Dell Storage Manager 2016 R3 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.

Contents

About This Guide

This guide describes how to install and configure Storage Manager components.

For information about using Storage Manager to manage and monitor your Dell storage infrastructure, see the *Dell Storage Manager Administrator's Guide*.

How to Find Information

To Find	Action
A description of a field or option in the user interface	In Storage Manager, click **Help**.
Tasks that can be performed from a particular area of the user interface	1. In Storage Manager, click **Help**. 2. See the Related Tasks section at the bottom of the topic.
A term in a .pdf file	Using Adobe Acrobat or Adobe Reader: • To find a matching term, press Control+F, type the search term, then press Enter. • To find all matching terms, press Control+Shift+F, type the term in the search field, then click **Search**.

Contacting Dell

Go to www.dell.com/support.

Revision History

Document number: 680-028-023

Revision	Date	Description
A	January 2017	Initial release
B	April 2017	Release of Dell Storage Manager 2016 R3.10
C	August 2017	Release of Dell Storage Manager 2016 R3.20

Audience

Storage administrators make up the target audience for this document. The intended reader has a working knowledge of storage and networking concepts.

Related Publications

The following documentation is available for Dell storage components managed using Storage Manager.

Storage Manager Documents

• *Dell Storage Manager Installation Guide*

Contains installation and setup information.

- *Dell Storage Manager Administrator's Guide*

  Contains in-depth feature configuration and usage information.

- *Dell Storage Manager Web UI Administrator's Guide*

  Contains instructions and information for managing

  Dell storage devices using the Dell Storage Manager Web UI.

- *Dell Storage Manager Release Notes*

  Provides information about Storage Manager releases, including new features and enhancements, open issues, and resolved issues.

- *Dell Storage Manager Online Help*

  Provides context-sensitive help for the Client, Data Collector Manager, and Server Agent.

- *Dell Storage REST API Getting Started Guide*

  Contains command examples and usage instructions for the Dell Storage REST API.

- *Dell Storage API PowerShell SDK Getting Started Guide*

  Contains setup instructions and examples for the Dell Storage API for PowerShell.

Storage Center Documents

- *Storage Center Release Notes*

  Contains information about features and open and resolved issues for a particular product version.

- *Storage Center Deployment Guide*

  Provides cabling instructions for Storage Center controllers, switches, and enclosures and provides instructions for configuring a new Dell Storage Center.

- *Storage Center Software Update Guide*

  Describes how to update Storage Center software from an earlier version to the current version.

- *Storage Center Update Utility Administrator's Guide*

  Describes how to update Storage Center software on Storage Center controllers. Updating Storage Center software using the Storage Center Update Utility is intended for use only by sites that cannot update Storage Center using the standard update options available through Dell Storage Manager.

- *Storage Center Command Utility Reference Guide*

  Provides instructions for using the Storage Center Command Utility. The Command Utility provides a command-line interface (CLI) to enable management of Storage Center functionality on Windows, Linux, Solaris, and AIX platforms.

- *Storage Center Command Set for Windows PowerShell*

  Provides instructions for getting started with Windows PowerShell cmdlets and scripting objects that interact with the Storage Center via the PowerShell interactive shell, scripts, and hosting applications. Help for individual cmdlets is available online.

FluidFS Cluster Documents

- *Dell FluidFS Version 6.0 FS8600 Appliance Pre-Deployment Requirements*

  Provides a checklist that assists in preparing to deploy an FS8600 appliance prior to a Dell installer or certified business partner arriving on site to perform an FS8600 appliance installation. The target audience for this document is Dell installers and certified business partners who perform FS8600 appliance installations.

- *Dell FluidFS Version 6.0 FS8600 Appliance Deployment Guide*

  Provides information about deploying an FS8600 appliance, including cabling the appliance to the Storage Center(s) and the network, and deploying the appliance using the Storage Manager software. The target audience for this document is Dell installers and certified business partners who perform FS8600 appliance installations.

- *Dell FluidFS 6.0 FS8600 Appliance CLI Reference Guide*

  Provides information about the FS8600 appliance command-line interface. The target audience for this document is customers.

- *Dell FS8600 Appliance FluidFS Version 6.0 Software Update Guide*

Provides information about upgrading the FluidFS software from version 2.0 to 3.0. The target audience for this document is customers.

- *Dell FluidFS Version 6.0 Release Notes*

  Provides information about FluidFS releases, including new features and enhancements, open issues, and resolved issues. The target audience for this document is customers.

- *Dell FS8600 Appliance Service Guide*

  Provides information about FS8600 appliance hardware, system component replacement, and system troubleshooting. The target audience for this document is Dell installers and certified business partners who perform FS8600 appliance hardware service.

- *Dell NAS Appliance SFP+ Replacement Procedure*

  Provides information about replacing SFP+ transceivers on an inactive system. The target audience for this document is Dell installers and certified business partners who perform FS8600 appliance hardware service.

- *Dell FluidFS FS8600 Appliance 1Gb to 10Gb Upgrade Procedure*

  Provides information about upgrading a Fibre Channel FS8600 appliance from 1Gb Ethernet client connectivity to 10Gb Ethernet client connectivity. The target audience for this document is Dell installers and certified business partners who perform FS8600 appliance hardware service.

Dell TechCenter

Provides technical white papers, best practice guides, and frequently asked questions about Dell Storage products. Go to: http://en.community.dell.com/techcenter/storage/

Introduction to Storage Manager

Storage Manager allows you to monitor, manage, and analyze Storage Center SANs, FluidFS clusters, and PS Series groups from a centralized management console. The Storage Manager Data Collector stores data and alerts it gathers from managed storage devices in an external database or an embedded database. To perform monitoring and administrative tasks, administrators use the Dell Storage Manager Client to connect to the Storage Manager Data Collector or to connect directly to a Storage Center.

Storage Manager Components

Storage Manager consists of the following components.

Table 1. Storage Manager Components

Component	Description	Setup Documentation
Primary Storage Manager Data Collector	Service that gathers reporting data and alerts from Storage Center SANs	*Dell Storage Manager Installation Guide*
Dell Storage Manager Client	Windows-based application that connects to the Storage Manager Data Collector to provide a centralized management console for one or more storage devices	*Dell Storage Manager Installation Guide*
Dell Storage Manager Web UI	Web application that connects to the Storage Manager Data Collector to provide a centralized management console for one or more storage devices	*Dell Storage Manager Installation Guide*
Remote Storage Manager Data Collector	Storage Manager Data Collector that is connected to the primary Storage Manager Data Collector and can be used to activate a disaster recovery site if the primary Storage Manager Data Collector becomes unavailable	*Dell Storage Manager Administrator's Guide*
Storage Manager Server Agent	Service for Windows that allows Storage Manager to free volume storage space from expired snapshots that would otherwise remain locked by Windows	*Dell Storage Manager Administrator's Guide*

Management Compatibility

Storage Manager manages Dell storage products and also provides management integration for Microsoft and VMware products.

Storage Manager is compatible with the products listed in the following table.

Product	Versions
Dell Storage Center	Storage Center versions 6.5–7.2
PS Series group firmware	7.0–9.1
Dell FluidFS	4.0–6.0
Microsoft System Center Virtual Machine Manager (SCVMM)	2012, 2012 SP1, 2012 R2, and 2016
VMware vCenter Site Recovery Manager (SRM)	5.5, 5.8, 6.0, 6.1.1, and 6.5
Dell Storage Replication Adapter (SRA)	16.3.10
CITV	4.0 and later

Software and Hardware Requirements

The following sections list the requirements for the Storage Manager Data Collector, Dell Storage Manager Client, and Storage Manager Server Agent.

Data Collector Requirements

The following table lists the Storage Manager Data Collector requirements.

> NOTE: For best results, install the Data Collector on a Windows Server VM on a traditional volume sourced from shared storage. Do not use a VVol for the Data Collector VM.

Component	Requirements
Operating system	Any of the following 64-bit operating systems with the latest service packs: • Windows Server 2008 R2 • Windows Server 2012 • Windows Server 2012 R2 • Windows Server 2016 > NOTE: 32-bit operating systems are not supported, and Windows Server Core is not supported.
Windows User Group	Administrators
CPU	64-bit (x64) microprocessor with two or more cores The Data Collector requires four cores for environments with 100,000 or more Active Directory members or groups
Memory	Varies based on size of the storage environment • 4 GB: 1–5 storage arrays or 1–3000 total volumes • 8 — 32GB: 6–10 storage arrays or 3001 or more total volumes or 100,000 or more Active Directory members or groups
Disk space	At least 20 GB; additional space is required to manage FluidFS cluster software updates
Software	Microsoft .NET Framework 4.0 Full
Web browser	Any of the following web browsers: • Internet Explorer 11 • Firefox • Google Chrome • Microsoft Edge

Component	Requirements
	![note icon] **NOTE: Other web browsers might work but are not officially supported.**
External database	One of the following databases:
	• Microsoft SQL Server 2008 R2
	• Microsoft SQL Server 2008 R2 Express (limited to 10 GB)
	• Microsoft SQL Server 2012
	• Microsoft SQL Server 2012 Express (limited to 10 GB)
	• Microsoft SQL Server 2014
	• Microsoft SQL Server 2014 Express (limited to 10 GB)
	• Microsoft SQL Server 2016
	• MySQL 5.5
	• MySQL 5.6
	• MySQL 5.7
	![note icon] **NOTE: The embedded database stored on the file system can be used instead of an external database. However, the embedded database is limited to 64 GB and retains only the last 30 days of data. The embedded database is not recommended for a production environment.**

Dell Storage Manager Virtual Appliance Requirements

The Dell Storage Manager Virtual Appliance requires the following conditions.

Component	Requirement
Server operating system	VMware vSphere 5.5, 6.0, or 6.5 with 64–bit hardware
Datastore size	55 GB
CPU	64-bit (x64) microprocessor with two or more cores
	The Data Collector requires four cores for environments with 100,000 or more Active Directory members or groups
Memory	Varies based on size of the storage environment
	• 4 GB: 1–5 storage arrays or 1–3000 total volumes
	• 8 — 32GB: 6–10 storage arrays or 3001 or more total volumes or 100,000 or more Active Directory members or groups
Software	• VMware vCenter Server
	• VMware vSphere High Availability

Dell Storage Manager Client Requirements

The following table lists the requirements for the Dell Storage Manager Client.

Component	Requirements
Operating system	Any of the following 32-bit or 64-bit operating systems (with the latest service packs):
	• Windows 8
	• Windows 8.1
	• Windows 10
	Any of the following 64-bit operating systems:
	• Windows Server 2008 R2
	• Windows Server 2012

Component	Requirements
	• Windows Server 2012 R2
	• Windows Server 2016
	• Red Hat Enterprise Linux 6.7
	• Red Hat Enterprise Linux 7
	• Red Hat Enterprise Linux 7.1
	• Red Hat Enterprise Linux 7.2
	• Red Hat Enterprise Linux 7.3
	• SUSE Linux Enterprise 12
	• Oracle Linux 6.5
	• Oracle Linux 7.0
	NOTE: Windows Server Core is not supported.
CPU	32-bit (x86) or 64-bit (x64) microprocessor
	NOTE: Linux versions of the Dell Storage Manager Client support only 64-bit microprocessors.
Software	Microsoft .NET Framework 4.0 (Windows only)
Linux VM Access Client	• VMware vSphere Web Client • Hyper-V Manager
Web browser	Any of the following web browsers: • Internet Explorer 11 • Firefox • Google Chrome • Microsoft Edge NOTE: Other web browsers might work but are not officially supported.

Server Agent Requirements

The following table lists the requirements for the Storage Manager Server Agent for Windows-based servers.

Component	Requirements
Operating system	Any of the following 64-bit operating systems (with the latest service packs): • Windows Server 2008 R2 (full or core installation) • Windows Storage Server 2008 R2 • Windows Server 2012 (full or core installation) • Windows Server 2012 R2 (full or core installation)
CPU	64-bit (x64) microprocessor
Microsoft .NET Framework	4.0 Full

Default Ports Used by Storage Manager

The Storage Manager components use network connections to communicate with each other and with other network resources. The following tables list the default network ports used by the Storage Manager Data Collector, Dell Storage Manager Client, and Storage Manager Server Agent. Many of the ports are configurable.

NOTE: Some ports might not be needed for your configuration. For details, see the Purpose column in each table.

Data Collector Ports

The following tables list the ports used by the Storage Manager Data Collector.

Inbound Data Collector Ports

The Data Collector accepts connections on the following ports.

Port	Protocol	Name	Purpose
514	UDP	syslog	Receiving logs forwarded from Storage Center SANs
3033	TCP	Web Server Port	Receiving: • Communication from all clients, including the Dell Storage Manager Client and Dell Storage Replication Adapter (SRA) • Alerts from FluidFS clusters • Alerts from Fluid Cache clusters
3034	TCP	Web Server Port	Receiving vCenter/ESXi communication for VASA and VVol provisioning and administration
8080	TCP	Legacy Web Services Port	Receiving: • Storage Manager Server Agent communication • Alerts forwarded from Storage Center SANs
7342	TCP	Legacy Client Listener Port	• Communicating with the remote Data Collector • Providing automatic update functionality for previous versions of the Dell Storage Manager Client
5989	TCP	SMI-S over HTTPS	Receiving encrypted SMI-S communication

Outbound Data Collector Ports

The Data Collector initiates connections to the following ports.

Port	Protocol	Name	Purpose
25	TCP	SMTP	Sending email notifications
443	TCP	SSL	• Communicating with managed Storage Center SANs • Sending diagnostic data with Dell SupportAssist
514	UDP	syslog	Forwarding Storage Center logs to syslog servers
1199	TCP	SIMS RMI	Communicating with managed PS Series groups
1433	TCP	Microsoft SQL Server	Connecting to an external Microsoft SQL Server database
3033	TCP	SSL	Communicating with managed Storage Center SANs
3306	TCP	MySQL	Connecting to an external MySQL database
8080	TCP	VMware SDK	Communicating with VMware servers
27355	TCP	Server Agent Socket Listening Port	Storage Manager Server Agent communication
35451	TCP	FluidFS	Communicating with managed FluidFS clusters
44421	TCP	FluidFS diagnostics	Retrieving diagnostics from managed FluidFS clusters

Dell Storage Manager Client Ports

The following table lists the ports used by the Dell Storage Manager Client.

Inbound Dell Storage Manager Client Port

The Dell Storage Manager Client does not use any inbound ports.

Outbound Dell Storage Manager Client Port

The Dell Storage Manager Client initiates connections to the following port.

Port	Protocol	Name	Purpose
3033	TCP	Web Server Port	Communicating with the Storage Manager Data Collector

Server Agent Ports

The following tables list the ports used by the Storage Manager Server Agent.

Inbound Server Agent Port

The Server Agent accepts connections on the following port.

Port	Protocol	Name	Purpose
27355	TCP	Server Agent Socket Listening Port	Receiving communication from the Data Collector

Outbound Server Agent Port

The Server Agent initiates connections to the following port.

Port	Protocol	Name	Purpose
8080	TCP	Legacy Web Services Port	Communicating with the Data Collector

IPv6 Support

The Storage Manager Data Collector can use IPv6 to accept connections from the Dell Storage Manager Client and to communicate with managed Storage Center SANs.

To use IPv6, assign IPv6 addresses as described in the following table.

IPv6 Connection	Requirements
Dell Storage Manager Client to Data Collector	• Dell Storage Manager Client computer must have an IPv6 address. • Data Collector server must have both an IPv4 address and an IPv6 address.
Data Collector to Storage Center	• Data Collector server must have both an IPv4 address and an IPv6 address. • Storage Center SAN must have both an IPv4 address and an IPv6 address on the management interface.

2

Planning and Preparation

Before you install Storage Manager, plan your configuration and install the required software.

Choose a Data Storage Method

You can configure the Data Collector to store data in an external database or in an embedded database on the file system of the host server.

Choose the option that is most appropriate for your environment:

- **External database**: If you decide to use an external database, select the supported database type that best suits your needs. The following external databases are supported:

  – Microsoft SQL Server 2008 R2
  – Microsoft SQL Server 2008 R2 Express (limited to 10 GB)
  – Microsoft SQL Server 2012
  – Microsoft SQL Server 2012 Express (limited to 10 GB)
  – Microsoft SQL Server 2014
  – Microsoft SQL Server 2014 Express (limited to 10 GB)
  – Microsoft SQL Server 2016
  – MySQL 5.5
  – MySQL 5.6
  – MySQL 5.7

  Storage Manager uses a database administrator account to create a database user named compmsauser and a database named compmsadb, which uses a custom schema.

  > **NOTE: To protect data stored on the database, including VVols metadata, configure the external database to take consistent snapshots.**

- **Embedded database**: If you decide to use the embedded database, the Data Collector can retain only 30 days worth of data, and the database size cannot exceed 64 GB.

  > **NOTE: The embedded database is not recommended for a production environment.**

Related links
[Data Collector Requirements](#)

Gather Required Installation Information

Before installing Storage Manager components, print this page and record the following information.

Record Database Information

If you plan to use an SQL database, record database information that is needed for installation.

Item	Write down your information
Database version	
Name of server that hosts the database	

Item	Write down your information
Database server port	
Database user name	For security reasons, only record the database username in a secure location.
Database password	For security reasons, only record the database password in a secure location.

Prepare the Database

If you plan to use an external database, prepare the database by performing the task that corresponds to your database type.

📝 **NOTE: If you want to store Data Collector data in the embedded database, skip this step.**

- Prepare a Microsoft SQL Server Database
- Prepare a MySQL Database

Prepare a Microsoft SQL Server Database

Set up the Microsoft SQL Server database or Microsoft SQL Server Express database for the Data Collector.

1. If necessary, install the database software.
2. Make sure you have the credentials for a database administrator account with privileges equivalent to the default sa account.
3. Configure the database for mixed-mode authentication (SQL Server and Windows Authentication mode).
4. Start the **SQL Server Configuration Manager** application.
5. Set the TCP/IP ports.
   a. In the navigation pane, expand **SQL Server Network Configuration**.
   b. Click **Protocols for MSSQLSERVER** or **Protocols for SQLEXPRESS**.
   c. Right-click **TCP/IP** and select **Properties**. The **TCP/IP Properties** dialog box appears.
   d. Click the **IP Addresses** tab.
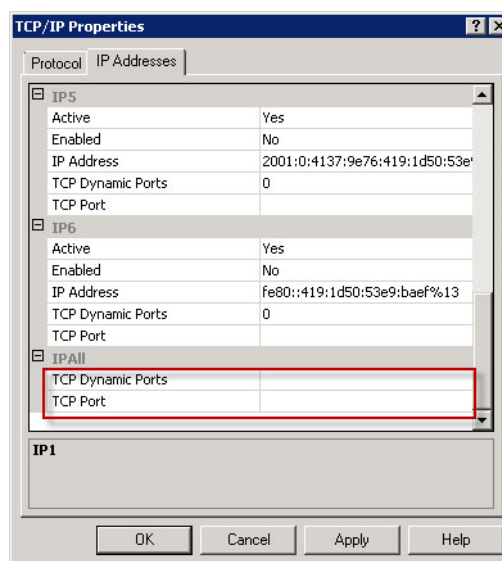

Figure 1. TCP/IP Properties Dialog Box IP Addresses Tab

   e. Under **IPALL**, make sure the **TCP Port** is set to a valid port number. The default TCP port for SQL Server is 1433.
   f. Click **Apply** and click **OK** to close the dialog box.
6. Enable TCP/IP protocol:
   a. In the navigation pane, click **Protocols for MSSQLSERVER** or **Protocols for SQLEXPRESS**.

     b.   Right-click **TCP/IP** and select **Enable**.

7.   Restart SQL Server.

     a.   In the navigation pane, click **SQL Server Services**.

     b.   Right-click **SQL Server** and select **Restart**.

Prepare a MySQL Database

Set up the database permissions for the Data Collector.

1.   If necessary, install the database software.

2.   Make sure that you have administrator rights from remote servers (preferably root user).

3.   Make sure the database admin user has the global CREATE USER, RELOAD, and SELECT permissions, and has full permissions to the compmsadb database.

    Enter the following commands from the MySQL admin tool, where **root** is the name of the admin user:

- ```
  grant create user, reload, select on *.* to 'root'@'%';
  ```
- ```
  grant all privileges on compmsadb.* to 'root'@'%' with grant option;
  ```
- ```
  flush privileges;
  ```

3

Installing and Configuring the Data Collector

Install the Data Collector and configure settings using the Data Collector Setup Wizard.

Install the Data Collector

Install the Data Collector on a Windows server that has network connectivity to your Storage Centers.

Prerequisites

- The host server must meet the requirements described in <u>Data Collector Requirements</u>.
- The host server must be different than the server that hosts VMware vCenter.
- The tasks described in <u>Planning and Preparation</u> must be complete.
- The Windows user installing the Data Collector must be a member of the Administrators group on the local machine.

Steps

1. Download the latest Storage Manager Data Collector software from the Knowledge Center by logging on to the customer or partner portal (from <u>www.dell.com/support</u>).
2. Unzip and launch the Storage Manager Data Collector Setup file. The InstallShield Wizard appears.
3. Select a language from the drop-down menu then click **OK**.
4. Click **Next**. The **License Agreement** page appears.
5. Read the license agreement and then click **Yes** to accept it. The **Setup Status** page appears and displays installation progress. When installation is complete, the **InstallShield Wizard Complete** page appears.
6. Click **Finish**. The Storage Manager Data Collector Setup wizard appears.

Configure the Data Collector

Perform this task if you want the Data Collector to store data in a Microsoft SQL Server, MySQL, or embedded database.

1. Configure the first page of the Data Collector Setup wizard.

Figure 2. Data Collector Setup Wizard

    a. Under **Data Collector Type**, select **Configure as Primary Data Collector**.

b. (Optional) Under **Data Collector Service Information**, modify the default Data Collector ports if one or more of the default ports are already in use.

> ✎ NOTE: If a firewall is enabled on the host computer, make sure that these ports are allowed inbound.

c. In the **Data Source Type** drop-down menu, select a database type.

d. In the **Service User Type** drop-down menu, select the type of Windows account under which the Data Collector will run.

> ✎ NOTE: User accounts (local or domain) must be able to log in as a service and must have administrator privileges.

e. Click **Next**. The **Data Source Properties** page appears.

Figure 3. Data Source Properties Page

2. Specify the database information. (Microsoft SQL or MySQL databases only)

a. In the **Server** field, type the host name or IP address of the server on which the database is installed.

b. In the **Port** field, type the TCP port that was configured during the database TCP/IP setup. The default port for Microsoft SQL Server is 1433 and the default for MySQL is 3306.

c. In the **User Name/Password** fields, type the user name and password for a user defined in the database that has administrator rights to create databases and database users. The Data Collector uses this information to create a database user named compmsauser.

d. (Optional) To specify a password for the compmsauser database user, select **Use Custom Password**, then type a password in the **DSM DB User Password** field. If you do not specify a password, a 13-character default password is used.

e. Click **Next**. Storage Manager attempts to communicate with the database server.

- If a communication error appears, verify the database information, verify that Storage Manager has connectivity to the database server, and make sure that the database server allows remote connections.

- If a user-creation error appears and the database server was previously used to store Storage Manager data, delete the database user named compmsauser and the database named compmsadb, and then try again.

- If Storage Manager is able to communicate with the database server, the **SMI-S Server Properties** page appears.

3. (Optional) Configure SMI-S Server Properties.

a. To configure SMI-S at this time, select **Enabled**, then configure the remaining properties.

> ✎ NOTE: You can also configure SMI-S after the Data Collector is installed and configured. For information on setting up and using SMI-S, see the *Dell Storage Manager Administrator's Guide*.

b. Click **Next**. The **Network Adaptor and Max Memory Settings** page appears.
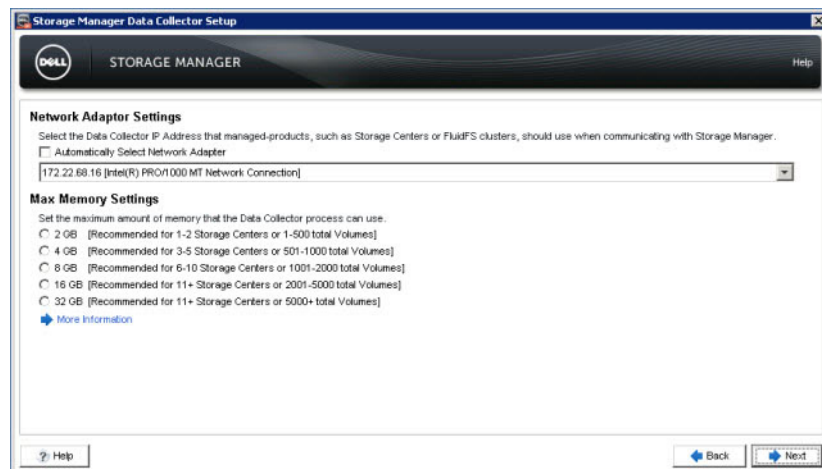
Figure 4. Network Adaptor and Max Memory Settings Page

4. Select the network adapter and specify the memory limit for the Data Collector.

   a. If the server that hosts the Data Collector has multiple network adapters, select which adapter the Data Collector should use for communication.

      - To select a network adapter automatically, select the **Automatically Select Network Adapter** check box.
      - To manually select a network adapter, select a network adapter from the drop-down menu.

   b. In the **Max Memory Settings** area, select an option to specify the maximum amount of memory that can be used by the Data Collector. If the Data Collector manages many Storage Centers, increasing this limit can improve performance.

      > NOTE: Specify a value that is less than the total memory available to the Data Collector host server.

   c. Click **Next**. The **SupportAssist System State Information Collection and Storage** page appears.

5. To accept the SupportAssist System State Information Collection and Storage agreement, select the check box below the agreement.

   > NOTE: SupportAssist collects diagnostic data from Storage Manager then sends it to technical support. If you do not accept the agreement, proactive technical support services that rely on SupportAssist will not be available to you.

6. Click **OK**. The **Create Administrator User** page appears.
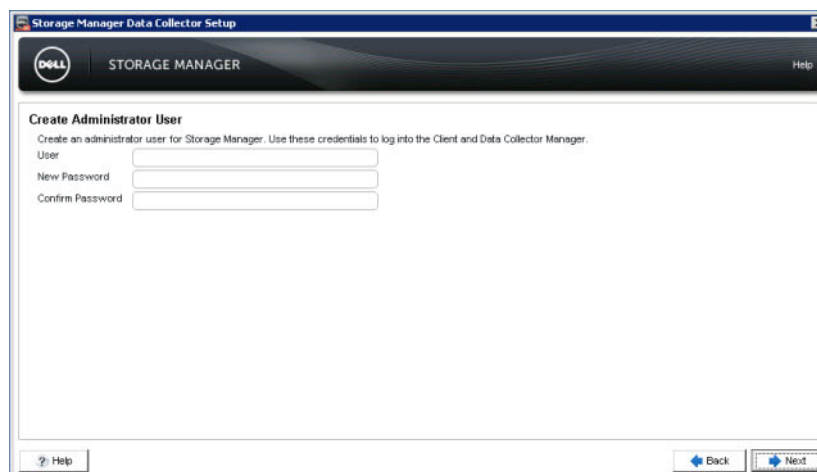
Figure 5. Create Administrator User Page

7. Create an administrator user.

   a. Type a user name, password, and password confirmation.

> **NOTE: Record the user name and password. You will need this information to log on to Storage Manager after installation is complete.**

  b. Click **Next**. The Data Collector Service is started. After the Data Collector starts, the **Setup is Complete** page appears.
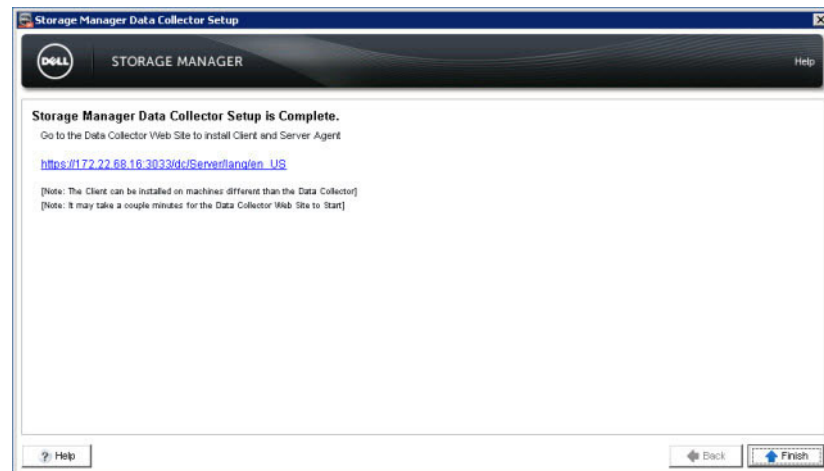
Figure 6. Setup is Complete Page

8. Record the URL for the Data Collector website, then click **Finish**. The Storage Manager Data Collector Setup wizard exits.

4

Installing and Configuring the Dell Storage Manager Virtual Appliance

This section includes instructions for installing and configuring the Dell Storage Manager Virtual Appliance.

Virtual Appliance Requirements for vSphere

The Storage Manager Virtual Appliance requires the following conditions from the vSphere server.

- The Virtual Appliance must be deployed on a standard datastore. Do not deploy the Virtual Appliance on a VVols datastore.
- The vSphere server must be configured to take regular snapshots of the datastore.

Deploying the Dell Storage Manager Virtual Appliance

Deploying the Virtual Appliance installs it as a virtual machine on an ESX server using the VMware vSphere Web Client. After deploying the Virtual Appliance, set up the default administrator user.

Deploy the Virtual Appliance

Deploy the Dell Storage Manager Virtual Appliance on a VMware vCenter server.

Prerequisites

- VMware vCenter server
- The ESX server must meet the requirements in [Dell Storage Manager Virtual Appliance Requirements](#).
- The local computer used to deploy the Virtual Appliance must have the VMware Client Integration plug-in installed.

Steps

1. Log on to the VMware vCenter server with the vSphere Web Client.
2. In the right pane, click **Host and Clusters**.
3. Right-click on **Datacenter** then select **Deploy OVF Template**.
   The **Deploy OVF Template** wizard appears.
4. Click **Local File**.
5. Click **Browse** and select the Virtual Appliance .ova template file.
6. Click **Next**.
   The **Review details** page appears.
7. Confirm the details for the Virtual Appliance.
8. Click **Next**.
   The **Accept EULAs** page appears.
9. Click **Accept**.
10. Click **Next**.
    The **Select name and folder** page appears.
11. In the name field, type a name or accept the default name.
12. From the **Select a folder or datacenter** table, select a folder or datacenter.
13. Click **Next**.
    The **Select a resource** page appears.

14. Select a server or a server cluster on which to deploy the Virtual Appliance.
15. Click **Next**.

    The **Select Storage** page appears.
16. Select the datastore that will hold the Virtual Appliance data.
17. Click **Next**.

    The **Setup Networks** page appears.
18. From the **Destination** drop-down menu, select a network for the Virtual Appliance.
19. Click **Next**.

    The **Customize Template** page appears.
20. Complete the following fields.

    > ✏ NOTE: Some of these features are hidden. Expand the heading to view the setting.

    - Hostname: Type a host name for the Virtual Appliance.
    - Domain Name: Type the domain name of the network.
    - NTP Servers: Type the IP addresses of one or more time servers.
    - IP Address Type: Select **DHCP** or **Static**. If you select **DHCP** do not complete the rest of the fields in the **IP Address Properties** area.
    - IP Address: Type an IP address for the Virtual Machine.
    - Netmask: Type the netmask of the subnet.
    - Default Gateway: Type the gateway of the subnet.
    - DNS: Type the IP address of one or more domain name servers.
    - SSH Access: Select **Enabled** or **Disabled** to enable or disable SSH Access.
    - Locale: Select a language for the Virtual Appliance.
21. Click **Next**.

    The **Ready to complete** page appears.
22. (Optional) Select the **Power on after deployment** check box to power the Virtual Appliance on after deployment.
23. Click **Finish**.

Configuring the Dell Storage Manager Virtual Appliance

Connect to the Dell Storage Manager Virtual Appliance to set up the database and complete the setup of the Virtual Appliance.

Set Up the Virtual Appliance

The Dell Storage Manager Virtual Appliance uses a database to store Data Collector information including VVol metadata.

Prerequisite
The Virtual Appliance must be deployed and powered on.

Steps
1. In a web browser, navigate to https://[*VA IP address*]/setup/.

   > ✏ NOTE: Depending on your web browser settings, you may need to acknowledge security alerts to continue.

2. Log in to the Data Collector Manager using the temporary user.
    - User name: config
    - Password: dell

    The **Storage Manager Data Collector Setup** wizard appears.
3. Click **Next**.
4. Click **Configure as a Primary Data Collector**.
5. Click **Next**.

    The **Database** page appears.

6. From the **Type** drop-down menu, select a database type.

7. In the **Server** field, type the IP address of the server hosting the database.

8. In the **Port** field, type the number of the port that the database uses for external communication.

9. In the **User Name** field, type the user name for the database.

10. In the **Password** field, type the password for the database user.

11. (Optional) To specify a password for the compmsauser database user, select **Use Custom Password**, then type a password in the **DSM DB User Password** field. Retype the password in the **Confirm Password** field.

    > NOTE: If you do not specify a password, a 13-character default password is used.

12. Click **Next**.

    The **Administrator User** page appears.

13. Set up the administrator user.

    a. In the **User** field, type the name of the administrator user.
    b. In the **New Password** field, type a password for the administrator user.
    c. In the **Confirm Password** field, type the password again to confirm the password.

14. Click **Next**

    The **Summary** page appears.

15. Click **Finish**.

    A confirmation dialog box appears.

16. Click **Yes**.

    The Virtual Appliance restarts then displays the login page for the Dell Storage Manager Web UI.

Migrating an Existing Data Collector to the Storage Manager Virtual Appliance

Migrate an existing Data Collector to the Storage Manager Virtual Appliance to use the Storage Manager Virtual Appliance as the primary Data Collector.

These Data Collector objects are transferred during a migration:

- Users and user groups
- Storage Center mappings
- Password configuration settings
- Internal database information

Data Collector Migration Requirements

The Data Collector and the Storage Manager Virtual Appliance must meet the following requirements to migrate from a Windows installation of the Data Collector to the Storage Manager Virtual Appliance.

- The Storage Manager Virtual Appliance and the Windows installation of the Data Collector must be running the same version of Dell Storage Manager.
- Data Collector migration supports only Windows installation to Storage Manager Virtual Appliance.
- The Windows Data Collector must not have any ongoing tasks. These tasks may not be reflected in the Storage Manager Virtual Appliance after the migration.
- If using VVols, unregister the VASA provider before migrating the Data Collector.

Migrate an Existing Data Collector

Migrate an existing Data Collector to the Storage Manager Virtual Appliance to use the Storage Manager Virtual Appliance as the primary Data Collector with existing Data Collector information.

Prerequisite

The Virtual Appliance must be deployed and powered on.

Steps

1. Take a snapshot of the Storage Manager Virtual Appliance instance in VMware vSphere.
2. In a web browser, navigate to https://[*VA IP address*]/setup/.

   > ✎ NOTE: Depending on your web browser settings, you may need to acknowledge security alerts to continue.

3. Log in to the Data Collector Manager using the temporary user.
   - User name: config
   - Password: dell

   The **Storage Manager Data Collector Setup** wizard appears.
4. Click **Next**.
5. Click **Migrate from an existing Data Collector**.
6. In the **Server** field, type the IP address of the existing Data Collector.
7. In the **Client Listener Port**, type the port number of the outbound port of the existing Data Collector. The default is 3033.
8. In the **User Name** field, type the user name of the administrator user of the existing Data Collector.
9. In the **Password** field, type the password of the administrator user.
10. Click **Next**.
11. Set up the administrator user.
    a. In the **User** field, type the name of the administrator user.
    b. In the **New Password** field, type a password for the administrator user.
    c. In the **Confirm Password** field, type the password again to confirm the password.
12. Click **Next**.
13. Verify the information on the confirmation page.
14. Click **Finish**.
15. Stop the Data Collector on the original Windows Data Collector.

Next Steps After Migration

Depending on the configuration of the existing Data Collector, you may need to perform some additional setup tasks.

- Configure Active Directory
- Import SSL certificates or generate new SSL certificates
- Register plug-ins like Application Protection Manager

5

Installing and Configuring the Storage Manager Client

Install the Client on a Windows computer and use it to connect to the Data Collector.

Connect to the Storage Manager Web UI

After installing and configuring the Data Collector, you can access the Storage Manager Web UI using a web browser. Connect to the Storage Manager Web UI using the following URL:

```
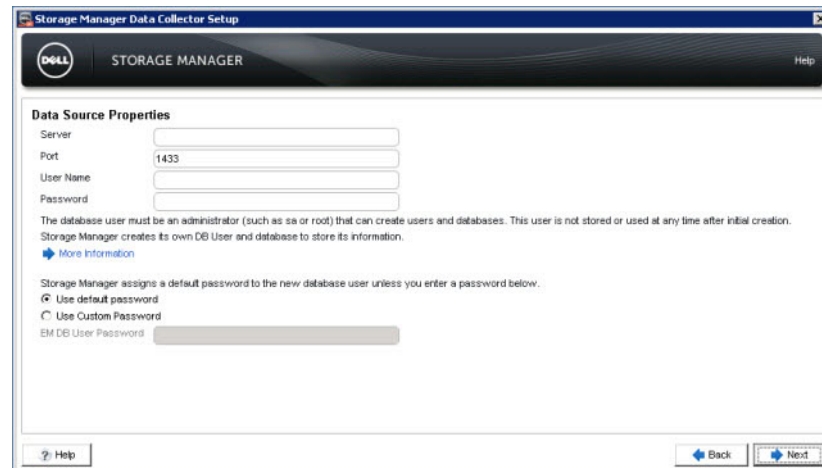https://[Data Collector IP Address]/ui/
```

Install the Storage Manager Client on Windows

The Storage Manager Client is an application that connects to a Data Collector or directly to a Storage Center, allowing you to view and manage Storage Centers. You can install the client on the Data Collector server or a computer that has network connectivity to the Data Collector server.

Prerequisite

The host computer must meet the requirements listed in Dell Storage Manager Client Requirements.

Steps

1. In a web browser, go to the Storage Manager Data Collector website.

   The default location for the website is https://*<dsm/dc_hostname_ip>*:*<dsmdc_web_server_port>*.

   - *dsmdc_hostname_ip*: Host name or IP address of the Data Collector server.
   - *dsmdc_web_server_port*: Web server port of the Data Collector server. The default port is 3033.
2. If a certificate warning appears, acknowledge the warning and continue.
3. Next to **Client Installer**, click **Download (.exe)** to save the Storage Manager Client Installer to your computer.
4. When the download is complete, double-click the downloaded file. A Security Warning dialog box appears.
5. Click **Run** to start the installation. The InstallShield Wizard appears.
6. Use the wizard to install the Storage Manager Client.

Install the Storage Manager Client on Linux

The Storage Manager Client is an application that connects to a Data Collector or directly to a Storage Center, allowing you to view and manage Storage Centers. Install the Storage Manager Client on a Linux computer using the terminal.

Prerequisites

- The host computer must meet the requirements in Dell Storage Manager Client Requirements.
- The user must have root access.
- The Linux computer must have a full X-windows environment.

Steps

1. Download the rpm file from the Data Collector.
   a. Navigate to the download location using this command: **$ cd download_directory**
   b. Download the rpm installation file from the Data Collector using this command: **$ wget <Data Collector IP>:<Data Collector Port> --no-check-certificate https://<Data Collector IP>:<Data Collector Port>/dc/Server/web/apps/client/SmClient.rpm**
2. Run the installer with this command: **# rpm -U SmClient.rpm**

Use the Client to Connect to the Data Collector

After the Storage Manager Client is installed, use it to connect to the Data Collector.

1. Start the **Storage Manager Client** application.

    > NOTE: On a Linux computer, use the terminal to navigate to the application directory by running:

    ```
    $ cd /var/lib/dell/bin
    ```

    Then launch the client by running:

    ```
    $ ./Client
    ```

2. If the Welcome screen appears, select a language then click **Log into a Storage Center or Data Collector**.
3. To change the language displayed in the Storage Manager Client, select a language from the **Display Language** drop-down menu.
4. Complete the following fields:
    - **User Name:** Type the name of the Storage Manager user that was created during Data Collector installation. You can also use the name of a Storage Manager user that was previously created.
    - **Password:** Type the password for the user. You can also use the password of a Storage Manager user that was previously created.
    - **Host/IP:** Type the host name or IP address of the server that hosts the Data Collector. If the Data Collector and Client are installed on the same system, you can type `localhost` instead.
    - **Web Server Port:** If you changed the Web Server Port during installation, type number of the updated port. The default port is 3033.

        > NOTE: Do not select the Use Windows Credentials check box (if present) at this time. To use this feature, the Data Collector must be configured for Active Directory and Kerberos.

5. Click **Log In**.

    The Client connects to the Data Collector and displays the **Storage (SAN/NAS)** view.
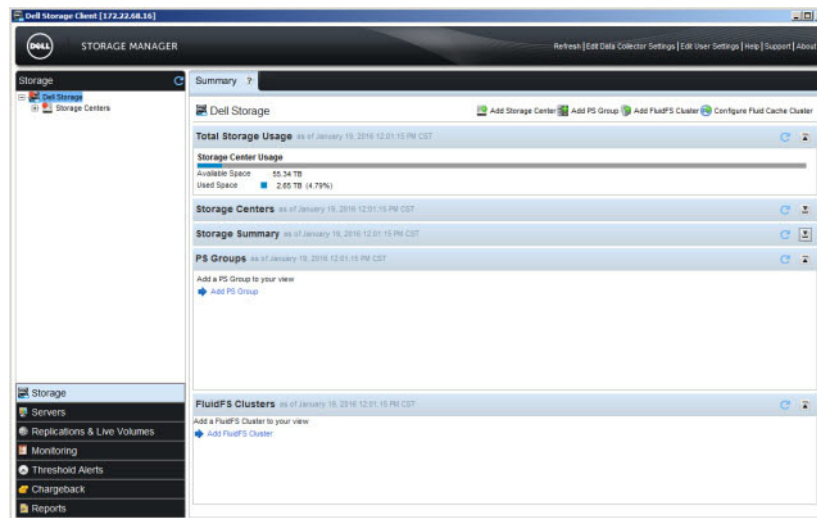
Figure 7. Storage Manager Client Storage (SAN/NAS) View

Add Storage Centers to Storage Manager

Use the Client to add the Storage Centers that you want to centrally manage.

Prerequisites

- You must have the hostname or IP address of the Storage Center.
- You must have the user name and password for a Storage Center user account.

- The first time a Storage Center is added to Storage Manager, you must specify a Storage Center user account that has the Administrator privilege. When the Storage Center is subsequently added for other Storage Manager users, you can specify Storage Center user accounts of any privilege level.

- If your Storage Manager user account has the Reporter privilege, you must specify a Storage Center user account that has the Reporter privilege.

- The Storage Manager Data Collector must have connectivity to the Storage Center management interface.

- The Storage Center certificate must contain the host name or management IP address that is used to add the Storage Center to Storage Manager. For instructions on regenerating an SSL certificate, see the *Dell Storage Manager Administrator's Guide*.

Steps

1. In the Storage Manager Client, click **Add Storage Center**. The **Add Storage Center** dialog box appears.

   NOTE: If one or more Storage Centers are associated with other Storage Manager users, the dialog box allows you to select an existing Storage Center or add a new Storage Center.

2. Type Storage Center logon information.
   - **Host Name:** Type the host name or IP address of a Storage Center controller. For a dual-controller Storage Center, type the IP address or host name of the management controller.
   - **User Name** and **Password:** Type the user name and password for a Storage Center user.

     If you specify a Storage Center user with the Reporter or Volume Manager privilege, access to the Storage Center from Storage Manager is restricted based on the privilege and user group(s) assigned to the Storage Center user.
   - **Folder**: Select the parent folder for the Storage Center.

3. (Optional) Configure the Storage Center to use settings applied to another Storage Center by selecting the **Inherit settings from existing Storage Center** check box. If this check box is selected, after the wizard closes, the Inherit Settings wizard appears.

4. Click **Finish**.
   - If the **Inherit settings from existing Storage Center** check box was not selected, the Storage Center is added to Storage Manager.
   - If the **Inherit settings from existing Storage Center** check box was selected, the Inherit Settings dialog box appears.

5. (Inherit settings only) Choose the Storage Center settings to inherit.
   a. Select the Storage Center from which you want to inherit settings, then click **Next**. The wizard advances to the next page.
   b. Select the check box for each category of settings that you want to inherit.
   c. When you are done, click **Finish**.
      - If passwords are not configured for the Dell SupportAssist proxy, Secure Console proxy, or SMTP server, the dialog box closes.
      - If passwords for the Dell SupportAssist proxy, Secure Console proxy, or SMTP server are configured, you are prompted to retype the required passwords.
   d. Type the required passwords to complete the wizard.

Next Steps

After installation is complete, perform basic tasks to configure Storage Manager for your environment. These tasks depend on the configuration, so some of them might not apply to your site.

See the *Storage Manager Administrator's Guide* for detailed configuration instructions, including how to:

- Add Storage Manager users.
- Configure the Data Collector to authenticate Storage Manager users using an Active Directory or OpenLDAP directory service.
- Add a Storage Center to Storage Manager.
- Create Storage Center volumes.
- Add servers to Storage Centers.
- Add FluidFS clusters to Storage Manager.
- Configure email notifications.
- Set up remote Storage Centers and Replication QoS.
- Configure replications and Live Volumes.

- Predefine your disaster recovery plan.
- Configure VMware vSphere Virtual Volumes.

6

Updating Dell Storage Manager

Use these tasks to update the Dell Storage Manager Client, Data Collector, Virtual Appliance, or Server Agent.

Updating the Storage Manager Data Collector

Follow these steps to update the Storage Manager Data Collector to a newer version.

Prerequisites

- The Data Collector being updated must be running version 6.1 or later.
- The server that hosts the Data Collector must be running a 64-bit operating system. If the Data Collector is installed on a 32-bit server, migrate to a 64–bit operating system.
- For each managed Storage Center, the Storage Center certificate must contain the host name or management IP address used to add the Storage Center to Storage Manager.

Steps

1. Download the Storage Manager software.
2. Unzip the Storage Manager Data Collector Setup file.
3. Run the Storage Manager Data Collector Setup file to update the Data Collector.

   Data Collector Manager opens and the Data Collector service attempts to start.

   > **NOTE: Please allow at least 60 minutes for the Data Collector service to start. If the service takes longer than 60 minutes, contact technical support.**

4. If you are using a remote Data Collector, repeat steps 2–3 on the server that hosts the remote Data Collector.

Update the Dell Storage Manager Client

Follow these steps to update an existing installation of the Dell Storage Manager Client to a newer version.

Prerequisite
Java version 7 update 45 is required if you are updating from Dell Storage Manager 2014 R2 or earlier.

Steps

1. Use the Dell Storage Manager Client to connect to the updated Data Collector.

   The Dell Storage Manager Client prompts you to download the Dell Storage Manager Client installation file.

2. Click **Yes**.
3. Run the installer and follow the steps.

Update the Storage Manager Server Agent

Follow these steps to update the Storage Manager Server Agent. Update the Storage Manager Server Agent on all servers managed by the Data Collector.

Prerequisites

- The Server Agent must be connected to a Data Collector.
- The Data Collector must be updated to the newer version.

Steps

1. Open the Server Agent Manager.
2. Click **Check for Upgrades**.

The server downloads the Server Agent installer from the Data Collector.

3. Open the Server Agent installer and follow the instructions to update the Server Agent.

Updating the Storage Manager Virtual Appliance

Follow these steps to update the Storage Manager Virtual Appliance using the Dell Storage Manager Web UI. The Storage Manager Virtual Appliance update package is a .zip file that is included with the Storage Manager Virtual Appliance installation files.

About this task

📝 **NOTE: Updating the Storage Manager Virtual Appliance does not change the version number shown in the VMware vSphere Client. The VMware vSphere Client will still show the version number at the time the Storage Manager Virtual Appliance was first deployed.**

Steps

1. Download the new version of the Storage Manager Virtual Appliance.

   The update package is a .zip file included with the Storage Manager Virtual Appliance .ova file.

2. In a browser, connect to the Storage Manager Virtual Appliance using the Dell Storage Manager Web UI.

   ```
   https://[IP Address]/ui
   ```

3. Click **Dell Storage Manager → Data Collector**.

4. Click the **General** tab, then click the **Summary** subtab.

5. Click **System Updates**.

   The **System Updates** dialog box opens.

6. Click **Upload Package**.

   The **Upload Package** dialog box opens.

7. Click **Choose File** then open the Storage Manager Virtual Appliance update package.

8. Click **OK** on the **Upload Package** dialog box.

   The Dell Storage Manager Web UI loads the update package.

9. Click **Install**.

   A confirmation dialog box appears.

10. Click **Yes**.

    The Storage Manager Virtual Appliance updates.

    📝 **NOTE: The Storage Manager Virtual Appliance might take up to 10–15 minutes to update. The Dell Storage Manager Web UI login page appears when the update is complete.**