to handle a device. There is no particular order in which the MPIO framework contacts the DSMs. The first DSM to claim ownership of the device is associated with that device. Other DSMs cannot claim an already claimed device. Therefore, to ensure that the DMP DSM claims the LUNs of an array, no other DSM should be installed for that same array.

Known issues

The following known issues exist in this release of Veritas Dynamic Multi-Pathing for Windows (DMPW). They are grouped under the following headings:

See "Installation known issues" on page 13.

See "Other known issues" on page 15.

For the latest information on issues regarding this release, see the following Technote:

http://www.symantec.com/docs/TECH161556

Installation known issues

The following are known installation issues.

The installation may fail with "The system cannot find the file specified" error

This issue occurs if the vxinstaller service is in a failed state during the product installation. (2560071)

Workaround: Delete the vxinstaller service and then run the installation wizard again.

Installation may fail with the "Windows Installer Service could not be accessed" error

This issue occurs if the Windows Installer Service is not accessible during the installation. Since the service is not accessible, the installer fails to proceed with the installation. (2497344)

Workaround: The Windows Installer Service is a native component of an operating system. Typically, the Installer Service inaccessible issue occurs, if the service is damaged or unregistered and thus repairing the operating system installation serves as a workaround.

For more details on the workaround, refer to the following Microsoft knowledge base articles.

http://support.microsoft.com/kb/315353

http://support.microsoft.com/kb/315346

Bug check may occur when adding DMPW DSM option

After installing SFW, adding the DMPW DSM option, with Windows Add or Remove Programs, may result in bug check 0xD1. This issue has been reported to Microsoft (SRZ080421000462). (1251851)

Delayed installation on certain systems

You may experience a slower installation on certain systems.

This issue occurs, if you have configured any software restriction policies on the system. During the installation the restriction policies increases the package verification time and thus the over all installation time is increased. (2516062)

Installation may fail with "Unspecified error" on a remote system

This issue occurs if the vxInstaller service does not start on the remote node to begin the installation. (2429526)

Workaround: Run the installation locally on the system where the installation has failed.

vxlicrep and GUI showing wrong product name for DMPW license

In a graphical user interface (GUI) based installation, on the **License** page, when you enter the license key and select the key to view the licensed options, it shows the wrong product name and does not list product features. In a command-line interface (CLI) based installation, you can see this by using the `vxlicrep` command. (2160859)

There is no workaround for this issue.

Side-by-side error may appear in the Windows Event Viewer

This issue occurs on the systems where the Microsoft VC redistributable package or the Dot Net installation is corrupted. (2406978)

Workaround: You must repair the VC redistributable package or the Dot Net installation.

Uninstallation may fail to remove certain folders

After a successful uninstallation, the product installer may fail to remove the following folders:

- VERITAS Object Bus
- Veritas Shared
- Veritas Volume Manager

These folders contain application logs. The reinstallation of the product will not be affected if these folders are not deleted. (2591541, 2654871)

Workaround: You can safely delete these folders manually.

Other known issues

The following are other known issues for this release.

vxdmpadm's deviceinfo and pathinfo with disk specified in p#c#t#l# parameter displays information only by one path

The `deviceinfo` and `pathinfo` commands of vxdmpadm work with only one `p#c#t#l#` parameter shown with the disk in the `vxdmpadm disk list` command. Even if the disk has more than one path, the `deviceinfo` and `pathinfo` commands with `p#c#t#l#` values of other paths fail with the Invalid Argument error. (2162670)

Changes made to a multipathing policy of a LUN using the Microsoft Disk Management console, do not appear on the VEA GUI

DMP DSMs do not manage the load balance settings made with the Microsoft Disk Management console. So changes made to a multipathing policy using the Microsoft Disk Management console do not appear on the VEA GUI.

Changing the load balance settings for DMP DSMs must be done using the SFW VEA GUI or CLI. (1859745)

VEA or CLI operations for DMP DSMs fail without providing error message if WMI service is disabled

The Windows Management Instrumentation (WMI) service is required for using the DMP DSM feature. If you disable the WMI service, the wizards or commands for DMP DSM operations that require the WMI service will fail. The message window displays only an error code without a message explaining the cause of the failure. (2590359)

Fixed issues for 6.0.1

This section lists the fixed issues in the 6.0.1 release:

Table 1-1 DMPW fixed incidents

Fixed Incidents	Description
2799388	DMP doesn't use all paths of an active-active array in a round robin load balance policy
2774415	The "bogus path" system event log issue when a path failover occurs on an EMC Symmetrix data disk where the data disk shares only a subset of paths with an EMC Symmetrix gate keeper disk

Fixed issues for 6.0

Table 1-2 lists the issues that have been fixed in the 6.0 release.

Table 1-2 DMPW fixed incidents for 6.0

Fixed Incidents	Description
2149046	Statistics monitoring dialog accepts a large polling value without any error
2162011	vxdmpadm setattr dsm CLI fails to set load balance policy or primary path or SCSI parameters
2163823	Cannot set SCSI3 support for a DSM
2164658	vxdmpadm disk list CLI does not show the correct disk style and status
2169691	VEA fails to launch because MSVCR71.dll is missing

Table 1-2 DMPW fixed incidents for 6.0 *(continued)*

Fixed Incidents	Description
2171310	Array/Device setting wizards for weighted path policy accept a larger number without throwing any error

Documentation

Veritas Dynamic Multi-Pathing for Windows includes the following documentation, in addition to the release notes.

- *Veritas Dynamic Multi-Pathing for Windows Getting Started Guide*
- *Veritas Dynamic Multi-Pathing for Windows Installation and Upgrade Guide*
- *Veritas Dynamic Multi-Pathing for Windows Administrator's Guide*

You can download the latest version of these documents from the Symantec SORT Web site.

https://sort.symantec.com

Acronyms

The following table defines acronyms used in the Veritas Dynamic Multi-Pathing for Windows (DMPW) release notes:

Table 1-3 Acronym List

Acronym	Definition
DMPW	Dynamic Multi-Pathing for Windows
CLI	Command-line interface
GUI	Graphical user interface
HCL	Hardware Compatibility List
MPIO	Multipath I/O
VEA	Veritas Enterprise Administrator