Dell EMC PowerVault MD3060e Storage Enclosure

Deployment Guide

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Notes, cautions, and warnings

ⓘ | **NOTE: A NOTE indicates important information that helps you make better use of your product.**

⚠ | **CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.**

⚠ | **WARNING: A WARNING indicates a potential for property damage, personal injury, or death.**

Contents

Introduction

⚠ **CAUTION: See the Safety, Environmental, and Regulatory Information document for important safety information before following any procedures listed in this document.**

An enclosure containing physical disk drives accessed through Enclosure Management Modules (EMMs) is called a storage enclosure. A storage enclosure includes various hardware components such as physical disk drives, EMMs, fans, and Power Supply Units (PSUs). One or more host servers attached to the storage enclosure can access the data on the storage enclosure. You can also establish multiple physical network paths between the hosts and the storage enclosure so that loss of any single path (for example, through failure of a host server port) does not result in loss of access to data on the storage enclosure.

The storage enclosure is managed by the Storage Enclosure Management software running on a host server. On the host server system, the management software and the storage enclosure communicate management requests and event information by using in-band SAS connections.

- Storage Enclosure—When the MD3060e is attached to a server directly or other MD3060e enclosures, it is referred to as a Storage Enclosure. This document applies to the deployment and configuration of the MD3060e as a Storage Enclosure.
- Expansion Enclosure—When the MD3060e is used as an expansion with an MD3 (MD32/MD34/MD36/MD38) Series Dense Storage Array, it is referred to as an Expansion Enclosure. To use the MD3060e as an Expansion Enclosure, see the *Dell PowerVault MD Series Support Matrix Storage* for either the MD32XX/36XX or MD34XX/38XX Series arrays available at **Dell.com/support/manuals**.

The deployment process includes:

- Hardware installation
- Initial system configuration
- Storage Enclosure Management Software installation

ⓘ **NOTE: For more information about product documentation, see Related Documentation available at Dell.com/support.**

The Storage Enclosure Management Software tools enable an administrator to monitor and update the storage enclosure for optimum usability. The Storage Enclosure Management Software is supported on various Microsoft Windows and Linux operating systems (OSs). For more information about specific supported OSs, refer to the *Dell Storage Enclosure Support Matrix* at **Dell.com/support/home**.

Topics:

- System requirements
- Other Information You May Need

System requirements

Before installing and configuring the PowerVault MD3060e hardware and software, ensure that the supported OS is installed and minimum system requirements are met. For more information, see Dell Storage Enclosure Support Matrix at **Dell.com/support/home**.

ⓘ **NOTE: Dell supports Linux host OS with the MD3060e storage enclosure. For more information on the specific OSs supported by MD3060e storage enclosure, see Dell Storage Enclosure Support Matrix at Dell.com/support/home.**

ⓘ **NOTE: Dell only supports the Windows Storage Spaces when purchased as the DSMS 3060e. For information about the DSMS 3060e, see Dell.com/dsmsmanuals.**

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Other Information You May Need

ⓘ **NOTE: For all PowerVault documentation, go to Dell.com/support/manuals and enter the system Service Tag to get your system documentation.**

Your product documentation includes:

- *Dell PowerVault MD3060e Getting Started Guide* — Provides an overview of system features, setting up your system, and technical specifications. This document is also shipped with your system.

- *Dell Storage PowerTools Server Hardware Manager Administrator's Guide* — Provides information about how to configure, manage, and update your MD3060e Storage Enclosure. This document is available online at **Dell.com/support/manuals**.

- *Dell PowerVault MD3060e Owner's Manual* — Provides information about system hardware features and describes how to troubleshoot the system and install or replace system components. This document is available online at **Dell.com/support/manuals**.

- *Dell Storage Enclosure Support Matrix* — Provides information about the software and hardware compatibility for the MD3060e storage enclosure.

Hardware Installation

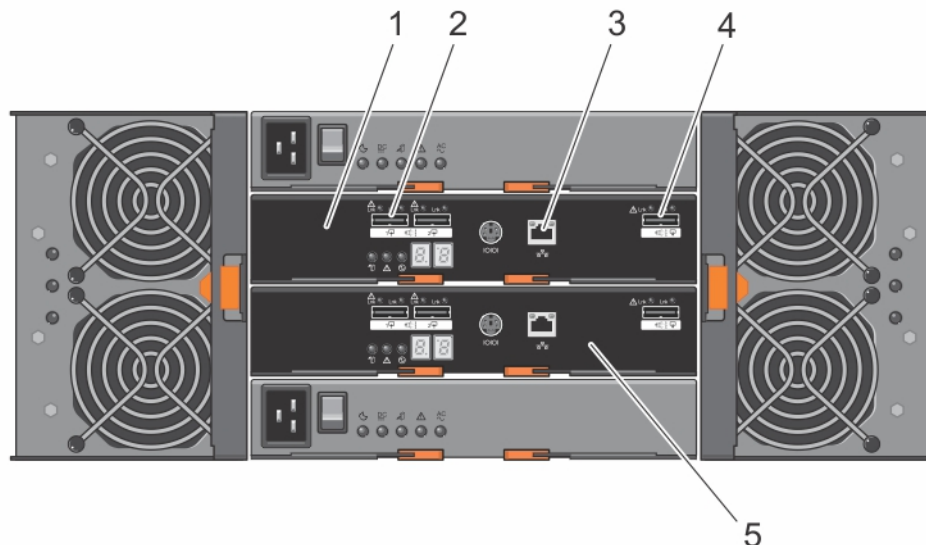Before using this guide, ensure that you review the instructions in the:

- *MD3060e Getting Started Guide* — Provides an overview of system features, setting up your system, and technical specifications. This document is also shipped with your system.
- *Dell Storage PowerTools Server Hardware Manager Administrator's Guide* — Provides information about how to configure, manage, and update your MD3060e Storage Enclosure. This document is available online at dell.com/support/manuals.
- The Rack Installation instructions — Provides information on how to rack your system. This document is shipped with your system.

Topics:

- Connecting the storage enclosure
- Cabling the storage enclosure
- Windows with Storage Spaces configuration
- Linux

Connecting the storage enclosure

The storage enclosure is connected to hosts by using one or both of the two EMMs (Enclosure Management Modules). The EMMs are identified as EMM 0 and EMM 1. The ports on the EMMs and their functions are listed here:

Figure 1. Ports on the MD 3060e storage enclosure

1	EMM 0 — Enclosure Management Module	2	SAS Host Ports — Allows you to connect host servers to the storage enclosure.
3	Ethernet Port — Not used.	4	SAS OUT Port — Enables the Storage Enclosure to be connected to another Storage Enclosure
5	EMM 1 — Enclosure Management Module		

Cabling the storage enclosure

There are a number of methods to cable the Dell Storage MD3060e series storage enclosure to host servers and to additional Dell Storage MD3060e series storage enclosures. The particular configuration selected depends on storage capacity, level of resiliency of both the server and storage enclosure, and the OS being used.

ⓘ **NOTE: The maximum supported SAS cable length is 4 m.**

Windows with Storage Spaces configuration

ⓘ **NOTE: Dell only supports the Windows Storage Spaces when purchased as the DSMS 3060e. For information about the DSMS 3060e, see Dell.com/dsmsmanuals.**

Linux

There are three types of configurations supported for Linux host servers:

- Single Path configuration: This uses a simplified cabling scheme, but does not provide redundancy or fault-tolerance. Use this when the OS or a higher-level application is being used for data resiliency.
- Symmetric Multipath configuration: This uses a cascading configuration that provides path redundancy, but does not provide against enclosure loss.
- Asymmetric Multipath configuration: This uses a high availability configuration that allows the host server to reach any enclosure if a path or single enclosure is lost

For multipath configurations, Linux Device Mapper Multipath (DMMP) must be configured. Dell recommends Failover policy. To ensure proper functionality, verify the following values are set in **/etc/multipath.conf:**

- `path_grouping_policy failover`
- `failback manual`

ⓘ **NOTE: For more information about supported Linux OSs, see the** *Dell Storage Enclosure Support Matrix* **available at Dell.com/ support.**

Linux Single Path configuration
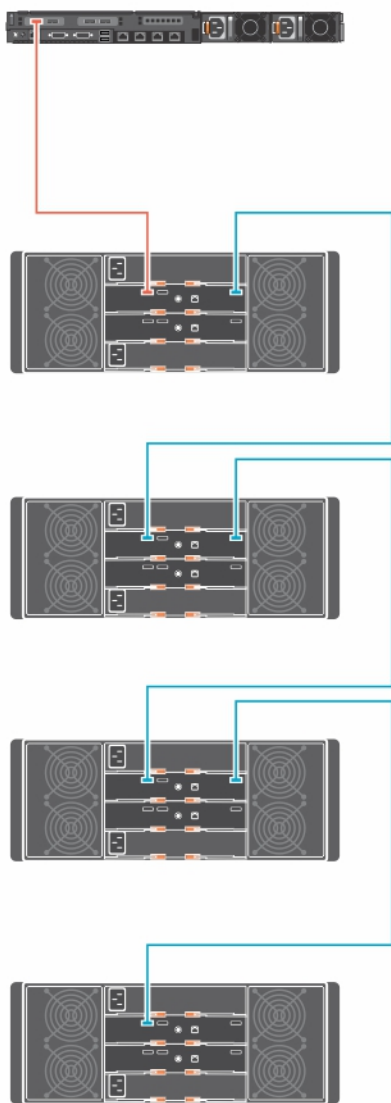

Figure 2. Linux Single Path configuration

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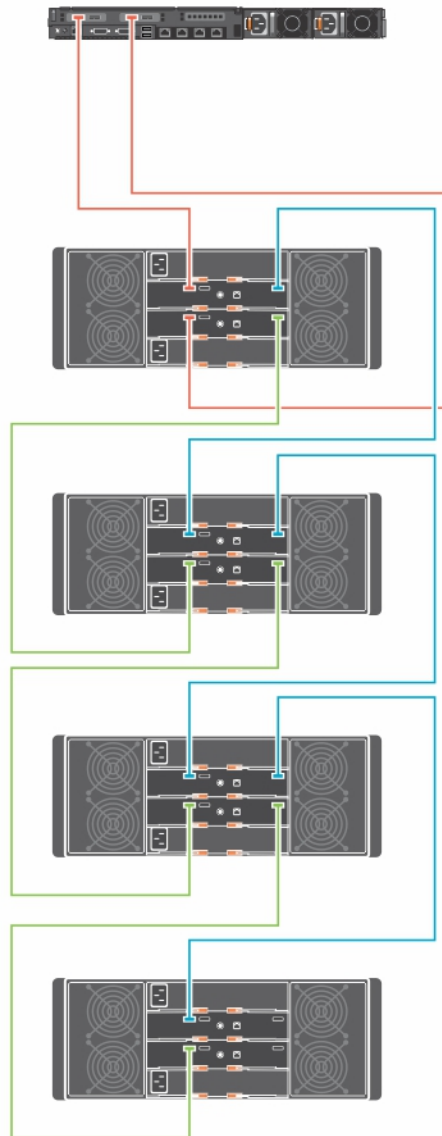# Linux Symmetric Multipath configuration

Figure 3. Linux Symmetric Multipath configuration
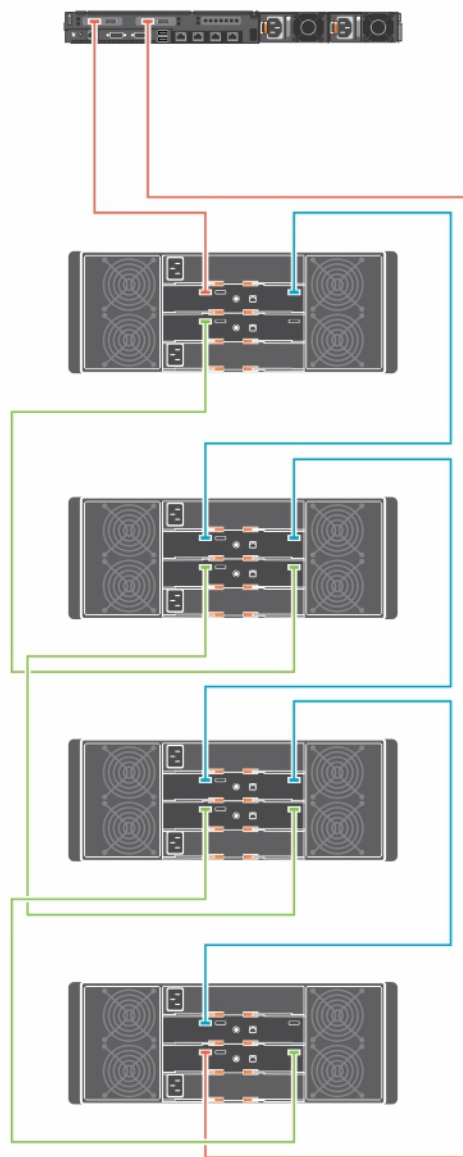
Linux Asymmetric Multipath configuration

Figure 4. Linux Asymmetric Multipath configuration

Installing Storage Enclosure Management Software

This section provides the information related to installing Storage Enclosure Management Software.

Topics:

Installing HBAs and drivers

1 Install the Host Bus Adapters (HBAs).
2 Connect the cables.
3 Install the HBA drivers and the OS HBA patches or hotfixes.
4 Ensure that the recommended HBA settings are applied.

Storage Enclosure Management Installation — Windows

ⓘ **NOTE: Dell only supports the Windows Storage Spaces when purchased as the DSMS 3060e. For information about the DSMS 3060e, see Dell.com/dsmsmanuals.**

Storage Enclosure Management installation for Linux

Graphical installation

1 Download the Storage Enclosure Management Software installation package from **Dell.com/support**.
2 Navigate to the download directory of the installer.
3 Double-click the installation program: **StorageEnclosureManagement-x.x.x.x-<OS>-installer** .
4 Complete the on-screen instructions and accept **End User License Agreement**.

ⓘ **NOTE: You can select to start the SNMP monitoring service after installation is complete.**

Silent installation

> (i) **NOTE:** Linux installation requires full 'root' user rights. Console installation is no longer available. Instead, run the installer with switch `--mode unattended` for the default installation. A default installation requires no arguments.

1 Download the Storage Enclosure Management Software installation package from **Dell.com/support**.
2 Navigate to the directory containing the extracted installer.
3 Run the command:

```
StorageEnclosureManagement-x.x.x.x-<OS>-installer --mode unattended
```

This command installs the Storage Enclosure Management with all the default settings.

4 Accept all **End User License Agreements**. The default installation directory is: **/opt/Dell/StorageEnclosureManagement**.
5 To change the installation directory, uncomment and edit the following line in the `installer.options` file:

```
;prefix=/opt/dell/StorageEnclosureManagement
```

6 To start the SNMP daemon after installation, set the value of SNMP to 1.

```
SNMP=1
```

7 Run the command:

```
StorageEnclosureManagement-x.x.x.x-<OS>-installer --mode unattended --options /path/to/
installer.options
```

After successful installation, you can run the secli commands from the terminal.

Uninstalling Storage Enclosure Management software

This section provides information related to uninstalling Storage Enclosure Management Software for Windows and Linux.

Topics:

Windows

ⓘ **NOTE: For information on Storage Enclosure Management Installation for Windows, see** *Dell Storage PowerTools Server Hardware Manager Administrator's Guide*, **at Dell.com/dsmsmanuals**

ⓘ **NOTE: Dell only supports the Windows Storage Spaces when purchased as the DSMS 3060e. For information about the DSMS 3060e, see Dell.com/dsmsmanuals.**

Linux

ⓘ **NOTE: Linux uninstallation requires full root user permissions.**

ⓘ **NOTE: If you installed the program silently, the uninstallation is silent.**

ⓘ **NOTE: The shmcli log file is not deleted from the system after uninstallation.**

1   Navigate to the installation directory.
    The default directory is: **/opt/Dell/StorageEnclosureManagement**
2   Run the program:
    `StorageEnclosureManagement_uninstall.`

    For silent uninstallation: `StorageEnclosureManagement_uninstall --mode unattended`
3   Complete the on-screen instructions to complete the uninstallation.

Getting help

Topics:

- Contacting Dell EMC
- Locating Service Tag of your system

Contacting Dell EMC

Dell EMC provides several online and telephone based support and service options. If you do not have an active internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell EMC product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell EMC for sales, technical assistance, or customer service issues:

1   Go to Dell.com/support/home.
2   Select your country from the drop-down menu on the lower right corner of the page.
3   For customized support:
    a   Enter your system Service Tag in the **Enter your Service Tag** field.
    b   Click **Submit**.
        The support page that lists the various support categories is displayed.
4   For general support:
    a   Select your product category.
    b   Select your product segment.
    c   Select your product.
        The support page that lists the various support categories is displayed.
5   For contact details of Dell EMC Global Technical Support:
    a   Click Global Technical Support.
    b   The **Contact Technical Support** page is displayed with details to call, chat, or e-mail the Dell EMC Global Technical Support team.

Locating Service Tag of your system

Your system is identified by a unique Express Service Code and Service Tag number. The Express Service Code is and Service Tag are found on the front of the system by pulling out the information tag. Alternatively, the information may be on a sticker on the chassis of the system. This information is used by Dell to route support calls to the appropriate personnel.

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