

**Dell PowerVault MD Storage Array Management Pack
Suite Version 6.1 for Microsoft System Center
Operations Manager
Installation Guide**



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.

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Overview

This guide provides information to install, configure, and use the Dell Modular Disk (MD) Storage Array Management Pack Suite version 6.1 for Microsoft System Center Operations Manager.

The integration of the Dell MD Storage Array Management Pack Suite version 6.1 with Microsoft System Center 2016 Operations Manager, Microsoft System Center 2012 R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, and Microsoft System Center Operations Manager 2007 R2 environment allows you to manage, monitor, and ensure the availability of your Dell devices.

△ CAUTION: To avoid data corruption, data loss, or both; perform the procedures in this document only if you have proper knowledge and experience in using Microsoft Windows operating system and Microsoft System Center 2016 Operations Manager, Microsoft System Center 2012 R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, and Microsoft System Center Operations Manager 2007 R2.

The Management Pack Suite Installer, Installation Guide, and the Release Notes files are packaged in a self-extracting executable **Dell_MD_StorageArray_Management_Pack_Suite_v6.1_Axx.exe** (where xx is the Dell MD Storage Array Management Pack Suite version 6.1 release number) file. You can download the executable file from **Dell.com/support**.

Read the Management Pack's release notes, which contain the latest information about software and management server requirements, in addition to information about known issues. The release notes is also posted to the Systems Management documentation page at **Dell.com/support/home**.

Terms used in this document

The following term is used throughout this document. Make sure to substitute the actual term wherever appropriate.

- **OpsMgr** — This term refers to Microsoft System Center 2016 Operations Manager, Microsoft System Center 2012 R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, and Microsoft System Center Operations Manager 2007 R2, unless otherwise specified.

Prerequisites

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

- OpsMgr 2016, OpsMgr 2012 R2, OpsMgr 2012 SP1, OpsMgr 2012 or OpsMgr 2007 R2.
- Administrator access on the system to:
 - Run the Dell Discovery utility
 - Run the Dell PowerVault Modular Disk Storage Manager IP list extraction utility
 - Read and modify the IP configuration file
- Minimum disk space of 5 MB for OpsMgr to install the Dell MD Storage Array Management Pack Suite.
- Microsoft .NET version 3.5 to run the installer, and the utilities installed as part of the Dell MD Storage Array 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 6.1 is packaged in the self-extracting executable **Dell_MD_StorageArray_Management_Pack_Suite_v6.1_Axx.exe** file that contains the following:

- **Dell_MD_StorageArray_Management_Pack_Suite_x86_x64.exe** — The installer for installing the Dell PowerVault MD Storage Array Management Pack Suite.
- **DellMPv61_MDStorageArray_IG.pdf** — Guide for installing Dell PowerVault MD Storage Array Management Pack Suite.
- **DellMPv61_MDStorageArrayMP_Readme.txt** — The release notes file for Dell PowerVault MD Storage Array Management Pack Suite.

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



Installing, Uninstalling, and Upgrading Dell MD Storage Array Management Pack Suite

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.
- To discover Dell PowerVault MD Storage Arrays; use only Dell Discovery Utility.
- To monitor Dell PowerVault MD Storage Arrays; install Dell PowerVault MD Storage Array Management Pack Suite on management servers in a management group.
- 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.
- Install Dell ABB toolset on management servers that monitors Dell PowerVault MD Storage Arrays. If the Dell ABB toolset is not installed on 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 Dell MD Storage Array Management Pack Suite

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

1. Download the `Dell_MD_StorageArray_Management_Pack_Suite_v6.1_Axx.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.exe` 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 necessary) 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 Suite to OpsMgr:

1. Install the Dell MD Storage Array 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 library folder present in the location where you have installed the Dell MD Storage Array Management Pack Suite.

To discover the Dell PowerVault MD Storage Arrays in the network; follow the input steps mentioned in the wizard to complete the discovery process.

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.

- 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 6.1 for Microsoft System Center Operations Manager User's Guide* available at dell.com/support/home.

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** → **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

Using the **Repair** option in the installer, you can repair the installation errors. You can use this option to reinstall the management pack, missing files, and correct the registry entries.

 **NOTE: The registry entries are reset using the Repair option which stores the IP config file location. But, the registry entries get updated only after the next RBOD discovery workflow.**

To repair the installation of the Dell MD Storage Array Management Pack Suite:




1. Run the `Dell_MD_StorageArray_Management_Pack_Suite_x86_x64.exe` file from the extracted location.
The welcome screen is displayed.
2. Click **Next**.
3. Select **Repair** and click **Next**.
The **Ready to Repair the Program** screen is displayed.
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 6.0

You can upgrade from Dell MD Storage Array Management Pack Suite 6.0 by importing the version 6.1 management pack. To import the Dell MD Storage Array Management Pack Suite 6.1, follow the steps as given in [Importing the Management Pack](#).



-  **NOTE: Few existing alerts are replicated after upgrading to version 6.1 as the alert titles and descriptions are updated. Close the existing alerts before upgrading to avoid replication of existing alerts.**
-  **NOTE: Before upgrading the Dell MD Storage Array Management Pack Suite from version 6.0 to version 6.1, copy the existing IP listing file to the location where the Dell MD Storage Array Management Pack Suite version 6.1 is installed.**
-  **NOTE: When you upgrade from version 6.0 to version 6.1, 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 from the subsequent monitoring cycle according to the OpsMgr behavior.**



Upgrading from Dell MD Storage Array Management Pack Suite Version 5.x and prior versions

Upgrade from Dell MD Storage Array Management Pack version 5. x and earlier versions to version 6.1 are not supported.

Configuring OpsMgr to Monitor Traps


To monitor the health of Dell PowerVault MD Storage Array devices, associate the community string **Run As account** with the target as **Dell MD Array Network Interface** class or respective Dell MD Storage Array object (if you have different Run As accounts for different Dell PowerVault MD Storage Array devices).

To monitor traps in OpsMgr:

1. Launch OpsMgr, and click **Administration**.
2. In the **Administration** pane, browse to **Run As Configuration** → **Profiles**.
3. From the list of available profiles, right-click **SNMP Monitoring Account** and click **Properties**.
The **Introduction** screen is displayed.
4. Click **Next**.
The **Specify the Run As profile's general properties** screen is displayed.
5. Click **Next**.
The **Run As Accounts** screen is displayed.
6. Click **Add**.
The **Add a Run As Account** screen is displayed.
7. Select the community string to receive traps from Dell MD Storage Array devices from the **Run As account** drop-down list.
 -  **NOTE: Create a Community String Run As Account if none is present. For more information, see [Creating Run As Account to Receive Traps](#).**
 -  **NOTE: If you are using multiple Run As Accounts to receive traps from Dell MD Storage Array devices, associate each device with its associated Run As Account. For more information, see [Associating Multiple Run As Accounts](#).**
8. Click **OK**.
9. After the wizard is complete, click **Close**.

Creating Run As Account to Receive Traps

Before creating Run As Account to receive traps; import the Dell Storage MDStorage Array SNMP (Dell.Storage.MDStorageArray.SNMP.mp) management pack.

1. Launch OpsMgr, and then click **Administration**.
2. In the **Administration** pane, browse to **Run As Configuration** → **Accounts**.
3. Right-click **Accounts** and click **Create Run As Account**.
The **Introduction** screen is displayed.
 -  **NOTE: For more information on Run As Account for Network Monitoring, see the Microsoft TechNet site at technet.microsoft.com/en-us/library/hh212920.aspx.**
4. Click **Next**.
The **General Properties** screen is displayed.

5. Select **Community String** from the **Run As Account type:** drop-down list.
6. Type the community string name in the **Display name:** text box and click **Next**.
7. Provide the account credentials in the **Community string** text box and click **Next**.
The **Distribution Security** screen is displayed.
8. Select the **Less secure - I want the credentials to be distributed automatically to all managed computers** option, and click **Create**.
9. After the wizard is complete, click **Close**.

Associating Multiple Run As Accounts

1. Follow step 1 to step 6 under [Configuring OpsMgr to Monitor Traps](#).
2. On the **Add a Run As Account** screen, select the **A selected class, group, or object** option.
3. Click **Select** → **Class**.
The **Class Search** screen is displayed.

 **NOTE:** You can also associate the community string Run As Account with Object and Group. For more information, see the Microsoft documentation for OpsMgr 2012 at technet.microsoft.com.

4. In the **Filter by (optional)** text box enter the class name. Depending on the type of device, type **Dell MD Array Network Interface** classes.
5. Click **Search**.
6. Under **Available items**, select the class you want to add.
7. Click **OK**.
8. On the **Add Run As account** screen, click **OK**.
9. Repeat step 2 to step 8 for each type of class you want to manage.
10. Click **Save**.
11. After the wizard is complete, click **Close**.

Uninstalling the Dell MD Storage Array Management Pack Suite

To uninstall Dell MD Storage Array Management Pack Suite:

1. Delete the imported 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)**, **Dell Storage MDStorage Array SNMP** 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 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 then, click **Uninstall**.
3. To complete the uninstallation process, follow the instructions on the screen.
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 using the installer:

1. Run `Dell_MD_StorageArray_Management_Pack_Suite_x86_x64.exe` from the folder where you extracted the contents of the `Dell_MD_StorageArray_Management_Pack_Suite_v6.1_Axx.exe` file.
The welcome screen is displayed.
2. Click **Next**.
3. Select the **Remove** option and click **Next**.
The **Remove the Program** screen is displayed.
4. In the **Remove the Program** screen, click **Remove**.

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 2016 Operations Manager, 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, 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 Dell MD Storage Array Management Pack Suite Version 6.1.
2. Set the value of `<generatePublisherEvidence enabled="True"/>` to `"False"`.
For more information, see 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 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 6.1 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 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 6.1 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 6.1 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 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 .

Terms used in this document

The following term is used throughout this document. Make sure to substitute the actual term wherever appropriate.

- **OpsMgr** — This term refers to Microsoft System Center 2016 Operations Manager, Microsoft System Center 2012 R2 Operations Manager, Microsoft System Center 2012 SP1 Operations Manager, Microsoft System Center 2012 Operations Manager, and Microsoft System Center Operations Manager 2007 R2, unless otherwise specified.

Using the Remove option in the Installer

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

1. Run **Dell_MD_StorageArray_Management_Pack_Suite_x86_x64.exe** from the folder where you extracted the contents of the **Dell_MD_StorageArray_Management_Pack_Suite_v6.1_Axx.exe** file.
The welcome screen is displayed.
2. Click **Next**.
3. Select the **Remove** option and click **Next**.
The **Remove the Program** screen is displayed.
4. In the **Remove the Program** screen, click **Remove**.

Using the Repair option in the Installer

Using the **Repair** option in the installer, you can repair the installation errors. You can use this option to reinstall the management pack, missing files, and correct the registry entries.

 **NOTE: The registry entries are reset using the Repair option which stores the IP config file location. But, the registry entries get updated only after the next RBOD discovery workflow.**

To repair the installation of the Dell MD Storage Array Management Pack Suite:

1. Run the **Dell_MD_StorageArray_Management_Pack_Suite_x86_x64.exe** file from the extracted location.
The welcome screen is displayed.
2. Click **Next**.
3. Select **Repair** and click **Next**.
The **Ready to Repair the Program** screen is displayed.
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**.



Accessing documents from the Dell EMC support site

You can access the required documents in one of the following ways:

- Using the following links:
 - For all Dell EMC Enterprise Systems Management documents — [Dell.com/SoftwareSecurityManuals](https://www.dell.com/support/manuals)
 - For Dell EMC OpenManage documents — [Dell.com/OpenManageManuals](https://www.dell.com/support/manuals)
 - For Dell EMC Remote Enterprise Systems Management documents — [Dell.com/esmmanuals](https://www.dell.com/support/manuals)
 - For iDRAC and Dell EMC Lifecycle Controller documents — [Dell.com/idracmanuals](https://www.dell.com/support/manuals)
 - For Dell EMC OpenManage Connections Enterprise Systems Management documents — [Dell.com/OMConnectionsEnterpriseSystemsManagement](https://www.dell.com/support/manuals)
 - For Dell EMC Serviceability Tools documents — [Dell.com/ServiceabilityTools](https://www.dell.com/support/manuals)
 - For Client Command Suite Systems Management documents — [Dell.com/DellClientCommandSuiteManuals](https://www.dell.com/support/manuals)
- From the Dell EMC Support site:
 - a. Go to [Dell.com/Support/Home](https://www.dell.com/support/home).
 - b. Under **Select a product** section, click **Software & Security**.
 - c. In the **Software & Security** group box, click the required link from the following:
 - **Enterprise Systems Management**
 - **Remote Enterprise Systems Management**
 - **Serviceability Tools**
 - **Dell Client Command Suite**
 - **Connections Client Systems Management**
 - d. To view a document, click the required product version.
- Using search engines:
 - Type the name and version of the document in the search box.