

Dynamic Multi-Pathing 7.0 Release Notes - VMware ESXi

Dynamic Multi-Pathing Release Notes

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Dynamic Multi-Pathing Release Notes

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About this document

This document provides important information about Dynamic Multi-Pathing version 7.0 for ESXi. Review this entire document before you install or upgrade Dynamic Multi-Pathing.

This is "Document version: 7.0 Rev 0" of the *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 website at:

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About Dynamic Multi-Pathing for VMware

Dynamic Multi-Pathing for VMware 7.0 (VxDMP) is a multi-pathing solution integrated with VMware's vSphere infrastructure, which brings the established and proven enterprise-class functionality to VMware virtual environments.

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

VxDMP provides the best in class availability, reliability, and performance by using advanced path failover and load balancing for a wide range of storage arrays. VxDMP also provides you with better visibility of the attached storage arrays, so you can efficiently manage the storage resources directly from the VMware vCenter.

VxDMP enables you to create and manage SmartPools, which are aggregates of SSDs and other local devices. SmartPools enable you to use SmartIO for caching when Veritas InfoScale product component is running in the guest.

See "[About the SmartPool feature](#)" on page 8.

VxDMP solution consists of the following components:

- VxDMP binaries for the ESXi servers – The VxDMP binaries are provided as an ESXi offline bundle.
- Administrative UI – The UI plug-ins are registered with both vSphere Web Client and Windows-based vSphere Client.
- Administrative command line – The command line allows remote administration from a Windows or Linux remote host.

Installation of VxDMP involves installing the following components:

- VxDMP binaries on each ESXi server.
- UI plug-in service on a Windows host.
- Command line on a Windows or Linux remote host.

Note: VxDMP is referred as DMP in some sections of this document.

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/TECH230620>

- 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/TECH230646>

Note: Before you install or upgrade SFHA Solutions products, review the current compatibility list to confirm the compatibility of your hardware.

Changes introduced in 7.0

This section lists the changes in Dynamic Multi-Pathing 7.0.

Changes related to Dynamic Multi-Pathing (DMP)

This section describes changes in this release related to DMP.

See the *Dynamic Multi-Pathing Release Notes* for more details.

About the SmartPool feature

Dynamic Multi-Pathing for VMware has an operating mode which enables the pooling of locally attached devices such as SSDs at the ESXi host layer. The aggregation of the local devices is called SmartPool. From the SmartPool, you can provision SmartDisks to be used as caching areas by SmartIO in the ESXi guests running Veritas InfoScale. By dividing the SmartPool into several SmartDisks, you can share the caching storage across multiple virtual machines. Using SmartPools gives you the flexibility to move virtual machines across ESXi hosts while SmartIO caching is in progress. Although each host has its own SSD, you can configure each host to have a comparable view of the SmartDisk. When you use vMotion to migrate the virtual machines that have Veritas InfoScale running, SmartIO shuts down the cache on the source node and restarts the cache on the target host. SmartIO caching stays online during the migration. You can dynamically resize the SmartPool by adding or removing storage devices to the SmartPool.

You can use this mode regardless of whether you are using DMP for VMware to manage storage multi-pathing in the host.

The SmartPool functionality is enabled by installing DMP for VMware in the ESXi host. For the SmartPool functionality, you do not need to have a separate license for DMP.

To use SmartIO in the ESXi guest, you must install Veritas InfoScale in the ESXi guest.

If you plan to use DMP for VMware for multi-pathing in the host, you must have the appropriate license.

System requirements

The following topics describe the system requirements for this release:

Hardware compatibility list (HCL)

The hardware compatibility list contains information about supported hardware and is updated regularly. 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.

For the latest information on supported hardware, visit the following URL:

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

Supported VMware software versions

This section lists the supported VMware software versions for this release of Dynamic Multi-Pathing.

[Table 1-1](#) shows the supported VMware software versions for this release.

Table 1-1 Supported VMware software versions

VMware software version	vCenter Server version
ESXi 5.5	vCenter Server 5.5
ESXi 6.0	vCenter Server 6.0

Supported VMware versions include Updates, unless otherwise noted.

Microsoft Windows requirements

The DMP console is the Web server for the vSphere User Interface client for DMP. The DMP console Web server can be installed on a Microsoft Windows system meeting the following requirements.

- The DMP console requires 256M of heap space. So at least 256M of RAM should be free and available on the system for DMP console server to start up.

- Microsoft .NET Framework 4.5 must be installed on your system

Table 1-2 shows the supported Microsoft Windows versions.

Table 1-2 Supported operating systems

Operating systems
Windows 2008 x64 bit
Windows 2008 R2
Windows 2012

Optionally, the VxDMP remote CLI can be installed on a physical system or virtual machine running Microsoft Windows. The same requirements apply.

Web browser requirements

The following are the supported Web browsers for Dynamic Multi-Pathing:

- Internet Explorer 6.0 (or later)

Additional considerations for supported Web browsers:

- The following settings in your Internet Explorer (IE) browser must be enabled:

- | | |
|---|---|
| Tools > Internet Options. Advanced tab. | <ul style="list-style-type: none"> ■ Use SSL 2.0 ■ Use SSL 3.0 ■ Use TLS 1.0 |
|---|---|

- | | |
|---|--|
| Tools > Internet Options. Security tab. | <ul style="list-style-type: none"> ■ Active scripting ■ Run ActiveX controls and plug-ins ■ Script ActiveX controls marked safe for scripting |
|---|--|

- | | |
|------------------------|------------------------|
| Tools > Manage Add-ons | Shockwave Flash Object |
|------------------------|------------------------|

- To view the VxDMP tab, Symantec recommends that for the logged in user, the IE Enhanced Security setting is set to "Off". If you require to set the Enhanced Security setting to "On", the first time you access the VxDMP tab, you must add the console IP to the trusted zone of IE, and restart vSphere client.
- To view the VxDMP tab, you must have Adobe Flash installed on the system from where you run VMware vSphere Client.

Support requirements for the remote CLI

The VxDMP remote Command Line Interface (CLI) can be installed on any Linux or Windows system that uses Java Runtime Environment (JRE) 7.0 or above. The system can be a physical system or a virtual machine.

End of life

This release of Dynamic Multi-Pathing is the final release that does not support ESXi 5.0 and ESXi 5.1.

Fixed issues

There are no fixed issues for Dynamic Multi-Pathing in this release.

Known issues

This section covers the known issues in this release.

Vxcache is not visible after upgrade from 6.2 to 7.0 [3789043]

The system with INTEL SSD devices is configured under SmartPool, and is upgraded from 6.2 to 7.0. After you reboot the system, smartpool will show stale entries corresponding to INTEL devices, even though corresponding INTEL Devices are available on the system. This is due to change in the unique ID from 6.2 to 7.0 by using which DMP represents INTEL devices. Smartpool CLI vxpooladm shows the unique ID instead of device names.

Workaround: You cannot use the CLI `vxpooladm` command to remove these stale entries. Follow the steps below:

- 1 Note down the Amount of cache assigned for Virtual Machines using vxpooladm status CLI.
- 2 Delete the file `/etc/vx/dmpsmartpool.info` and reboot the system.
- 3 Recreate the smartpool by adding the INTEL devices.
- 4 Reassign the cache to Virtual Machines.

Drop-down list for filter on LUNs tab in the Web client fails to load (3189918)

When you click on the drop-down list for filter on the LUNs tab in the Web client, the drop-down list fails to load.

VxDMP console installation fails if installed in a folder having Japanese character in it (2670506)

When you install VxDMP on a host with a Japanese OS, if you select for installation a directory having a Japanese character in its name, the installation fails.

Workaround:

When installing VxDMP on a host with a Japanese OS, use the default installation directory:`C:\program files(x86)\symantec\DMP\`

Configuration of the VxDMP Console server and registering the DMP plugin fails if the installation directory contains special characters (2671487)

If you install DMP Console in a directory that has a name with unsupported special characters, then the post-installation configuration fails. The special characters that are not supported include the following: percent sign (%); ampersand (&); tilde (~); apostrophe ('); exclamation point (!); at sign (@); number sign (#); dollar sign (\$); carat (^); plus sign (+); equal sign (=); brackets ([]) and semicolon (;).

If the directory contains unsupported characters, you cannot configure DMP Console server, or register the DMP plug-in.

If you try to uninstall VxDMP from the system, then a fatal error occurs.

Workaround:

The installation directory name must not have special characters other than dash (-); underscore (_); parenthesis (); or period (.).

Issues related to installation (2642164)

Repair of the DMP console installation fails if the *InstallDirectory/DMP/bin* directory is missing, or if files are missing from this directory.

Workaround:

If the repair fails, you must uninstall and reinstall the package.

Refreshing the VxDMP tab multiple times displays a network connectivity error (2379946, 2379707)

This issue is typically observed in case of Internet Explorer 7 (IE7) browser. If auto-refresh is enabled, VxDMP tab refreshes the I/O statistics for every interval (as specified in seconds). However, in case of network failure if you manually refresh the VxDMP tab multiple times, IE7 displays a network connectivity error.

Workaround:

For details, refer to the following knowledge base article from Microsoft.

http://support.microsoft.com/kb/927917#more_information

Downloading the ESXi bundle for an ESXi server requires that the Internet Explorer Enhanced Security is off (2843571)

To be able to download the ESXi offline bundle from the home view, make sure that for the logged in user, the Internet Explorer Enhanced Security setting is set to "Off".

VxDMP fails to detect the virtual machines with special characters (3249544)

In the Web Client, VxDMP fails to detect the virtual machines that contain special characters in their names. The special characters that are not supported include the following: bracket ([]); slash (/); carat (^); dollar sign (\$); period (.); pipe (|); question mark (?); asterisk (*); plus sign (+); parenthesis (()); and braces { }.

Workaround: Rename the virtual machine, such that it does not contain a special character.

Devices for newly added claim rules do not show in the list of storage arrays (3615915)

When you add a new claim rule, the devices claimed by that rule do not show in the list of storage arrays in the VxDMP tab of the vSphere Web Client.

Workaround:

Log in again to the vSphere Web Client.

The VxDMP Web Client does not display LUNs with names longer than 51 characters (3306263)

The VxDMP Web Client does not display LUNs with names longer than 51 characters.

Workaround:

Rename the LUN so that the name has 51 characters or less.

DMP shows errors if the ESXi server is disconnected (3405262)

DMP shows errors if the ESXi server is disconnected. This issue is seen with both the DMP Web Client and the DMP vSphere Client. If you click the Settings tab, DMP displays an Action script error.

There is no workaround.

The Connectivity Map of the VxDMP Web Client is blank (3581542)

When you select **Manage > VxDMP** tab, the VxDMP Web Client does not display the Connectivity Map.

Workaround:

Select the refresh operation on your browser (F5) to display the Connectivity Map.

Adding a device to a SmartPool displays the progress as Loading (3570852)

After you add a device to the SmartPool, the progress bar displays Loading when you view the performance data (**ESX > Monitor > Performance > SmartPool**).

The issue is fixed by VMware in ESX 6.0.

Workaround:

Use the F5 key to refresh the view.

The vxcache device assigned from SmartPool to a Virtual Machine shows with different names (3556478)

The vxcache device assigned from SmartPool to a Virtual Machine shows with different names like vxcache0_1, vxcache0_2, vxcache0_3.

The vxcache device LUN serial number is created using the virtual machine UUID. Therefore, if the virtual machine UUID changes with operations like cloning, then

the LUN serial number of vxcache device also changes. This causes the vxcache device name to change.

Workaround:

This behavior does not have any functional impact.

To display the original default device name, clear the vxcache device name with the following command:

```
# vxddladm -c assign names
```

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 17.

DMP Web Client and vSphere GUIs require the same version of DMP in the ESXi server (3403624)

To use DMP on ESXi with the DMP Web Client GUI or the DMP vSphere GUI, the version of DMP must be the same.

For example, if you have DMP 6.0.1 installed on ESXi and DMP 6.2 installed on the vCenter, then no DMP data is displayed in the Web Client GUI or the vSphere GUI for that ESXi.

Workaround:

Update the DMP on the ESXi to version 6.2.

I/O errors are reported from arrays that do not support VAAI commands

Some arrays do not support vStorage APIs for Array Integration (VAAI) commands. When DMP processes such commands from VMware to the storage, the error from the array is reported in the `vmkernel.log`.

The error message is logged similar to the following message:

```
2013-12-18T13:41:39.336Z cpu1:33249) VxVM vxdmp V-5-0-0 [Error] i/o error occurred (errno=0xbad00f1) on dmpnode emc_clariion0_1
```

This error message does not indicate a problem with DMP. The error message occurs if DMP manages the LUNs that cannot support the requested functions from VMware.

Workaround:

You can correlate the I/O error message with the `dmpevents.log` to determine the underlying error. If the error message refers to an INQUIRY failure on a unsupported page, you can ignore the `0xbad00f1` errors in the `vmkernel.log`. For example:

```
Wed Dec 18 13:41:39.336: SCSI error occurred on Path vmhba1:C0:T1:L0:
opcode=0x12 reported 'illegal request' (cdb=0x2 key=0x5 asc=0x24
ascq=0x0) invalid field in cdb
Wed Dec 18 13:41:39.336: I/O analysis done as DMP_TRY_ALT_PATH on Path
vmhba1:C0:T1:L0 belonging to Dmpnode emc_clariion0_1
```

Contents of the media disc display in truncated format (2881095)

After you mount the media disc (DVD), the ESXi server displays file names truncated to eight (8) characters. This issue is an ESXi limitation and does not impact the DMP installation.

vSphere Client DMP GUI limitations

The following are the software limitations for the vSphere Client DMP GUI, in the current release.

- Some attributes in the controller and LUN tables are currently displayed as '-'.

VMware device claiming limitation

The following is a software limitation from VMware, for the current release.

If the vendor and the model of the storage device is not supported by VMware, the device is not claimed by VxDMP or the device disappears after VxDMP installation.

Workaround: If the device is not supported, delete the MPP claim rule associated with VxDMP, from the **esxcli corestorage claimrule list**.

For arrays with such vendor IDs, create claim rules for each Product ID on your setup.

Internet Explorer limitation with the browser back button (2677479)

When you navigate through the VxDMP online help with the browser back button, you may encounter the following issue. If you click on any links in a page to display

a different page, you must click the browser back button twice to return to the original page.

If HBA does not trigger events when the connectivity is restored, DMP paths are restored after next routine path restore task (3313496)

DMP depends on the events from the HBA to restore device paths as soon as the connectivity is restored. If the HBA does not provide events when the connectivity is restored, then the paths are only restored after the next routine path restore task. The path restore tasks depend on the value of the `dmp_restore_interval` tunable. To ensure paths are restored in a timely manner, set the `dmp_restore_interval` to a reasonable interval.

To set the `dmp_restore_interval` to 300 seconds:

```
# vxddmpadm settune dmp_restore_interval=300
```

Documentation

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

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Documentation set

Table 1-3 lists the documentation for Dynamic Multi-Pathing.

Table 1-3 Dynamic Multi-Pathing documentation

Document title	File name
<i>Dynamic Multi-Pathing Release Notes</i>	<code>dmp_notes_70_esx.pdf</code>
<i>Dynamic Multi-Pathing Installation Guide</i>	<code>dmp_install_70_esx.pdf</code>
<i>Dynamic Multi-Pathing Administrator's Guide</i>	<code>dmp_admin_70_esx.pdf</code>