

**Dell PowerVault MD Storage Array Management
Pack Suite Version 5.0 For Microsoft System Center
Operations Manager And Microsoft System Center
Essentials
Installation Guide**



Notes, Cautions, and Warnings



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



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.

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Overview


This guide provides information on the software prerequisites and requirements to install and uninstall the Dell Modular Disk (MD) Storage Array Management Pack Suite version 5.0 with Microsoft System Center 2012 R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, Microsoft System Center Operations Manager 2007 R2, and Microsoft System Center Essentials (SCE) 2010.

The integration of Dell MD Storage Array Management Pack Suite version 5.0 with System Center 2012 R2 Operations Manager, System Center 2012 SP1 Operations Manager, System Center 2012 Operations Manager, System Center Operations Manager 2007 R2, or System Center Essentials 2010 environment allows you to manage, monitor, and ensure the availability of your Dell devices.

 **CAUTION:** Perform the procedures in this document only if you have proper knowledge and experience in using Microsoft Windows operating system and the System Center 2012 R2 Operations Manager, System Center 2012 SP1 Operations Manager, System Center 2012 Operations Manager, System Center Operations Manager 2007 R2, and System Center Essentials 2010, to avoid data corruption and/or data loss.

 **NOTE:** The term OpsMgr in this document is used to refer System Center 2012 R2 Operations Manager, System Center 2012 SP1 Operations Manager, System Center 2012 Operations Manager, System Center Operations Manager 2007 R2, and System Center Essentials 2010, unless otherwise specified.

The Management Pack Suite installer, Installation Guide, and Readme files are packaged in a self-extracting executable **Dell_MD_StorageArray_Management_Pack_Suite_v5.0_A00.exe** file. You can download the executable from dell.com/support. Read the Management Pack Suite's readme file, which contains the latest information about software and management server requirements, in addition to information about known issues. The readme file is also posted to the Systems Management documentation page at dell.com/support/manuals.

 **NOTE:** This document contains information on the prerequisites and supported software necessary for installing the Dell Modular Disk (MD) Storage Array Management Pack Suite version 5.0. If you are installing this version of Dell Modular Disk (MD) Storage Array Management Pack Suite version 5.0 after a long time after its release date, check to see if there is an updated version of this document at dell.com/support/manuals.



Prerequisites


To install the Dell MD Storage Array Management Pack Suite version 5.0 on a management server, make sure that you have the following available:

- System Center 2012 R2 Operations Manager, System Center 2012 SP1 Operations Manager, System Center 2012 Operations Manager, System Center Operations Manager 2007 R2, or System Center Essentials 2010.
- Administrator access on the system to run the Dell Discovery utility, Dell PowerVault Modular Disk Storage Manager IP list extraction utility, and to read and modify the IP configuration file.
- Minimum disk space of 5 MB for OpsMgr to run the Dell MD Storage Array Management Pack.
- Microsoft .NET version 3.5 to run the installer and the utilities installed as part of the management pack suite.
- (Optional) Modular Disk Storage Manager (MDSM) to diagnose and resolve recovery failure alerts of Dell PowerVault MD Storage Array.

Contents Of The Dell PowerVault MD Storage Array Management Pack Suite

The Dell PowerVault MD Storage Array Management Pack Suite version 5.0 is packaged in the self extracting executable **Dell_MD_StorageArray_Management_Pack_Suite_v5.0_A00.exe** file that contains the following:

- **Dell.Connections.HardwareLibrary.mp** — Base Folder Utility 4.0
- **Dell.Storage.MDStorageArray.mp** — Management pack to discover and monitor the Dell PowerVault MD Storage Arrays. It provides inventory of all components of the array and health computation of the MD Storage Array only.
 **NOTE:** **Dell.Storage.MDStorageArray.mp** is the scalable edition of the management pack.
- **Dell.Storage.MDStorageArray.DetailedMonitoringOn.mp** — Management pack enables health computation for all components in the Dell PowerVault MD Storage Array.
 **NOTE:** **Dell.Storage.MDStorageArray.DetailedMonitoringOn.mp** is the detailed edition of the management pack.
- **Dell_MDStorageArray_ExtractMDListFromMDSM.vbs** — Dell PowerVault Modular Disk Storage Manager IP list extraction Utility (obtains the list of MD Storage Array IP addresses configured in Dell PowerVault Modular Disk Storage Manager).
- **Dell_MDStorageArray_ip_sample.cfg** — Provides the reference format in which the IP addresses has to be provided in the IP listing file (dell_MDStorageArray_ip.cfg).
- **DellDiscoveryUtility.exe** — Utility to discover Dell PowerVault MD Storage Arrays and create an IP listing file (dell_MDStorageArray_ip.cfg) with a list of discovered MD storage array IP addresses.
- **DellDiscoveryUtility.exe.config** — Configuration file for the Dell Discovery utility.
- **DellDiscoveryUtility.chm** — Online help file for the Dell Discovery utility.
- **DellIPv50_MDStorageArray_IG.pdf** — Guide for installing Dell PowerVault MD Storage Array Management Pack Suite.
- **DellIPv50_MDStorageArrayMP_Readme.txt** — The readme file for Dell PowerVault MD Storage Array Management Pack Suite.

 **NOTE:** The self-extracting executable file is available at dell.com/support.

Supported Operating Systems

- System Center 2012 R2 Operations Manager, see technet.microsoft.com/en-us/library/hh205990.aspx.
- System Center 2012 SP1 Operations Manager, see technet.microsoft.com/en-us/library/jj628210.aspx.
- System Center 2012 Operations Manager, see technet.microsoft.com/en-us/library/jj656649.aspx.
- System Center Operations Manager 2007 R2, see technet.microsoft.com/en-us/library/bb309428.aspx.
- System Center Essentials 2010, see technet.microsoft.com/en-us/library/bb422876.aspx.

Installing, Uninstalling, And Upgrading The Dell MD Storage Array Management Pack Suite Version 5.0

Installation Notes

- Installing Dell PowerVault MD Storage Array Management Pack Suite, importing management packs, and discovering Dell PowerVault MD storage arrays are separate procedures.
- Dell PowerVault MD Storage Management Pack Suite does not delete any debug log files.
- Dell PowerVault MD Storage Arrays can only be discovered using the Dell Discover Utility.
- Dell PowerVault MD Storage Array Management Pack Suite must be installed on the management servers in a management group that are monitoring Dell PowerVault MD Storage Arrays.
- Dell PowerVault MD Storage Array monitoring configuration recommendation — If the IP listing file is replicated across the management servers, many instances of Dell PowerVault MD Storage Arrays may be populated in the views. Since, every additional instance has a load on the device, it is recommended not to replicate the IP listing file.
- The Dell ABB toolset must be installed on the management servers that monitor Dell PowerVault MD Storage Arrays. If the Dell ABB toolset is not installed in the management server, an alert is generated. The alert is cleared when the Dell MD Storage Array Management Pack Suite is installed on the management server. To view the alerts, see [Troubleshooting](#).

Installing The Dell MD Storage Array Management Pack Suite Version 5.0

To install the Dell MD Storage Array Management Pack Suite Version 5.0, perform the following steps:

1. Download the **Dell_MD_StorageArray_Management_Pack_Suite_v5.0_A00.exe** file from dell.com/support.
2. Run the **.exe** file to extract the contents of the self extractable zip file.
3. Launch the **Dell_MD_Storage_Management_Pack_Suite_x86_x64** file from the extracted location.
The welcome screen for Dell MD Storage Array Management Pack Suite is displayed.
4. Click **Next**.
The license agreement screen is displayed.
5. To continue the installation, accept the license terms after reading them, and click **Next**.
6. Click **Change** (if required) to change the default installation folder and click **Next**.
The **Ready to Install the Program** screen is displayed.
7. Click **Install**.
The **Installing Dell MD Storage Array Management Pack Suite** progress screen is displayed.
8. Click **Finish** on the **InstallShield Wizard Completed** screen.

PreImport Tasks

Before you import the Dell MD Storage Array management pack to OpsMgr:

1. Install the management pack suite.
2. Perform one of the following actions on the management server where you would like to manage the Dell PowerVault MD Storage Array devices:
 - Launch the Dell Discovery utility (**DellDiscoveryUtility.exe**) from the ABB toolset folder location where you have installed the Dell MD Storage Array Management Pack Suite. To discover the Dell 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.
 - or
 - 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 semicolon 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.
 - or
 - Use the Dell PowerVault Modular Disk Storage Manager IP list extraction utility to obtain the list of MD Storage Array IP addresses configured in the Dell PowerVault Modular Disk Storage Manager. For more information, see “Extracting MD Storage Array IP Addresses From Dell PowerVault Modular Disk Storage Manager” section in the *Dell MD Storage Array Management Pack Suite Version 5.0 For Microsoft System Center Operations Manager And System Center Essentials User’s Guide* available at dell.com/support/manuals.
3. Import the management pack. For more information, see [Importing The Management Pack](#).

Importing The Management Pack

To import the Dell PowerVault MD storage array management pack:

1. Launch the OpsMgr console.
2. Click **Administration**.
3. Expand the **Administration** tree, right-click **Management Packs** and click **Import Management Packs**.
4. Click **Add** and select **Add from disk**.
5. Type or navigate to the management pack location.
6. Select **Dell.Storage.MDStorageArray.mp** to monitor the Dell PowerVault MD Storage Arrays and click **Open**. The **Import Management Packs** screen is displayed with the selected management pack displayed in the **Import List**.
7. Click **Install** to import the management pack.

Using The Repair Option In The Installer

The **Repair** option in the installer repairs installation errors. You can use this option to re-install the management pack, missing files, and correct the registry entries. To repair the installation of the Dell MD Storage Array Management Pack Suite:

1. Run the **Dell_MD_StorageArray_Management_Pack_Suite_x86_x64** file from the extracted location to launch the installer.


The welcome screen is displayed.

2. Click **Next**.

The installer displays three options.

3. Select **Repair** and click **Next**.

The **Ready to Repair the Program** screen is displayed.

 **NOTE:** The **Modify** option of the installer is not supported in Dell MD Storage Array Management Pack Suite Version 5.0.

4. Click **Install**.


A progress screen displays the progress of the installation. After the installation is complete, the **InstallShield Wizard Completed** window is displayed.


5. Click **Finish**.


Upgrading From Previous Management Packs

Upgrading From Dell MD Storage Array Management Pack Suite Version 4.1

You can upgrade from the Dell MD Storage Array Management Pack Suite 4.1 by importing the version 5.0 management pack. To import the Dell MD Storage Array Management Pack Suite 5.0, follow the steps as given in [Importing The Management Pack](#).

 **NOTE:** Few existing alerts are replicated after upgrading to version 5.0 as the alert titles and descriptions are updated. Close the existing alerts before upgrading to avoid replication of existing alerts.

 **NOTE:** Before upgrading to version 5.0, copy the existing IP listing file to the location where the Dell MD Storage Array Management Pack suite version 5.0 is installed.

 **NOTE:** When you upgrade from version 4.1 to version 5.0, 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 from the subsequent monitoring cycle according to the OpsMgr behavior.

Upgrading From Dell MD Storage Array Management Pack Suite Version 4.0 And Prior Versions

You cannot upgrade the Dell MD Storage Array Management Pack Suite version 4.0 and prior versions to version 5.0.

Upgrading To OpsMgr 2012

Before upgrading to OpsMgr 2012 from OpsMgr 2007 R2, you must import the Dell PowerVault MD Storage Array Management Pack version 5.0. For information about upgrading from OpsMgr 2007 R2 to OpsMgr 2012, see technet.microsoft.com/en-us/library/hh476934.aspx.

Uninstalling The Dell MD Storage Array Management Pack Suite Version 5.0

To uninstall Dell MD Storage Array Management Pack Suite Version 5.0:

1. Delete the management packs from the OpsMgr. For more information, see [Deleting The Management Packs](#).
2. Uninstall the Dell MD Storage Array Management Pack Suite. For more information, see [Uninstalling The Dell MD Storage Array Management Pack Suite](#).

Deleting The Management Packs

 **CAUTION:** Deleting any of the management packs may affect the scope of some user roles.

 **NOTE:** While deleting the Dell PowerVault MD Storage Array Management Pack, make sure that you delete the management pack before deleting the **Dell Base Hardware Library**. The management pack has a dependency on the **Dell Base Hardware Library**.

To delete the management packs:

1. Launch the OpsMgr console.
2. Click **Administration**.
3. Select the **Dell MD Storage Array Management Pack (Scalable)** and **Dell MD Storage Array Detailed Monitoring Utility** (if you have imported the detailed edition of the management pack) from the **Management Packs** pane.
4. Right-click the selected management packs and click **Delete**.

After deleting the management pack, it is recommended that you relaunch the OpsMgr console.

Uninstalling The Dell MD Storage Array Management Pack Suite

To uninstall Dell MD Storage Array Management Pack Suite:

1. Click **Start** → **Control Panel** → **Uninstall a program**.
2. Right-click **Dell MD Storage Array Management Pack Suite** and click **Uninstall**.
3. Follow the instructions on the screen to complete the uninstallation process.
Or double-click the installer, select **Remove**, and follow the instructions on the screen. For more information, see [Using The Remove Option In The Installer](#).

Using The Remove Option In The Installer

To remove the Dell MD Storage Array Management Pack Suite Version 5.0 using the installer:

1. Run **Dell_MD_StorageArray_Management_Pack_Suite_x86_x64** from the folder where you extracted the contents of the **Dell_MD_StorageArray_Management_Pack_Suite_v5.0_A00.exe** file.
The welcome screen is displayed.
2. Click **Next**.
The installer displays three options.
3. Select the **Remove** option and click **Next**.
The **Remove the Program** screen is displayed.
4. In the **Remove the Program** screen, click **Remove**.




Guidelines For Performance And Scalability For OpsMgr

See [technet.microsoft.com/hi-in/library/bb735402\(en-us\).aspx](http://technet.microsoft.com/hi-in/library/bb735402(en-us).aspx) for *Mapping Requirements to a Design for System Center Operations Manager (SCOM) 2007*.

See technet.microsoft.com/en-US/library/hh473583.aspx for *Planning the System Center 2012 - Operations Manager Deployment*.

See microsoft.com/en-us/download/details.aspx?id=6909 for *Operations Manager 2007 Performance and Scalability Whitepaper*.

For optimal performance, deploy device-specific Dell Management Packs on different management servers.

-  **NOTE:** Dell PowerVault MD Storage Array Management Pack runs monitoring scripts periodically on the management server to determine the health of the storage array and its components. When you are monitoring many Dell PowerVault MD Storage Arrays, the number of monitoring scripts increases resulting in high CPU utilization on the management server. If you delete the MD Storage Arrays Detailed Monitoring Overrides utility, the CPU utilization reduces. Distributing the MD Storage Arrays across the management servers by having distinct IP addresses in the IP listing file reduces the CPU utilization on the management server.
-  **NOTE:** Use the scalable edition of the management pack while monitoring many MD Storage Arrays and detailed monitoring edition of the management pack while monitoring few MD storage arrays.
-  **NOTE:** For improved performance, make sure that the **Autogrow** option is enabled in the **OpsMgr Database**.

Security Considerations

The OpsMgr internally handles the access privileges for different operations. These privileges can be set up using the **User Roles** option under **Administration** → **Security** feature on the OpsMgr console. The profile of your role determines the actions you can perform in the OpsMgr console.

For more information on security considerations, see the documentation for Microsoft System Center R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, Microsoft System Center Operations Manager 2007 R2, or the Microsoft Systems Center Essentials 2010 Online Help at technet.microsoft.com.

Security Consideration For Dell Discovery Utility

When you run the Dell Discovery utility for the first time on any system to discover the Dell 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 installed the MD Storage Array Management Pack Suite Version 5.0.
2. Set the value of `<generatePublisherEvidence enabled="True"/>` to **"False"**.
For more information, see <http://support.microsoft.com/kb/936707>.

Troubleshooting

Issues And Resolutions

The following table lists the known issue, cause, and resolution for the issue.

Table 1. Issues And Resolutions

Issue	Cause	Resolution
Alert is displayed in the All Alerts View of a management server indicating that the Dell PowerVault MD Storage Array Management Pack Suite is not found or is corrupt on the system. The alert severity is Critical .	Files installed by the Dell PowerVault MD Storage Array Management Pack Suite Version 5.0 are corrupted or deleted on the management server.	Repair the Dell PowerVault MD Storage Array Management Pack Suite installation using the Dell PowerVault MD Storage Array Management Pack Suite Version 5.0 installer. For more information, see Using The Repair Option In The Installer .
Alert is displayed in the All Alerts View of a management server indicating that the Dell PowerVault MD Storage Array Management Pack Suite is not found on the system. The alert severity is Critical .	A rule in the Dell PowerVault MD Storage Array Management Pack Suite checks for the presence of the Dell PowerVault MD Storage Array Management Pack Suite and creates an alert indicating the absence of the management pack.	Install the Dell PowerVault MD Storage Array Management Pack Suite on the management servers where you intend to manage Dell PowerVault MD Storage Arrays. Otherwise ignore the alert.
Alert is displayed in the All Alerts View of a management server indicating that Dell PowerVault MD Storage Array Management Pack Suite requires installation of a specific version of the ABB toolset on the system. The alert severity is Critical .	Files installed by the Dell PowerVault MD Storage Array Management Pack Suite Version 5.0 are not the appropriate version as expected by the management pack.	Repair the Dell PowerVault MD Storage Array Management Pack Suite installation using the Dell PowerVault MD Storage Array Management Pack Suite 5.0 installer. For more information, see Using The Repair Option In The Installer .
Errors obtained while running the Repair or Change option on Dell PowerVault MD Storage Array Management Pack Suite Version 5.0 from Add/Remove Programs .	Repair or Change option in the Add/Remove programs is not supported.	Use the Repair option in the installer. Do not use the repair option from the Add/Remove programs window. For more information, see Using The Repair Option In The Installer .

Accessing Documents From Dell Support Site

To access the documents from Dell support site:

1. Go to dell.com/support/manuals.
2. In the **Tell us about your Dell system** section, under **No**, select **Choose from a list of all Dell products** and click **Continue**.
3. In the **Select your product type** section, click **Software, Monitors, Electronics & Peripherals**.
4. In the **Choose your Dell Software, Monitors, Electronics & Peripherals** section, click **Software**.
5. In the **Choose your Dell Software** section, click the required link from the following:
 - **Client System Management**
 - **Enterprise System Management**
 - **Remote Enterprise System Management**
 - **Serviceability Tools**
6. To view the document, click the required product version.



NOTE: You can also directly access the documents using the following links:

- For Client System Management documents — dell.com/OMConnectionsClient
- For Enterprise System Management documents — dell.com/openmanagemanuals
- For Remote Enterprise System Management documents — dell.com/esmmanuals
- For Serviceability Tools documents — dell.com/serviceabilitytools