

Dell PowerVault MD Storage
Arrays Management Pack
Suite Version 4.1 For Microsoft
System Center Operations
Manager 2007 R2/SP1 and
System Center Essentials 2007
SP1/2010

Installation Guide



Notes



NOTE: A NOTE indicates important information that helps you make better use of your computer.

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Introduction

This guide describes how to install Dell MD Storage Arrays Management Pack Suite version 4.1 for Microsoft System Center Operations Manager (SCOM) 2007 SP1/R2, System Center Essentials (SCE) 2007 SP1/2010.



NOTE: All references to SCOM in this guide are applicable to SCE as well, unless otherwise explicit product and version information is mentioned.

Pre-requisites

The following table lists the management station requirements to install the Dell MD Storage Arrays Management Pack Suite version 4.1.

Table 1-1. Requirements for Management Station

Requirements	Purpose
Microsoft System Center Operations Manager (SCOM) 2007 SP1/R2 or Microsoft System Center Essentials (SCE) 2007 SP1/2010	To support the Dell MD Storage Arrays Management Pack.
Administrator access on the system	<ul style="list-style-type: none">• To run the Dell Discovery utility.• To read and modify the IP configuration file. <p>For more information on the Dell Discovery utility, see the online help provided with the utility.</p>
Minimum disk space of 5 GB	For SCOM to run the Dell Array Bridge Broker.exe file.
(Optional) Modular Disk Storage Manager (MDSM)	To diagnose and resolve recovery failure alerts.

Table 1-2 lists the requirements for the managed systems.

Table 1-2. Requirements for Managed systems

Requirements	Purpose
MDSM Client on the system that hosts the PowerVault storage arrays.	To discover the Dell storage device through in-band. Download the latest <i>resource CD</i> from support.us.dell.com .

Accessing the Management Pack Suite

The Dell MD Storage Arrays Management Pack Suite version 4.1 is packaged in the self extracting executable

`Dell_MD_StorageArray_Management_Pack_Suite_v4.1_A00.exe` file that contains the following:

- `Dell.Connections.HardwareLibrary.mp` (Base Folder Utility 4.0)
- `Dell.Storage.MDStorageArray.mp` (MD Storage Array 4.1)
- `Dell.Storage.MDStorageArray.DetailedMonitoringOn.mp` (Detailed Monitoring Overrides)
- `Dell_MDStorageArray_ABB.exe`
- `DellMPv41_MDStorageArray_IG.pdf`
- `DellMPv41_MDStorageArrayMP_Readme.txt`

The `Dell_MDStorageArray_ABB.exe` is another self-extracting executable that contains the following:

- `Dell_MDStorageArray_ABBCfg.config`
- `Dell_MDStorageArray_ip_sample.config`
- `DellABB.exe`
- `DellDiscoveryUtility.chm`
- `DellDiscoveryUtility.exe`
- `DellDiscoveryUtility.exe.config`
- `MDAutoDiscovery.dll`
- `DellMPv41_DellDiscoveryUtility_Readme.txt`

The Dell_MD_StorageArray_Management_Pack_Suite_v4.1_A00.exe is also available at support.dell.com.

Table 1-3 below describes the management packs, utilities, and their dependencies with each other:

Table 1-3. Management Pack Functionalities and Dependencies

Management Pack/Utility	Description	Dependency
Dell Connections Hardware Library MP	Utility for defining the Dell Hardware Group and Dell folder in the Monitoring pane of the Operations Console.	None
MD Storage Arrays MP	Management Pack for instrumenting supported Dell PowerVault MD Storage Arrays. It monitors the base MD storage array component and performs the inventory for all component of MD arrays. Component health monitoring is disabled in this MP.	Dell Connections Hardware Library MP 4.0
MD Storage Arrays Detailed Monitoring Overrides	Management Pack for detailed health monitoring, by enabling monitoring of all components defined in the MD Storage Arrays MP.	<ul style="list-style-type: none"> • Dell Connections Hardware Library MP 4.0 • MD Storage Array 4.1

Installing the Dell MD Storage Arrays Management Pack Suite v4.1

Before installing the management packs, import the dependent management packs first. For dependencies see, Table 1-3.

Pre-Import Tasks

Before you import the MD Storage Arrays Management Packs to SCOM:

- 1 Download the management packs from support.dell.com to the destination directory on your local system.
- 2 Extract the management packs to a location of your choice on the management station.

The default location is `C:\Dell Management Packs\MD Storage Array Mgmt Suite\4.1`.

- 3 Extract the self-extracting executable `Dell_MDStorageArray_ABB.exe` to the default location `C:\Dell_MDStorageArray_ABB\`.



NOTE: If you do not place the ABB files at `C:\Dell_MDStorageArray_ABB`, then the Dell MD Storage Arrays MP will not work. It generates a critical alert with the message: "DELL MD array - File not found on the specific location".



NOTE: Place the ABB files in all management servers in the management group that monitor the Dell MD Storage Array devices.

- 4 Perform *one* of the following actions on the management server where you would like to manage the PowerVault MD Storage Array devices:
 - Launch the Dell Discovery utility from the management console (**DellDiscoveryUtility.exe**) to discover the PowerVault MD Storage Arrays in the network, and update the IP listing file (**Dell_MDStorageArray_ip.cfg**) with the IP addresses of the Storage Arrays. Follow the input steps mentioned in the wizard and complete the discovery process to generate the IP listing file.
 - Manually update the **Dell_MDStorageArray_ip.cfg** file with the IP addresses of the storage arrays in the network. Ensure that you update the IP addresses (IPv4 format or IPv6 format) in the semi-colon separated format, in a single line. For example - 10.94.1.1;10.94.1.2;10.94.1.3;10.94.1.4;10.94.1.5
or
2001:db8:85a3::8a2e:370:7334;2001:db8:85a3::8a2e:370:7335
- 5 Import the management packs. For more information, see [Importing the Management Pack](#).

Importing the Management Pack


To import the MD Storage Arrays management packs, use the **SCOM Import Management Packs** wizard:


- 1 Click **Start**→**Programs**→**System Center Operations Manager 2007** and select **Operations Console**.
- 2 In **Operations Console**, click **Administration** on the navigation pane.
- 3 Expand the **Administration** tree, right-click **Management Packs**, and select **Import Management Packs**.
- 4 Click **Add**. Select **Add from disk**.

- 5 Type or browse to the management pack location. Select the management pack you want to import and click **Open**.

The **Import Management Packs** screen is displayed with the selected management pack displayed in the **Import List**.


- 6 Click **Install** to complete the task.

 **NOTE:** If the MD Storage Arrays MP and MD Storage Arrays Detailed Monitoring Overrides MP are imported together in the same session, you will see the health monitor status for the individual components of the MD Storage Array device. If only MD Storage Arrays MP is imported, the individual component level monitoring is disabled and will appear as not monitored.


 **NOTE:** The procedure may slightly change in SCE 2007 SP1, SCE 2010 and SCOM 2007 SP1.

Guidelines for Performance and Scalability for SCOM

For optimal performance, deploy the Dell MD Storage Arrays Management Pack Suite version 4.1 on a dedicated management station.

 **NOTE:** MD Storage Arrays MP runs monitoring scripts periodically on the management server to determine the health of MD Array and its components. When you are monitoring a large number of MD Storage Arrays, the number of monitoring scripts increases and results in high CPU utilization on the management server that manages them. If you delete the MD Storage Arrays Detailed Monitoring Overrides MP, the CPU utilization comes down. Distributing the MD Storage Arrays across the management servers in the group also brings down the CPU utilization on the management server.

For information on Microsoft's recommendations for scalability, see the Microsoft website at [http://technet.microsoft.com/hi-in/library/bb735402\(en-us\).aspx](http://technet.microsoft.com/hi-in/library/bb735402(en-us).aspx)

 **NOTE:** Ensure that the **Autogrow** option is enabled in **Operations Manager Database**.

Upgrading From Previous Management Packs

If you have installed an earlier version of Dell MD Storage Arrays Management Pack Suite, you can directly upgrade to the current version.

From Dell MD Storage Arrays Management Pack Suite Version 4.0

You can upgrade the Dell MD Storage Arrays Management Pack Suite 4.0 to 4.1. To upgrade to the current version:

- 1 Follow the steps as given in [Installing the Dell MD Storage Arrays Management Pack Suite v4.1](#).
- 2 Import both the management packs — Dell MD Storage Arrays MP and the MD Storage Arrays Detailed Monitoring Overrides MP in the same session.

If MD Storage Arrays MP alone is imported, component level monitoring is disabled. Ensure that the ABB file is also upgraded to the latest version.



NOTE: When you upgrade from version 4.0 to version 4.1, components that are in critical or warning state before upgrading, display a normal state after upgrading for the first monitoring cycle. The devices display correct health status only in subsequent monitoring cycle.

- After you upgrade the management pack to 4.1, you may see some of the components in Diagram view still displaying default icons. You need to restart the Operations Console with the **/clearcache** option to see the new icons.
- The discovery interval overrides specified in version 4.0 are not completely carried over to version 4.1. You need to override the discovery interval of MD Array discovery to get the same effect as in 4.0.
- When you upgrade MD Storage Arrays MP from version 4.0 to version 4.1, the unit monitor override settings specified in version 4.0 are not carried over to version 4.1 and will not work.
- When you upgrade to version 4.1, MD Storage Arrays may disappear from the MD Storage Array **Diagram** and **State** View for few minutes. After the discovery is complete, the MD Storage Arrays will reappear in the MD Storage Array Diagram and State Views.

From Dell MD Storage Arrays Management Pack Suite Version 3.x

You cannot upgrade the Dell MD Storage Arrays Management Pack Suite 3.x to 4.1. Ensure that you delete Dell Storage Arrays Management Pack 3.x (Dell.Connections.StorageArray.mp) before importing the Dell MD Storage Arrays Management Pack Suite version 4.1.

Deleting the Management Pack

Delete the management packs in the following sequence:

- 1 MD Storage Arrays Detailed Monitoring Overrides MP if present
- 2 MD Storage Arrays MP
- 3 Dell Connections Hardware MP

To delete the management packs:

- 1 Select **Administration** → **Management Packs** in the SCOM Operations Console.
- 2 Select the MD Storage Arrays Management Pack from the **Management Packs** pane.
- 3 Right-click the selected management pack and click **Delete**.

After deleting the management packs, it is recommended that you relaunch the SCOM Console.



NOTE: Deleting any of the Management Packs may affect the scope of some user roles.

Security Considerations

Operations Console access privileges are handled internally by SCOM. This can be set up using the **User Roles** option under **Administration** → **Security** feature on the SCOM console. The profile of your role determines what actions you can perform. For more information on security considerations, see the *Microsoft Operations Manager 2007 SP1*, *Microsoft Operations Manager 2007 R2*, or the *Microsoft Systems Centre Essentials SP1/2010* online help.

Security Consideration for Dell Discovery Utility

When you run Dell Discovery utility for first time on any system to discover the MD Storage Arrays, there is a delay of 40-45 seconds to launch the utility if the system does not have access to the internet.

This problem occurs because a .NET Framework 2.0 managed assembly that has an Authenticode signature takes longer than usual to load. The signature is always verified when the .NET Framework 2.0 managed assembly that has an Authenticode signature is loaded.

To avoid the delay in launching the utility on a system without internet access:

- 1 Open the `DellDiscoveryUtility.exe.config` file from the location where you have extracted the contents `Dell_MDStorageArray_ABB.exe`.
- 2 Set the value of `<generatePublisherEvidence enabled="True"/>` to `"False"`.

