Online Method to Upgrade Your Dell PowerVault MD Storage Arrays From Simplex to Duplex Mode

NOTE: Information in this document applies to Dell PowerVault MD3200, MD3220, MD3200i, MD3220i, MD3600i, MD3620i, MD3600f, and MD3620f systems.

The Dell PowerVault Modular Disk (MD) RAID storage arrays support both duplex (dual-controller) and simplex (single-controller) configurations. You can upgrade your existing storage array from a simplex configuration to a duplex configuration without taking the existing storage array offline.

A duplex configuration allows for full redundancy between RAID controller modules, non-I/O components, virtual disk paths, and physical disk paths. A simplex configuration contains only one RAID controller module and does not support full RAID controller module redundancy, virtual disk path, and physical disk channel redundancy.

Figure 1. Simplex MD Storage Array (With Expansion)
Adding a RAID Controller Module to a Simplex Configuration

To upgrade your existing storage array from a simplex configuration to a duplex configuration without taking the existing storage array offline:

1. Start MD Storage Manager.
   The Enterprise Management Window is displayed.

2. Select and right-click the storage array you are upgrading and select Execute Script.
   The Script Editor Window is displayed.

3. In the Script Editor Window, run the command:
   ```
   set storageArray redundancyMode=duplex;
   ```

4. Select Tools → Verify and Execute.

**NOTE:** When the command completes, the array status changes to Needs Attention and the enclosure status LED lights amber. Disregard these indicators and proceed with the next step.
5 Insert the second (new or replacement) controller module in the empty slot (slot 1) of the enclosure.

For insertion procedures and slot labeling, see the Hardware Owner’s Manual for your MD storage array.

6 Connect the expansion enclosures (if present) to the controller module you added in slot 1.

**NOTE:** Wait for the enclosure status LED to turn blue before proceeding to the next step.

7 In MD Storage Manager, double-click the storage array you are upgrading. The Array Management Window (AMW) is displayed.

8 If not using DHCP or default IPv6 address, you may be required to manually specify the IP configuration. To manually specify the IP configuration:

   a Select the Setup tab.
   b Select Configure Ethernet Management Ports and from Ethernet port, select RAID Controller Module 1, Port 0.
   c Select Specify configuration.
   d Modify the configuration to match RAID Controller Module 0.
   e Click OK.

9 In the Enterprise Management Window, select the Setup tab, and click Add Storage Arrays.

10 In the Select Addition Method window, select Manual and click OK. The Add New Storage Array – Manual window is displayed.

11 Select Out-of-band management.

12 In the RAID Controller Module (DNS/Network name, IPv4 address or IPv6 address) fields, enter the IP addresses of both the RAID controllers installed in the storage enclosure.

13 Click Add.

14 A message prompts you if you want to add another storage array, click No.

**NOTE:** The Devices tab in the Enterprise Management Window displays both management port IP addresses for the newly upgraded duplex storage array.

15 Adjust the virtual disk caching options:
a  Open the AMW and select the Logical tab.
b  Right-click on any virtual disk in the list.
c  Select Change→Cache Settings...
d  Select all virtual disks in the list.
e  Select the following options:
   • Enable read caching
   • Enable write caching
   • Enable write caching with mirroring
   • Enable dynamic cache read prefetch

   ![NOTE: Enable dynamic cache read prefetch must be disabled if the virtual disk is used for database applications or applications with a large percentage of random reads.]

16  Rebalance the virtual disk ownership across both controllers for optimal performance. To rebalance virtual disk ownership:

a  In the AMW, select the Logical tab.
b  Right click on every alternate virtual disk and select Change→Ownership/Preferred Path→RAID Controller Module in Slot 1…
c  Select Yes.

   ![NOTE: Step 16 can be completed using Script Editor or CLI commands when you have a large number of virtual disks. In script editor, run the following command as described in Step 3:]

   ```
   set virtualDisks ["virtualDiskName1", "virtualDiskName3",..., "virtualDiskNameN"] owner=1;
   ```

   For more information on using the CLI, see the CLI Guide, at support.dell.com/manuals.

   This ensures that virtual disk ownership is evenly distributed across both controllers.
Information in this publication is subject to change without notice.
© 2012 Dell Inc. All rights reserved.

Reproduction of these materials in any manner whatsoever without the written permission of Dell Inc. is strictly forbidden.

Trademarks used in this text: Dell™, the DELL logo, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, KACE™, FlexAddress™ and Vostro™ are trademarks of Dell Inc. Intel®, Pentium®, Xeon®, Core™ and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™, and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, MS-DOS® and Windows Vista® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat Enterprise Linux® and Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® is a registered trademark and SUSE™ is a trademark of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter® and vSphere® are registered trademarks or trademarks of VMWare, Inc. in the United States or other countries.

Other trademarks and trade names may be used in this publication to refer to either the entities claiming the marks and names or their products. Dell Inc. disclaims any proprietary interest in trademarks and trade names other than its own.