# Veritas™ Dynamic Multipathing readme

AIX

5.1 RP1 DMP

**symantec**™

# Early release issues and notes

This document includes the following topics:

- Early release issues and notes

## Early release issues and notes

In this release, Veritas Dynamic Multipathing has the following limitations when DMP is used with LVM devices.

### Device naming limitations

In order to use DMP for OS native device support, the device naming scheme must be enclosure-based naming (EBN) and the persistence attribute must be on.

The naming scheme cannot be changed after the feature is enabled.

### Disk access name limitations

The following limitations apply to disk access names:

- You cannot change the DMP name of a device when native device support is enabled. If you must change the DMP name, you must disable the feature, update the name and again enable the feature.

- You also cannot change the name for an enclosure which has at least one DMP device that is using native device support, because that would require the DMP device name to change.

- When native multipathing is enabled, you cannot assign device names manually using the `vxddladm assign names` command.

## Excluding arrays or paths from DMP

If an array includes at least one DMP device that is using native device support, you cannot exclude the array from DMP using the `vxddladm excludearray` command.

If a DMP device has the native device support enabled, you cannot exclude all of the paths from VxVM and DMP. You can exclude paths from VxVM as long as at least one path remains for the DMP device.

## Third party driver and foreign device support

When DMP devices have OS native device support enabled, do not add the paths of the DMP device to VxVM using the under the foreign disk category.

If a DMP device has a valid VxVM label, you cannot enable native device support on that device.

You cannot enable native device support on a DMP device if the device is in co-existence with any Third Party Multipathing Driver (TPD) meta-device.

The Symantec testing teams have not yet certified the procedures to migrate LVM volume groups over HDLM and IBM SDD.

## Object Data Manager (ODM) limitation on device names

On AIX, the Object Data Manager (ODM) has a limitation of 16 characters for device names. To address this issue, the DMP device names are truncated to fit into the ODM database. For DMP or VxVM operations, use the truncated name, as shown in the `lspv` command output.

The following example of `lspv` output shows the EMC Clariion device names that are truncated to fit the 16 character limit.

```
# lspv
   .
   .
   .
emc_clari1_194  000fb4b1961e1c70    cx-alua    active
emc_clari1_198  000fb4b1961e29cb    cx-alua    active
emc_clari1_182  000fb4b1961e25d3    cx-alua    active
emc_clari1_184  000fb4b1961e1bad    cx-alua    active
emc_clari1_195  000fb4b1961e2114    cx-alua    active
```

# Viewing ODM attributes for DMP devices

On AIX, you can use the `lsatrr` command to view the attributes for DMP devices in ODM. However, DMP does not support changing these attributes manually using the `chdev` command.

For example:

```
# lsdev -c disk | grep emc0_00bc
emc0_00bc        Available              Veritas DMP Device
emc0_00bd        Available              Veritas DMP Device
```

```
# lsattr -El emc0_00bc
dmpname    emc0_00bc                                        DMP Device name           True
pvid       00c492ed703eba850000000000000000                 Physical volume identifier True
unique_id  EMC%5FSYMMETRIX%5F000290301188%5F88000BC000 Unique device identifier   True
```

# Removing DMP devices from ODM

When you remove DMP devices with native device support from the system, ODM definitions for the device are not being cleaned up automatically. You must clean up the device definitions with manual steps.

# Creating a LVM volume group on the OS device path

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       -
```

# DMP slab size

If the errpt displays error messages `LVM_IO_FAIL` with `ENOMEM` error code, then you might need to increase the size of the DMP slab allocator. Increase the size of the tunables `dmpslab_minsz` and `dmpslab_maxsz`. The default values are `dmpslab_minsz=1024` and `dmpslab_maxsz=4096`.

For example, increase the size of the `dmpslab_minsz` to 2048 and the size of the `dmpslab_maxsz` to 4096.

If you use the SMIT interface, the tunables are `Total Minimum Pages for dmp slab` and `Total Maximun Pages for dmp slab`.

# DMP in a VCS environment

AIX LVM sends SCSI_RESERVE flag to multipath drivers. DMP ignores this flag, so data corruption is possible when the volume group is activated on more than one node at a time. This is possible if the volume group is activated outside VCS (VCS detects concurrency violation) or in split brain scenario.

# Documentation errata in vxdmpadm manual page

The `vxdmpadm` manual page is missing the description of the tunable 'dmp_native_support'.