



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)

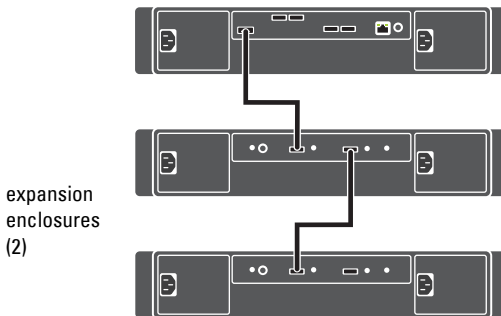
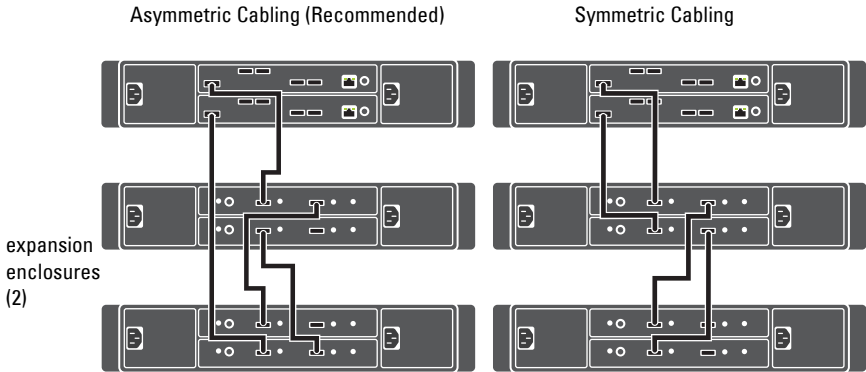


Figure 2. Newly Upgraded Duplex MD Storage Array (With Expansion)




 **NOTE:** See the *MD Family Disk Expansion SAS Quick Cabling Guide* at dell.com/pvresources.

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.

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