Dell OpenManage Plug-in Version 1.0 For Nagios XI

User's Guide

1

DELLEMC

Notes, cautions, and warnings

(i) **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

1

Introduction

This guide provides information about using the Dell OpenManage Plug-in Version 1.0 for Nagios XI and its various features such as discovering, monitoring, launching consoles, and troubleshooting of the supported Dell devices. The guide also provides details of the supported Dell devices and frequently asked questions by the customer.

This plug-in provides capabilities to monitor Dell devices in environments managed by Nagios XI. This plug-in gives you complete hardware-level visibility of Dell devices including overall and component-level health monitoring. The plug-in provides basic inventory information and event monitoring of Dell devices. The plug-in also supports one-to-one web console launch of the supported Dell devices for further troubleshooting, configuration, and management activities.

For more details on the supported Dell device models, see Support matrix.

Key features

The key features of the Dell OpenManage Plug-in Version 1.0 for Nagios XI are as described in the following table.

Table 1. Key features

Feature	Functionality
Device discovery using **Dell Configuration Wizard**	Discovers the supported Dell devices in the Nagios XI console using the Dell configuration wizard. Once the discovery is complete, host and service definitions are created for each device.
	To discover Dell servers through iDRAC with Lifecycle Controller, you can opt for either SNMP or WS-MAN protocol. Dell storage is discovered using SNMP protocol. Dell chassis is discovered using WS-MAN protocol.
	For more information, see Dell configuration wizard on page 10.
Device information	Displays information about the discovered device (Service Tag, Firmware Version, Device Name, Device Model, and so on) and its components (Physical Disks, Power Supply, Temperature Probe, Voltage Probe, and so on) after a device discovery is successful.
Monitor overall health of Dell devices	Monitors the overall health of Dell devices in a scheduled or periodic manner.
Component level health of Dell devices	Monitors the health of device components (Physical Disks, Power Supply, Temperature Probe, Voltage Probe, and so on) and displays information about the Dell device component status at scheduled time intervals.
Monitor alerts and events (Traps)	Monitors alerts or events generated by Dell devices. This feature displays only the last received SNMP alert.
Launching device specific consoles	Launches the respective Dell one-to-one consoles to further troubleshoot and manage the supported Dell devices. For more information, see Launching Dell device consoles on page 39.
Warranty information	Monitors and displays the warranty information for the supported Dell devices in a periodic manner and displays the status in the Nagios XI console. For more information, see Warranty information for Dell devices on page 40.
Knowledge Base (KB)	Displays Knowledge Base (KB) information for the supported Dell devices corresponding to the device alert or event for faster troubleshooting.
	For more information, see Knowledge Base (KB) information for the generated alerts.

Support matrix

Dell OpenManage Plug-in for Nagios XI supports the Dell devices as listed in the following tables.

Supported firmware versions for Dell devices

Table 2. Supported firmware versions for Dell servers

Dell Servers	iDRAC Firmware Versions
Dell 12th generation of PowerEdge servers	2.30.30.30 and 2.21.21.21
Dell 13th generation of PowerEdge servers	2.30.30.30 and 2.21.21.21
Dell 13th generation of PowerEdge servers (R830)	2.35.35.35 and 2.30.30.30
Dell Datacenter Scalable Solutions (DSS 1500, DSS 1510 and DSS 2500)	2.30.30.30

Table 3. Supported firmware versions for Dell chassis

Dell Chassis	CMC Firmware Versions
Dell PowerEdge M1000e Chassis	5.12 and 5.11
Dell PowerEdge VRTX Chassis	2.12 and 2.10
Dell PowerEdge FX2/FX2s Chassis	1.32 and 1.30

Table 4. Supported firmware versions for Dell storage arrays

Dell Storage Arrays	Firmware Versions
Dell Compellent Storage Arrays	6.6 and 6.5
Dell EqualLogic PS-Series Storage Arrays	8.1.3 and 8.1.1
Dell PowerVault MD 34/38 Series Storage Arrays	08.25.04.60 and 08.20.12.60

Supported Dell PowerEdge servers

Table 5. Supported Dell PowerEdge servers

12th generation of PowerEdge servers	13th generation of PowerEdge servers
FM120x4	C4130
M420	C6320
M520	FC230
M620	FC430
M820	FC630
R220	FC830
R320	M630
R420	M830
R520	R430

Table 5. Supported Dell PowerEdge servers (continued)

12th generation of PowerEdge servers	13th generation of PowerEdge servers
R620	R530
R720xd	R530xd
R820	R630
R920	R730
T320	R730xd
T420	R830
T620	R930
	R230
	R330
	T130
	T330
	T430
	T630

Supported Dell Datacenter Scalable Solutions

Table 6. Supported Dell Datacenter Scalable Solutions

Dell Datacenter Scalable Solutions (DSS)
DSS 1500
DSS 1510
DSS 2500

Supported Dell chassis

Table 7. Supported Dell chassis

Dell chassis
Dell PowerEdge FX2
Dell PowerEdge FX2s
Dell PowerEdge VRTX
Dell PowerEdge M1000e

Supported Dell Compellent Storage Arrays

Table 8. Supported Dell Compellent Storage Arrays

Dell Compellent Storage Arrays
Compellent Series 40
Compellent SC4020
Compellent SC8000

Dell EqualLogic PS-Series Storage Arrays

Table 9. Supported Dell EqualLogic PS-Series Storage Arrays

Dell EqualLogic PS-Series Storage Arrays
EqualLogic PS4100
EqualLogic PSM4110
EqualLogic PS6100
EqualLogic PS6210
EqualLogic PS6500
EqualLogic PS6510

Dell PowerVault MD Storage Arrays

Table 10. Supported Dell PowerVault MD Storage Arrays

Dell PowerVault MD Storage Arrays
PowerVault MD3400
PowerVault MD3420
PowerVault MD3460
PowerVault MD3800f
PowerVault MD3800i
PowerVault MD3820f
PowerVault MD3820i
PowerVault MD3860f
PowerVault MD3860i

Dell configuration wizard

You can discover Dell devices using the Dell configuration wizard. This wizard takes you through a series of configuration steps where you provide appropriate input required to discover the hosts and associate them with their respective services. The Dell plug-in validates the inputs at the end of each step before proceeding to the next step and displays appropriate message prompts or summary.

Dell recommends that you discover a maximum of 255 devices at a time for a better user experience.

The devices are discovered either through SNMP or WS-MAN protocols. The monitoring protocols for the supported devices are as follows:

- Dell servers can be discovered using either SNMP or WS-MAN protocol. WS-MAN is the default protocol.
- Dell chassis can be discovered using WS-MAN protocol. WS-MAN is the default protocol.

  Ensure that you only monitor Dell chassis using local user credentials.

- Dell storage can be discovered using SNMP protocol. SNMP is the default protocol.

You can discover devices using any of the following:

- Auto-Discovery Jobs – Select an auto discovery job.

- Subnet – Subnet with mask.

- File – A text file containing a list of newline separated, unique device Internet Protocol (IP) addresses.

Topics:

- Dell configuration wizard discovery parameters
- Dell devices and associated services

Dell configuration wizard discovery parameters

You must configure the discovery parameters by providing inputs for device discovery. The parameters or inputs available in the **Configuration Wizard** are detailed in this section.

Discovery target

You can discover the devices by using options listed under **Discovery target**. The following table lists the options and their description:

Table 11. Discovery options

Option	Description
Auto-Discovery Jobs	Enables you to select a previously added auto discovery job.
	To add Auto-Discovery Jobs to the Nagios XI console, see Creating Auto-Discovery Jobs.
Subnet	Subnet with mask. You can enter a valid subnet address with mask.
File	A text file containing a list of newline separated unique IP addresses.
	To select a file, click the **Browse** button, navigate to the location where you have saved the file and select it.

Communication Parameters

The supported Dell devices can be discovered through either SNMP or WS-MAN protocol. Based on the desired protocol, you must configure the communication parameters. By default, WS-MAN protocol is selected.

Ensure that you select the **Preferred protocol to discover Dell Agent-Free server** appropriately. Selecting or not selecting this field does not have any impact while discovering Dell chassis or storage arrays. By default, chassis is discovered using WS-MAN protocol and storage arrays using SNMP.

Table 12. SNMP parameters

SNMP Parameters		
Parameter Name	**Default Value**	**Description**
Community String	public	SNMP community string.
Version	2	SNMP version used for monitoring. Available options are 1 and 2.
Timeout	3	Use to provide SNMP timeout value in seconds. Valid range is 1 to 1440.
Retries	1	Use to provide the number of times an SNMP request must be sent when a timeout occurs. Valid range is 1 to 10.
Port	161	Use to provide the SNMP port value. Valid range is 1 to 65535.

Table 13. WS-MAN parameters

WS-MAN Parameters		
Parameter Name	**Default Value**	**Description**
Username	root	Use to provide the WS-MAN user name.
Password	NA. Masked	Use to provide the WS-MAN password.
Timeout	3	Use to provide WS-MAN timeout value in seconds. Valid range is 1 to 1440.
Retries	1	Use to provide the number of times a WS-MAN request must be sent when a timeout occurs. Valid range is 1 to 10.
Port	443	Use to provide the WS-MAN port value. Valid range is 1 to 65535.

Configuration Parameters

You can set the values for the configuration parameters based on your requirements.

Table 14. Configuration parameters

Configuration Parameters		
Parameter Name	**Default Value**	**Description**
Warranty URL	https://api.dell.com/support/assetinfo/v4/getassetwarranty/	URL to fetch warranty details.
Warranty Critical Days	10	Number of days left before warranty expires.
Warranty Warning Days	30	Number of days left before warranty expires.

Table 14. Configuration parameters (continued)

Configuration Parameters		
RACADM Install Path	/opt/dell/srvadmin/sbin/racadm	Absolute RACADM installation path.
JAVA Install Path	/usr/bin/java	Absolute Java installation path.

Creating auto-discovery jobs

You can create Auto-Discovery jobs in the Nagios XI console. These jobs will allow you to easily choose the hosts from an auto-discovery job that should be monitored.

To create auto discovery jobs, perform the following steps:

1. Select **Configure** > **Configuration Wizards**.
2. Add new auto discovery jobs by performing one of the following steps:
   - Select **Configuration Tools** > **Auto-Discovery** in the left pane.

     The **Auto-Discovery Jobs** page is displayed. Click the **New Auto-Discovery Job** button or the **Add one now** link.

   - Click **Auto-Discovery** wizard from the list of wizards displayed.

     Once the **Configuration Wizard: Auto-Discovery - Step 1** page is displayed, click the **launch a new discovery job** link.

3. In the **Scan Target** field, enter a network address and netmask to define the IP ranges to scan.
4. In the **Exclude IPs** field, enter a comma-separated list of IP addresses and/or network addresses to exclude from the scan.

   You can select a frequency from the **Frequency** drop down list if desired.
5. Click **Submit**.
   The new Auto-Discovery job is created successfully and its details are displayed.

Once an auto discovery job is added, you can select it by clicking **Auto-Discovery Jobs** under **Discovery Target**, in the **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1** page, and then selecting the job you have just created from the drop down menu for device discovery. This will scan and discover only the new devices added to the job.

If you want to rediscover previously discovered devices or discover all the devices in the **Scan Target** range, check the **Discover all IP addresses** option.

Dell devices and associated services

Based on the Dell configuration wizard discovery parameters such as **Discovery Target**, **Communication Parameters**, and **Configuration Parameters** you have provided, a list of **Dell Reachable Devices** and the basic and detailed services associated with those devices are displayed in the Nagios XI console.

You can install the following optional service packages to monitor specific services:
- (Optional) Java version 1.6 or later is installed to view Dell warranty information.
- (Optional) Socket6 Perl module version 0.23 or later is installed for monitoring managed systems using Internet Protocol version 6 (IPv6).
- (Optional) SNMP Trap Translator (SNMPTT) is installed to receive SNMP alerts. Dell recommends that you use the latest version.
- (Optional) The supported Dell Remote RACADM utility is installed to monitor component attribute information of Dell chassis services such as:
  - Speed(RPM) of the Dell Chassis Fan Status.
  - InputCurrent(A) of the Dell Chassis PowerSupply Status.
  - InputVoltage(V) of the Dell Chassis PowerSupply Status.
  - OutputPower(W) of the Dell Chassis PowerSupply Status.
  - Status of the Dell Chassis I/O Module Status.

Each of the services has the following parameters that you can configure based on your monitoring requirement:
- **Check Interval** - Used to define the number of "time units" to wait before scheduling the next "regular" check of the service.
- **Retry Interval** - Used to define the number of "time units" to wait before scheduling a re-check of the service.

- **Max Check Attempts** - Used to define the number of times that Nagios will retry the service check command if it returns any state other than an OK state.

The following tables list the basic and detailed services associated with the supported Dell devices.

Table 15. Services created for Dell servers based on the selected protocol

Services	SNMP	WS-MAN
Basic Services		
Dell Server Overall Health Status	√	√
Dell Server Information	√	√
Dell Server Traps	√	√
Detailed Services		
Dell Server Physical Disk Status	√	√
Dell Server Virtual Disk Status	√	√
Dell Server Fan Status	√	√
Dell Server Battery Status	√	√
Dell Server Intrusion Status	√	√
Dell Server Network Device Status	√	√
Dell Server Voltage Probe Status	√	√
Dell Server Controller Status	√	√
Dell Server Amperage Probe Status	√	√
Dell Server CPU Status	√	X
Dell Server Power Supply Status	√	X
Dell Server Temperature Probe Status	√	√
Dell Server SD Card Status	X	√
Dell Server FC NIC Status	X	√
Dell Server Warranty Information	√	√

Table 16. Services created for all Dell Chassis based on WS-MAN protocol

Services	Description
Basic Services	
Dell Chassis Overall Health Status	This service is applicable to all supported Chassis.
Dell Chassis Information	This service is applicable to all supported Chassis.
Dell Chassis Traps	This service is applicable to all supported Chassis.
Detailed Services	This service is applicable to all supported Chassis.
Dell Chassis Fan Status	This service is applicable to all supported Chassis.
Dell Chassis Slot Information	This service is applicable to all supported Chassis.
Dell Chassis I/O Module Status	This service is applicable to all supported Chassis.
Dell Chassis Power Supply Status	This service is applicable to all supported Chassis.
Dell Chassis KVM Status	This service is applicable to all supported Chassis.
Dell Chassis Enclosure Status	This service is applicable to Dell PowerEdge VRTX Chassis only.

Table 16. Services created for all Dell Chassis based on WS-MAN protocol (continued)

Services	Description
Dell Chassis Controller Status	This service is applicable to Dell PowerEdge VRTX Chassis only.
Dell Chassis Physical Disk Status	This service is applicable to Dell PowerEdge VRTX Chassis only.
Dell Chassis Virtual Disk Status	This service is applicable to Dell PowerEdge VRTX Chassis only.
Dell Chassis PCIe Devices Status	This service is applicable to Dell PowerEdge VRTX Chassis and Dell PowerEdge FX2/FX2s Chassis only.
Dell Chassis Warranty Information	This service is applicable to all supported Chassis.

Table 17. Services created for Dell Compellent Storage Arrays based on SNMP protocol

Services
Basic Services
Dell Storage Compellent Overall Health Status
Dell Storage Compellent Information
Dell Storage Compellent Management Traps
Dell Storage Compellent Controller Traps
Dell Storage Compellent Controller Overall Health Status
Dell Storage Compellent Controller Information
Detailed Services
Dell Storage Compellent Physical Disk Status
Dell Storage Compellent Volume Status
Dell Storage Compellent Controller Warranty Information

Table 18. Services created for Dell EqualLogic PS-Series Storage Arrays based on SNMP protocol

Services
Basic Services
Dell Storage EqualLogic Member Overall Health Status
Dell Storage EqualLogic Member Information
Dell Storage EqualLogic Group Information
Dell Storage EqualLogic Member Traps
Detailed Services
Dell Storage EqualLogic Member Physical Disk Status
Dell Storage EqualLogic Group Volume Status
Dell Storage EqualLogic Group Storage Pool Status
Dell Storage EqualLogic Member Warranty Information

Table 19. Services created for Dell PowerVault MD Storage Arrays based on SNMP protocol

Services
Basic Services
Dell Storage PowerVault MD Overall Health Status

Table 19. Services created for Dell PowerVault MD Storage Arrays based on SNMP protocol (continued)

Services
Dell Storage PowerVault MD Information
Dell Storage PowerVault MD Traps
Detailed Services
Dell Storage PowerVault MD Warranty Information

Selecting the services to monitor for a Dell device

The supported Dell devices have basic and detailed services associated with them. You can choose to monitor all or any of these services at any given time.

By default, only the basic services are selected for a reachable or discovered Dell device based on the protocol you have selected. If you do not want to monitor any of the basic services, expand the **Dell <device> Basic Services** where <Device> is any of the reachable Dell devices that are listed under **Dell Reachable devices** and clear the check-box adjacent to it.

Similarly, to select any of the detailed services, expand **Dell <device> Detailed Services**, and then click the check-box adjacent to it.

For example:

To select the **Dell Storage EqualLogic Group Storage Pool Information** service, expand **Dell Equal Logic Storage Array Detailed Services**, and then click the check-box adjacent to it.

5

Device discovery using the Dell configuration wizard

The following sections describe the process of discovering Dell devices and their associated services using the Dell monitoring wizard. Once you complete all the configuration steps successfully, the hosts and their corresponding services will be available for monitoring in the Nagios XI console.

Before you begin, ensure that all the prerequisites are installed in your system based on your monitoring requirements. For more information about the prerequisites, see the section **System requirements for management systems** in the *Dell OpenManage Plug-in for Nagios XI Installation Guide*.

Topics:

- Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1
- Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2
- Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 3

Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1

You can configure the various parameters for discovery of devices using the Dell OpenManage Plug-in such as target IPs, protocol parameters, warranty, and other configurations parameters.

Ensure that you provide only positive integer values when numeric values are required. For more information, see Dell configuration wizard discovery parameters.

If you encounter any errors while performing any of the following steps, ensure that you fix them before proceeding.

1. To open the Dell plug-in, under the **Configure** tab, select **Configuration Wizards** and then click **Dell OpenManage Plug-in for Nagios XI**.
   The **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1** page is displayed along with the overview of the plug-in and the summary of the prerequisite check.
2. Under the **Discovery Target** menu, select any of the following discovery options:
   - **Auto-Discovery Jobs** - Select an existing Auto discovery job from the drop down menu.
   - **Subnet** - Select to discover devices using a subnet with mask.
   - **File** - Select to discover a list of devices using a file.
3. In the **Communication Parameters** table, provide appropriate values.
4. In the **Configuration Parameters** table, enter appropriate values based on your monitoring requirement, and then click **Next**.

Figure 1. Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1

Once the given values are accepted without errors, the **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2** page is displayed.

Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2

You can view the reachable Dell devices and their associated basic and detailed services based on the Discovery target, communication parameters, and configuration parameters you provided in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2**.

Here, the summary of the **Prerequisite Checks – Services** for absolute installed path of SNMPTT, RACADM, and JAVA are displayed. Also displayed are the reachable or discovered devices under **Dell Device Selection** menu and their associated services under the **Services Selection** menu. For more information, see Dell devices and associated services on page 12.

To select discovered devices and the associated services that you would like to monitor, perform the following steps:

1. Under **Dell Device Selection**, click the ▶ icon or the **Dell Reachable devices** link to expand the list of discovered devices. The reachable devices are displayed in a table along with their IP **Address**, **Hostname**, and **Device Type**.

   By default, all the reachable devices are selected. You can remove devices you do not wish to monitor by simply clearing the check box against these devices.

2. Under **Services Selection**, click the required Dell device service to expand the list of associated services.

   To view all the services, click **Expand All**.

   The services associated with the discovered hosts are listed along with parameters such as **Check Interval**, **Retry Interval**, and **Max Check Attempts** with their default values. You can provide desired values based on your monitoring requirement.

3. Click **Next** once you have selected the devices and services you wish to monitor.

Once the given values are accepted without errors, the **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 3** page will be displayed.

If, at any point you want to change or correct any of the values you have provided in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 1**, in the previous page, you can do so by clicking the **Back** button.

Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 3

You can view the Dell devices and their associated services based on the selections you have made in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2**. These devices and services are displayed as a collapsible list.

To view the discovery summary or details, perform the following steps:

1. Under **Selected Devices**, click the ▶ icon or the **Dell Devices** link to expand the list of discovered devices.
   The devices are displayed in a table along with their **Host Address**, **Hostname**, and **Device Type**.
2. Under **Selected Services**, click the required Dell device service to expand the list of selected services.

   To view all the services, click **Expand All**.

   The services associated with the discovered hosts that you have previously selected are listed along with parameters such as **Check Interval**, **Retry Interval**, and **Max. Check Attempts** with their values.
3. Click **Next** to further customize your monitoring requirements or click **Finish** to complete the configuration process and monitor the discovered devices.

   For more information about how you can further customize your monitoring requirements, see the Nagios XI documentation at **exchange.nagios.org**.

If, at any point you want to change or correct any of the values you have provided in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2**, you can do so by clicking the **Back** button.

The Dell device host and its service definitions are created in the Nagios server and this is subsequently used for monitoring the Dell devices. The discovered Dell devices and their services are displayed in the **Host Detail** view and the **Service Detail** view in the Nagios XI **Home** page respectively. However, you must wait for the scheduled service to complete for the service details to be displayed in the Nagios XI console.

Viewing Dell devices

You can view the discovered Dell devices in the Nagios XI console in the **Host Detail** or the **Service Detail** view.

1. To view the hosts in the Nagios XI console, click the **Home** tab and then select **Details** > **Host Detail** in the left pane.
   The discovered hosts are displayed in the right pane.

2. To view the services associated with the hosts in the Nagios XI console, click the **Home** tab and then select **Details** > **Service Detail** in the left pane.
   The service details are displayed in the right pane.

Monitoring Dell devices

Once you have discovered the Dell devices, you can monitor these devices and their associated services such as device information, overall health, and other components. The various aspects of Dell devices you can monitor are explained in the following sections.

Topics:

- Device information
- Overall health status
- Component health
- Monitoring alerts and event Traps

Device information

The Dell EMC device information service provides the basic information about the device. By default, this service is polled once a day.

Table 20. Device Information

Service	Status	Description	Attributes Displayed
Dell EMC Server Information	The following states are possible: ● **OK**	This service provides the basic device inventory information. ⓘ **NOTE:** Chassis Tag is applicable only for modular servers and Node ID is applicable only for PowerEdge FM120x4. ⓘ **NOTE:** System Configuration Lockdown Mode, iDRAC Group Manager Status and iDRAC Group Name is applicable only for 14G Servers.	● Node Id ● Chassis ServiceTag ● Service Tag ● Model ● OS Name ● OS Version ● iDRAC URL ● iDRAC Firmaware Version ● Service Host FQDn ● VMM URL ● System Configuration Lockdown Mode ● iDRAC Group Name ● iDRAC Group Manager Status
Dell EMC Chassis Information	The following states are possible: ● **OK**	This service provides the basic device inventory information for PowerEdge M1000e, PowerEdge VRTX, and PowerEdge FX2/FX2s chassis.	● Service Tag ● Chassis Name ● Model Name ● CMC Firmware Version ● CMC URL
Dell EMC Storage SC-Series Information	The following states are possible:	This service provides the basic device inventory	● Overall Storage Center ● Firmware Version

Table 20. Device Information (continued)

Service	Status	Description	Attributes Displayed
	● **OK**	information for Compellent Management IP	● Compellent URL ● Storage Name ● Primary Controller Name ● Primary Controller Model ● Primary Controller IP Address ● Primary Controller Service Tag ● Secondary Controller Name ● Secondary Controller Model ● Secondary Controller IP Address ● Secondary Controller Service Tag
Dell EMC Storage SC-Series Controller Information	The following states are possible: ● **OK**	This service provides the basic device inventory information for Compellent Controller IP	● Controller Name ● Service Tag ● Primary Controller ● Controller Name ● Model Name ● Compellent URL
Dell EMC Storage PS-Series Group Information	The following states are possible: ● **OK**	This service provides the basic device inventory information for EqualLogic Groups.	● Group Name ● Member Count ● Volume Count ● Group URL
Dell EMC Storage PS-Series Member Information	The following states are possible: ● **OK**	This service provides the basic device inventory information for the EqualLogic Member.	● Overall Member ● Member Name ● Product Family ● Service Tag ● Model Name ● Chassis Type ● Disk Count ● RAID Status ● Firmware Version ● RAID Policy ● Group Name ● Group IP ● Storage Pool ● Capacity
Dell EMC Storage MD-Series Information	The following states are possible: ● **OK**	This service provides the basic device inventory	● Overall Storage Array ● Service Tag

Table 20. Device Information (continued)

Service	Status	Description	Attributes Displayed
		information for PowerVault MD Storage Arrays.	- Product ID - World-wide ID - Storage Name
Dell EMC Storage ME4 Information	The following states are possible: ● **OK**	This service provides the basic device inventory information for PowerVault ME4 Storage Arrays.	- Overall Storage Array - Service Tag - Product ID - World-wide ID - Storage Name
Dell EMC Network Switch Information	The following states are possible: ● **OK**	This service provides the basic information of the Network Switch.	- Host Name - Model - Service Tag - Serial Number - MACAddress - ManagementIP - Firmware Version

For information about the various components that you can monitor, see Monitoring component health.

Overall health status

Overall health status of a device is polled periodically based on the configured interval. By default, the Overall Health Status service is scheduled once an hour.

Table 21. Overall health Status information

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish/REST
Dell EMC Server Overall Health Status	The following states are possible for the supported Dell EMC devices: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides global health status of Dell EMC Servers.	- Overall System - Storage - Voltage - Power Supply - Amperage - Fan - Intrusion - Memory - Battery - CPU - Temperature	- Overall System - Storage - Voltage - Power Supply - Amperage - Fan - Intrusion - Memory - Battery - CPU - Temperature	- Overall System - Memory - CPU
Dell EMC Chassis Overall Health Status ⓘ **NOTE:** ME4 and MX7000		Provides global health status of Dell EMC Chassis.	Overall Chassis	Not Available	Over all chassis

Table 21. Overall health Status information (continued)

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish/REST
uses REST protocol					
Dell EMC Storage PS-Series Member Overall Health		Provides global health status of EqualLogic Storage Arrays.	Not Available	Overall Member	Not Available
Dell EMC Storage SC-Series Overall Health Status		Provides global health status of Compellent Storage Arrays.	Not Available	Overall Storage Center	Not Available
Dell EMC Storage SC-Series Controller Overall Health Status		Provides global health status of Compellent Storage Array's controller.	Not Available	Overall Controller	Not Available
Dell EMC Storage MD-Series Overall Health Status		Provides global health status of PowerVault MD Storage Arrays.	Not Available	Overall Storage Array	Not Available
Dell EMC PowerVolt ME4-Series Overall Health Status		Provides global health status of PowerVault ME4 Storage Arrays.	NA	NA	Overall ME4
Dell EMC Network Switch Overall Health Status		Provides global health status of Dell EMC Network Switch	Not Available	Overall Switch	Not Available

The status of the storage attribute indicates the cumulative health status of storage components such as physical disk, virtual disk, and controller.

Component health

This is a periodic poll based health monitoring of a Dell EMC device's component level health status. By default, the component health service is scheduled once every four hours.

Once the discovery utility is run with the relevant option, the corresponding services are created. These services run periodically and update the overall health of the components. The component's status and information are displayed in the Nagios XI console.

The format of the component information in the Status Information column is `<Attribute>=<Value>`, `<Attribute>=<Value>`.

For example: `Status=CRITICAL, FQDD=Fan.Embedded.1, State=Enabled`

Table 22. Dell EMC device component health information

Service	Status	Description	Attributes Displayed when using WSMan	Attributes Displayed when using SNMP	Attributes displayed when using Redfish
Dell EMC Server Memory Status	The following states are possible: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides the worst case aggregate health status of the memory in Dell EMC Servers.	● Status ● FQDD ● Type ● PartNumber ● Size ● State ● Speed	● Status ● FQDD ● Type ● PartNumber ● Size ● State ● Speed	● Status ● FQDD ● Type ● PartNumber ● Size ● State ● Speed ● Memory Technology
Dell EMC Server Physical Disk Status		Provides the worst case aggregate health status of the physical disks in Dell EMC Servers.	● Status ● ProductID ● SerialNumber ● Size ● MediaType ● Revision ● State	● Status ● FQDD ● ProductID ● SerialNumber ● Size ● MediaType ● Revision ● State	● Status ● ProductID ● SerialNumber ● Size ● MediaType ● Revision ● State
Dell EMC Disk Group Status		Provides the worst case aggregate health status of the Disk Groups in Dell EMC servers.	● Status ● FQDD ● Layout ● Size ● MediaType ● ReadCachePolicy ● WriteCachePolicy ● StripeSize ● State	● Status ● FQDD ● Layout ● Size ● MediaType ● ReadCachePolicy ● WriteCachePolicy ● StripeSize ● State	● Status ● FQDD ● Layout ● Size ● MediaType ● ReadCachePolicy ● WriteCachePolicy ● StripeSize ● State
Dell EMC Server Fan Status		Provides overall health status of the fans in Dell EMC servers.	● Status ● FQDD ● State	● Status ● FQDD ● State	● Status ● FQDD ● State
Dell EMC Server Network Device Status		Provides overall health status of the NIC in Dell EMC servers.	● ConnectionStatus ● FQDD ● LinkSpeed ● FirmwareVersion ● ProductName	● ConnectionStatus ● FQDD ● LinkSpeed ● FirmwareVersion ● ProductName	● ConnectionStatus ● FQDD ● LinkSpeed ● FirmwareVersion ● ProductName ⓘ **NOTE:** FirmwareVersion and ProductName attributes will display as Not Available.

Table 22. Dell EMC device component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMan	Attributes Displayed when using SNMP	Attributes displayed when using Redfish
Dell EMC Server Intrusion Status		Provides overall health status of the chassis intrusion in Dell EMC servers.	• Status • Location • State	• Status • Location • State	Not Available
Dell EMC Server CPU Status		Provides overall health status of the CPUs in Dell EMC servers.	• Status • FQDD • Model • CoreCount	• Status • FQDD • Model • CoreCount	• Status • FQDD • Model • CoreCount
Dell EMC Server Power Supply Status		Provides overall health status of the power supply in Dell EMC servers.	• Status • FQDD • FirmwareVersion • InputWattage • Redundancy	• Status • FQDD • FirmwareVersion • InputWattage • Redundancy	• Status • FQDD • FirmwareVersion • InputWattage • Redundancy ⓘ **NOTE:** Redundancy and InputWattage attributes will display as Not Available.
Dell EMC Server Temperature Probe Status		Provides overall health status of the temperature probe in Dell EMC servers.	• Status • Location • State	• Status • Location • State	• Status • Location • State
Dell EMC Server Voltage Probe Status		Provides overall health status of the voltage probe in Dell EMC servers.	• Status • Location • State	• Status • Location • State	• Status • Location • State
Dell EMC Server Controller Status		Provides the worst case aggregate health status of the storage controllers in Dell EMC servers.	• Status • FQDD • CacheSize • FirmwareVersion • Name	• Status • FQDD • CacheSize • FirmwareVersion • Name	• Status • FQDD • CacheSize • FirmwareVersion • Name
Dell EMC Server Amperage Probe Status		Provides overall health status of the amperage probe in Dell EMC servers.	• Status • Location • State	• Status • Location • State	Not Available
Dell EMC Server SD Card Status		Provides overall health status of the SD card in Dell EMC servers.	• Status • FQDD • Size • WriteProtected	Not Available	• Status • FQDD • Size • WriteProtected

Table 22. Dell EMC device component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMan	Attributes Displayed when using SNMP	Attributes displayed when using Redfish
			• InitializedState • State		• InitializedState • State
Dell EMC Server FC NIC Status		Provides overall health status of the FC NIC in Dell EMC servers.	• ConnectionStatus • FQDD • Name • FirmwareVersion • LinkSpeed	Not Available	• ConnectionStatus • FQDD • Name • FirmwareVersion • LinkSpeed
Dell EMC Server Warranty Information		Provides warranty information status for the Dell EMC servers.	• ServiceTag • Service Level Details • Item number • Device Type • Ship Date(UTC) • Start Date(UTC) • End Date(UTC) • Days Remaining	• ServiceTag • Service Level Details • Item number • Device Type • Ship Date(UTC) • Start Date(UTC) • End Date(UTC) • Days Remaining	• ServiceTag • Service Level Details • Item number • Device Type • Ship Date(UTC) • Start Date(UTC) • End Date(UTC) • Days Remaining
Dell EMC Server GPU Status		Provides GPU information status for the Dell EMC servers.	NA	NA	• Status • FQDD • FirmwareVersion • Manufacturer • DataBusWidth • MarketingName • SlotType • GPUState

Table 23. Dell EMC Chassis component health information

Service	Status	Description	Attributes Displayed
Dell EMC Chassis Physical Disk Status Applicable only to PowerEdge VRTX chassis and PowerEdge MX7000 modular chassis.	The following states are possible: • **OK** • **Warning** • **Unknown** • **Critical**	Provides the worst case aggregate health status of the physical disks in Dell EMC Chassis.	• Status • FQDD • Model • PartNumber • Slot • FirmwareVersion • Capacity • FreeSpace • MediaType • SecurityState

Table 23. Dell EMC Chassis component health information (continued)

Service	Status	Description	Attributes Displayed
Dell EMC Chassis Disk Group Status Applicable only to PowerEdge VRTX chassis and PowerEdge MX7000 modular chassis.		Provides the worst case aggregate health status of the Disk Groups in Dell EMC Chassis.	- Status - FQDD - BusProtocol - Capacity - MediaType - Name - RAIDTypes - ReadPolicy - StripeSize - WritePolicy
Dell EMC Chassis PCIe Devices Status		Provides the worst case aggregate health status of all the Dell EMC Chassis PCIe device instances	- Status - FQDD - Name - Fabric - PCIeSlot - PowerState - AssignedSlot - AssignedBlade
Dell EMC Chassis Fan Status PowerEdge MX7000 modular chassis.		Provides the worst case aggregate health status of the fans in Dell EMC Chassis.	- Status - FQDD - Name - Slot - Speed
Dell EMC Chassis Power Supply Status PowerEdge MX7000 modular chassis.		Provides the worst case aggregate health status of the power supply in Dell EMC Chassis.	- Status - FQDD - Name - PartNumber - Slot
Dell EMC Chassis Controller Status Applicable only to PowerEdge VRTX chassis. and PowerEdge MX7000 modular chassis.		Provides the worst case aggregate health status of the storage controllers in Dell EMC Chassis.	- Status - FQDD - CacheSize - FirmwareVersion - Name - PatrolReadState - SecurityStatus - SlotType

Table 23. Dell EMC Chassis component health information (continued)

Service	Status	Description	Attributes Displayed
Dell EMC Chassis Enclosure Status Applicable only to PowerEdge VRTX chassis.		Provides the worst case aggregate health status of the enclosure in Dell EMC Chassis.	- Status - FQDD - BayID - Connector - FirmwareVersion - SlotCount
Dell EMC Chassis IO Module Status PowerEdge MX7000 modular chassis.		Provides the worst case aggregate health status of the IO module in Dell EMC Chassis.	- Status - FQDD - FabricType - IPv4Address - LaunchURL - Name - PartNumber - Slot
Dell EMC Chassis Server Slot Information		Provides the worst case aggregate health status of the Server slot in Dell EMC Chassis.	- Status - SlotNumber - HostName - Model - ServiceTag - iDRACIP
Dell EMC Chassis Storage Slot Information		Provides the worst case aggregate health status of the Storage slot in Dell EMC Chassis.	- Status - SlotNumber - Model - ServiceTag
Dell EMC Chassis KVM Status		Provides the worst case aggregate health status of the KVM (Keyboard, Video, Mouse) in Dell EMC Chassis.	- Status - Name
Dell EMC Chassis Warranty Information		Provides warranty information status for the Dell EMC Chassis.	- ServiceTag - Service Level Details - Item number - Device Type - Ship Date(UTC) - Start Date(UTC) - End Date(UTC) - Days Remaining
Dell EMC NIC PowerEdge MX7000 modular chassis.		Provides information on NIC.	

Table 23. Dell EMC Chassis component health information (continued)

Service	Status	Description	Attributes Displayed
Dell EMC Storage pool PowerEdge MX7000 modular chassis.		Provides information on storage pool	
Dell EMC Storage enclosure PowerEdge MX7000 modular chassis.		Provides information on storage enclosure	
Dell EMC Storage Volume		Provides volume information for storage	

Table 24. EqualLogic component health information

Service	Status	Description	Attributes Displayed when using WSMan
Dell EMC Storage PS-Series Member Physical Disk Status	The following states are possible: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides the worst case aggregate health status of the physical disks in the EqualLogic member.	● Status ● Slot ● Model ● SerialNumber ● FirmwareVersion ● TotalSize
Dell EMC Storage PS-Series Group Volume Status		Provides the worst case aggregate health status of the volume in EqualLogic Group.	● Status ● Name ● TotalSize ● AssociatedPool
Dell EMC Storage PS-Series Group Storage Pool Information		Provides the worst case aggregate health status of all the EqualLogic storage arrays in a storage pool.	● Name ● MemberCount ● VolumeCount
Dell EMC Storage PS-Series Member Warranty Information		Provides warranty information status for the EqualLogic member.	● ServiceTag ● Service Level Details ● Item number ● Device Type ● Ship Date(UTC) ● Start Date(UTC) ● End Date(UTC) ● Days Remaining

Table 25. Compellent component health information

Service	Status	Description	Attributes Displayed when using WSMan
Dell EMC Storage SC-Series Physical Disk Status	The following states are possible: ● **OK** ● **Warning** ● **Unknown**	Provides the worst case aggregate health status of the physical disks in Compellent storage arrays.	● Status ● Name ● TotalSize ● BusType

Table 25. Compellent component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMan
	● **Critical**		● DiskEnclosureNumber
Dell EMC Storage SC-Series Volume Status		Provides the worst case aggregate health status of the Compellent volume.	● Status ● VolumeName
Dell EMC Storage SC-Series Controller Warranty Information		Provides warranty information status for the Compellent controller.	● ServiceTag ● Service Level Details ● Item number ● Device Type ● Ship Date(UTC) ● Start Date(UTC) ● End Date(UTC) ● Days Remaining

Table 26. PowerVault MD warranty information

Service	Status	Description	Attributes Displayed when using WSMan
Dell EMC Storage MD-Series Warranty Information	The following states are possible: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides warranty information status for the PowerVault MD storage arrays.	● ServiceTag ● Service Level Details ● Item number ● Device Type ● Ship Date(UTC) ● Start Date(UTC) ● End Date(UTC) ● Days Remaining

Table 27. PowerVault ME4services information

Service	Status	Description	Attributes Displayed
Dell EMC Storage ME4 Warranty Information	The following states are possible: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides warranty information status for the PowerVault ME4 storage arrays.	● ServiceTag ● Service Level Details ● Item number ● Device Type ● Ship Date(UTC) ● Start Date(UTC) ● End Date(UTC) ● Days Remaining
Dell EMC Storage ME4 Controller		Provides storage controller information for the PowerVault ME4 storage arrays.	
Dell EMC Storage ME4 Fans		Provides storage fan information for the PowerVault ME4 storage arrays.	
Dell EMC Storage ME4 IO Module		Provides storage IO module information for the PowerVault ME4 storage arrays.	● Status ● Description ● SerialNumber ● ID

Table 27. PowerVault ME4services information (continued)

Service	Status	Description	Attributes Displayed
Dell EMC Storage ME4 NIC	OK	Provides storage NIC information for the PowerVault ME4 storage arrays.	● Status ● FQDD ● Name ● Speed
Dell EMC Storage ME4 Physical Disk		Provides storage physical disk information for the PowerVault ME4 storage arrays.	● Status ● FQDD ● SerialNumber ● Model ● Revision
Dell EMC Storage ME4 Disk Group		Provides storage Disk Group information for the PowerVault ME4 storage arrays.	● Status ● Name ● SerialNumber ● Size
Dell EMC Storage ME4 Power Supply Status		Provides storage power supply status for the PowerVault ME4 storage arrays.	● Status ● FQDD ● SerialNumber ● PartNumber ● Name
Dell EMC Storage ME4 Storage Pool Status		Provides storage pools information for the PowerVault ME4 storage arrays.	● Status ● Name ● SerialNumber ● VolumeCount
Dell EMC Storage ME4 Storage Enclosure Status		Provides storage enclosure information for the PowerVault ME4 storage arrays.	● Status ● FQDD ● Name ● SerialNumber ● PartNumber
Dell EMC Storage ME4 Volume Status		Provides storage volume information for the PowerVault ME4 storage arrays.	● Status ● FQDD ● VolumeName

Table 28. Dell EMC device's component health information

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
Dell EMC Chassis Temperature Probe Status Applicable to MX7000	OK		NA	NA	● Status ● FQDD ● Name ● Reading
Dell EMC Chassis Traps Applicable to MX7000	OK		NA	NA	● Date time ● FQDD ● Trap OID ● HostName ● MessageID ● Message ● Message Args

Table 28. Dell EMC device's component health information (continued)

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
					• Severity • Product Chassis Name • Chassis Service Tag
Dell EMC Management Controller Status Applicable to MX7000	**OK**		NA	NA	• PrimaryStatus • Name • MgmtcontrollerFirmwareVersion • SlotNumber
Dell EMC Server Memory Status	The following states are possible: • **OK** • **Warning** • **Unknown** • **Critical**	Provides the worst case aggregate health status of the memory in Dell EMC Servers.	• Status • FQDD • Type • PartNumber • Size • State • Speed	• Status • FQDD • Type • PartNumber • Size • State • Speed	Not Available
Dell EMC Server Physical Disk Status		Provides the worst case aggregate health status of the physical disks in Dell EMC Servers.	• Status • Product ID • SerialNumber • Size • Media Type • Revision • State	• Status • FQDD • ProductID • SerialNumber • Size • Media Type • Revision • State	Not Available
Dell EMC Disk Group Status		Provides the worst case aggregate health status of the Disk Groups in Dell EMC Servers.	• Status • FQDD • Layout • Size • MediaType • ReadCachePolicy • WriteCachePolicy	• Status • FQDD • Layout • Size • MediaType • ReadCachePolicy • WriteCachePolicy • StripeSize • State	Not Available

Table 28. Dell EMC device's component health information (continued)

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
			• StripeSize • State		
Dell EMC Server Fan Status		Provides overall health status of the fans in Dell EMC Server without considering the redundancy status.	• Status • FQDD • State	• Status • FQDD • State	• Status • FQDD • State
Dell EMC Server Intrusion Status		Provides overall health status of the chassis intrusion in Dell EMC Servers.	• Status • Location • State	• Status • Location • State	Not Available
Dell EMC Server Network Device Status		Provides the worst case aggregate health status of the NIC in Dell EMC Servers.	• ConnectionStatus • FQDD • LinkSpeed • FirmawareVersion • ProductName	• ConnectionStatus • FQDD • LinkSpeed • FirmawareVersion • ProductName	• ConnectionStatus • FQDD • LinkSpeed • FirmawareVersion • ProductName (i) **NOTE:** FirmwareVersion and ProductName attributes will display **Not Available**.
Dell EMC Server CPU Status		Provides overall health status of the CPUs in Dell EMC Servers.	• Status • FQDD • Model • CoreCount	• Status • FQDD • Model • CoreCount	• Status • FQDD • Model • CoreCount
Dell EMC Server Power Supply Status		Provides overall health status of the power supplies in Dell EMC Server without considering the redundancy status.	• Status • FQDD • FirmwareVersion • InputWattage	• Status • FQDD • CapabilitiesState • InputWattage	• Status • FQDD • Redundancy • FirmwareVersion • InputWattage (i) **NOTE:** Redundancy and

Table 28. Dell EMC device's component health information (continued)

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
					InputWattage(W) attributes will display **Not Available**.
Dell EMC Server Temperature Probe Status Applicable for MX7000		Provides overall health status of the temperature probe in Dell EMC Servers.	• Status • Location • State	• Status • Location • State	• Status • Location • State
Dell EMC Server Voltage Probe Status		Provides overall health status of the voltage probe in Dell EMC Servers.	• Status • Location • State	• Status • Location • State	• Status • Location • State
Dell EMC Server Controller Status		Provides the worst case aggregate health status of the storage controllers in Dell EMC Servers.	• Status • FQDD • CacheSize • FirmwareVersion • Name	• Status • FQDD • CacheSize • FirmwareVersion • Name	• Status • FQDD • CacheSize • FirmwareVersion • Name
Dell EMC Server Amperage Probe Status		Provides overall health status of the amperage probe in Dell EMC Servers.	• Status • Location • State	• Status • Location • State	Not Available
Dell EMC Server SD Card Status		Provides overall health status of the SD card in Dell EMC Servers.	• Status • FQDD • Size • WriteProtected • InitializedState • State	Not Available	Not Available
Dell EMC Server FC NIC Status		Provides overall health status of the FC NIC in Dell EMC Servers.	• ConnectionStatus • FQDD • Name	Not Available	Not Available

Table 28. Dell EMC device's component health information (continued)

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
			● Firmwa reVersi on ● LinkSpe ed		

Table 29. Network Switch component health information

Service		Description	Attributes Displayed when using SNMP
Dell EMC Network Switch Fan Status	The following states are possible: ● **OK** ● **Warning** ● **Unknown** ● **Critical**	Provides the worst case aggregate Fan status of the Network Switch.	● Status ● Index ● Description
Dell EMC Network Switch FanTray Status		Provides the worst case aggregate FanTray status of the Network Switch.	● Status ● Type ● TrayIndex
Dell EMC Network Switch PowerSupply Status		Provides the worst case aggregate PowerSupply status of the Network Switch.	● Status ● Index ● Description ● Source
Dell EMC Network Switch PowerSupplyTray Status		Provides the worst case aggregate PowerSupplyTray status of the Network Switch.	● Index ● Type
Dell EMC Network Switch Processor		Provides overall health status of the processors in Dell EMC Network Switch.	● ProcessorMemSize ● ProcessorModule ● Index
Dell EMC Network Switch vFlash Status		Provides the worst case aggregate health status of the Network Switch.	● MountPoint ● Size ● Name
Dell EMC Network Switch Physical Port Status		Provides the worst case aggregate health status of the physical ports in Dell EMC Network Switch.	● Status ⓘ **NOTE:** The **Status** attribute displays the health status of the Admin Status. ● Type ● Name
Dell EMC Network Switch Warranty Information		Provides warranty information status for the Dell EMC Network Switch	● ServiceTag ● Service Level Details ● Item Number

Table 29. Network Switch component health information (continued)

Service		Description	Attributes Displayed when using SNMP
			• Device Type • Ship Date • Start Date • End Date • Days Remaining

(i) **NOTE:** For more information about monitoring the health of the Compellent controllers, see the specific Compellent Controllers User's Guide at Dell.com/support. The Dell EMC Chassis enclosure status displays the **Primary** Status of the Enclosure only. For more information, see PowerEdge VRTX Chassis console or the *PowerEdge VRTX Chassis User's Guide* at Dell.com/support.

Monitoring Health Instances

Be default the unhealthy instances are displayed for the discovered devices in the Nagios XI Console. You can change the value of **--excludeinstance** in the **check_command** script to view the required instance. You can perform the below steps to change the value of **--excludeinstance**:

1. Click on the service for which you want to change the value of **--excludeinstance**.
2. Click on **Configure** tab.
3. Choose **Re-configure** this service option.
4. You can delete or change the value of **--excludeinstance** parameter in the check script command under **Monitor the service with this command** section. For example,

```
--excludeinstance="FQDD IN (fan_0.0,fan_0.1)"!
```

Above condition excludes the instances for given values of attribute 'FQDD'

(i) **NOTE:** To exclude single instances, use "==" operator.

(i) **NOTE:** To exclude multiple instances, use "IN" operator with "()"

5. Click on **Update** and then click on **Continue**.
6. **Status Information** for the **Service** will be changed in the next check.

Monitoring alerts and event Traps

You can asynchronously receive the alerts and events (traps) generated by the discovered Dell EMC devices. Once an alert is received, the respective device's service displays the alert summary message and alert severity of the last received alert in the Nagios XI console.

The following table lists the traps supported by the various Dell EMC devices:

Table 30. Dell EMC trap information

Service	Status	Description
Dell EMC Server Traps	The following states are possible: • **OK** • **Warning** • **Critical** • **Unknown**	Provides trap Information of the Dell EMC Server raised through agent-free method.

Table 30. Dell EMC trap information (continued)

Service	Status	Description
Dell EMC Chassis Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the MX7000, M1000e, VRTX, and FX2/FX2s Chassis.
Dell EMC Storage PS-Series Member Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the EqualLogic PS-Series storage Arrays.
Dell EMC Storage PS-Series Group Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the EqualLogic PS-Series storage Arrays.
Dell EMC Storage SC-Series Management Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap information of the Compellent SC-Series storage Arrays
Dell EMC Storage SC-Series Controller Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the Compellent SC-Series storage Arrays.
Dell EMC Storage MD-Series Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the PowerVault MD-Series storage arrays.
Dell EMC Storage ME4 Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the PowerVault ME4 storage arrays.
Dell EMC Network Switch Traps	The following states are possible: ● **OK** ● **Warning** ● **Critical** ● **Unknown**	Provides trap Information of the Dell EMC Network Switch.

Viewing SNMP alerts

Prerequisites:

● SNMPTT is installed and configured and the Dell EMC integration on SNMPTT is configured.

● SNMP Trap destination is configured in the supported Dell EMC devices.

To view SNMP alerts:

1. In the Nagios XI user interface, click the **Home** tab, then select **Service Detail** in the left pane.
   The **Service Status** page is displayed.
2. Navigate to the respective Dell EMC device specific trap service.
   Only the last received SNMP alert is displayed in the status information and the severity of the alert is updated in the status.

Launching Dell device consoles

You can launch the Dell device specific console to further troubleshoot any issue that you may encounter while monitoring that device. You can do so from either the **Host Detail** or the **Service Detail** view in the Nagios XI console.

1. Navigate to the Nagios XI **Home** page.
2. Click **Host Detail** or **Service Detail** in the left pane.
3. In the right pane, under **Host**, click a host for which you wish to launch the console.
   The **Host Status Detail** page is displayed for the selected host.
4. Select Advanced option by clicking the [icon] icon.
   The **Advanced Status Details** page is displayed.
5. Under **More Options**, click the **View in Nagios Core** link.
   The **Host Information** page is displayed.
6. Click [icon] (**Extra Actions** icon) adjacent to the Dell device.
   The respective Dell console is launched in a new window.

Topics:

- Dell devices and their consoles

Dell devices and their consoles

You can launch various Dell consoles from the supported Dell devices to get more information about the Dell devices you are monitoring.

Table 31. Dell devices and their consoles

Dell Device	Applicable Console
Dell Servers	**Dell Integrated Remote Access Controller Console**
Dell PowerEdge M1000e Chassis	**Dell PowerEdge M1000e Chassis Controller Management Console**
Dell PowerEdge VRTX Chassis	**Dell PowerEdge VRTX Chassis Controller Management Console**
Dell PowerEdge FX2/FX2s Chassis	**Dell PowerEdge FX2 Chassis Controller Management Console**
Dell Compellent Storage Arrays	**Dell Compellent Storage Manager Console**
Dell EqualLogic PS-Series Storage Arrays	**Dell EqualLogic Group Manager Console**

Warranty information for Dell devices

With this feature, you can access the warranty information for the discovered Dell devices. This feature allows you to monitor the Dell device's warranty details in the Nagios XI console. An active Internet connection is required to retrieve the warranty information. If you do not have direct internet access and are using proxy settings to access the internet, ensure that you resolve the host name `api.dell.com` in the `etc/hosts` file.

Warranty information attributes

The warranty information for the respective Dell devices is displayed in the Nagios XI console. The Dell devices are polled for their warranty information at regular intervals. The default schedule for warranty polls on the discovered devices is once every 24 hours.

Once a discovered device is polled for its warranty information, the following warranty attributes are displayed in the Nagios XI console:

- **ServiceTag** – Service tag for the discovered device.
- **Service Level Details** – Description of the type of warranty.
- **Item number** – Dell item number for this type of warranty.
- **Device Type** – Type of warranty.
- **Ship Date(UTC)** – Date the asset was shipped.
- **Start Date(UTC)** – Date when the warranty begins.
- **End Date(UTC)** – Date when the warranty ends.
- **Days Remaining** – Number of days left for the warranty to expire.

The warranty information status is determined based on the warranty parameter definitions and has the following severities:
- **Normal** - Indicates that warranty is due to expire in more than <Warning> days. The default value is 30 days.
- **Warning** - Indicates that warranty is due to expire from <Warning> days before <Critical> days.

    The default values for <Warranty> and <Critical> are 30 days and 10 days respectively.

- **Critical** - Indicates that warranty is due to expire within <Critical> days. The default value is 10 days.
- **Unknown** - Indicates that warranty information cannot be retrieved.
WarrantyURL - The warranty URL address.

If the warranty for a Dell device has expired or the `Days Remaining` is equal to zero, then the severity for that device is **Critical**.
Topics:

- [Viewing warranty information](#)

Viewing warranty information

Before you can view the warranty information for the discovered Dell devices, ensure the following:
- You have an active internet connection.
- The discovered device has a valid service tag.

Once a device has been successfully discovered, its warranty information is displayed under the **Status Information** column. To view the details for a Dell device,

1. Discover a Dell device.
2. Click the **<Dell device> Warranty Information** under services.
   The details for the selected device are displayed in the **Service State Information** page.

For example:

To view the warranty service information for Dell VRTX Chassis, click **Dell Chassis Warranty Information**.

ⓘ **NOTE:** In case of Dell EqualLogic storage arrays, the warranty service will be associated only with the EqualLogic Member IP.

In case of Dell Compellent storage arrays, the warranty service will be associated only with the Compellent Controller IP.

In case of Dell PowerVault MD Storage Arrays, the warranty information is available only for the latest firmware version.

Knowledge Base (KB) information for the generated alerts

You can get more information about the SNMP alerts generated by the discovered Dell devices from the KB messages for that device in the Nagios XI console.

The following section provides steps to view KB information.
Topics:

- [Viewing KB information](#)

Viewing KB information

You can get more information about the SNMP alerts generated by the discovered Dell devices from the KB messages for that device in the Nagios XI console.

To view the KB messages for an SNMP alert generated by a discovered Dell device, perform the following steps:

1. Log in to Nagios XI.
2. In the left pane, click **Service Detail** under **Details**.
3. Navigate to the respective device trap or alert under **Service**, right-click **More Information** hyperlink under **Status Information** and then select **Open in new tab**. The KB messages for the respective device is displayed in a new tab.
4. In the KB messages page, search for the respective event ID or the KB message as displayed in the Nagios XI console to view further details about this alert.

For Example: To view the KB messages for Chassis traps:

1. Scroll down to Dell Chassis Traps under **Service**, right-click **More Information** hyperlink under **Status Information** and then select **Open in new tab**.
2. Search for the respective event ID or KB message as generated by the Dell Chassis Traps such as LIC212 to view further details about this Dell chassis alert.

If you are not able to find the KB messages for any of the generated alerts by this process, go to "*Dell.com/support/article/us/en/19*" and search for the KB messages using the event ID or KB message as generated by the Dell device.

Removing Dell devices or services

You can remove a Dell device that you do not want to monitor. Before removing a host, you must first delete all the services associated with that host.

1. Log in to Nagios XI with your credentials.
2. Navigate to **Configure**, and then click **Core Congfig manager** from the dropdown menu.
3. In the right pane, under the **Nagios XI Summary** tab, click **Services**.

   Alternatively, you can click **Services** under **Monitoring** in the left pane.

   All the services associated with the discovered hosts are displayed.
4. Select the services you want to remove by clicking the check box adjacent to that host and then select **Delete** from the **With Checked:** dropdown menu at the bottom of the right pane.

   To delete only a single service, click the ✖ icon under **Actions** menu.

   Alternatively, you can enter the host IP address in the search box and click **Search**. This will filter all the services associated only with that host. Select the services you want to remove and then delete them.
5. Click **OK** to confirm.
   The selected services are deleted.
6. Click **Apply Configuration** at the bottom of the page.
   The selected services are deleted.

Topics:

• [Removing Dell devices](#)

Removing Dell devices

Once you have removed all the services associated with a host that you want to remove from your data center, perform the following steps:

1. Log in to Nagios XI with your credentials.
2. Navigate to **Configure**, and click **Core Congfig manager**.
3. In the right pane, under the **Nagios XI Summary** tab, click **Hosts**.

   Alternatively, you can click **Hosts** under **Monitoring** in the left pane.

   The discovered hosts are displayed.
4. Select the hosts you want to remove by clicking the check box adjacent to that host and then select **Delete** from the **With Checked:** dropdown menu at the bottom of the right pane.

   To delete only a single host, click the ✖ icon under **Actions** menu.

   Alternatively, you can enter the host IP address in the search box and click **Search**. Select the host and then delete it.
5. Click **OK** to confirm.
6. Click **Apply Configuration** at the bottom of the page.
   The selected hosts are deleted.

Troubleshooting

This section lists the problems that you may encounter while using the Dell OpenManage Plug-in for Nagios XI and their workarounds.

All the services (service parameters) for the devices discovered using SNMP are not getting displayed in the Nagios XI console

1. Ensure that you have installed Net-SNMP version 6.0.1 or later.
2. Rediscover the devices.

Status Information gets truncated at 256 characters in the Service Detail view

In the Nagios XI interface, the Status Information shown for a service stops at 256 characters (anything after is truncated).

For more information to resolve this problem, see *support.nagios.com/kb/article.php?id=478* or **Common Problems Articles** in *support.nagios.com/kb*.

Unable to connect to iDRAC

If you cannot connect to iDRAC, this could be due to iDRAC7 or iDRAC8 being enabled by default with Transport Layer Security (TLS) versions 1.1 or higher as the cryptographic protocol for secure connections. For more information about resolving this problem, see *bugzilla.redhat.com/show_bug.cgi?id=1170339*.

IPv6 SNMP traps are not getting associated with the corresponding Dell Devices

This is not due to a limitation of the Dell OpenManage Plug-in but due to a bug in how the Net-SNMP libraries spool the received IPv6 traps. Due to this, SNMPTT is not able to resolve the IPv6 address to the correct DNS record and this consequently results in an incorrect IPv6 address submitted to Nagios XI.

For more information about the Net-SNMP bug, see *sourceforge.net/p/net-snmp/bugs/2704/*.

For more information about how to configure Nagios XI to receive IPv6 traps, see Nagios Knowledge Base (KB) article at *support.nagios.com/kb/article.php?id=499*.

The Nagios XI Console is not displaying the trap service for the discovered Dell devices

1. Install SNMPTT.

   If SNMPTT is not installed, then the trap service is not created for any of the discovered Dell device.

2. Perform Trap Integration by navigating to `cd <NagiosXI installed path>/html/includes/configwizards/Dell_OM_NagiosXI_monitoring_wizard/script`, and then run the command:

   `./postinstall.sh trap`

3. Provide the path where the `snmptt.ini` file is installed, and then press **ENTER**. Alternatively, you can press **Enter** to continue with the default file path, `/etc/snmp/snmptt.ini`.

4. Provide the path where trap configuration files are installed, and then press **ENTER** to continue. Alternatively, you can press **Enter** to continue with the default file path, `'/usr/local/nagios/libexec'`.

5. Once the trap integration is complete, restart the SNMPTT service, run the following command:

   `service snmptt restart`

6. Rediscover the device using the monitoring wizard and select the respective trap service in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2**.

The Dell OpenManage Plug-in specific services display the message, "Error while creating SNMP Session"

Ensure that the following conditions are met:
1. The recommended versions of Net-SNMP and Net-IP are installed. If you are using IPv6, then the Perl module Socket6 should also be installed.
2. The IP addresses or hosts provided are reachable.
3. SNMP is enabled on the IP addresses or hosts.

Dell OpenManage Plug-in specific services display the message, "WSMAN Error while communicating with host"

Ensure that the following conditions are met:
1. OpenWSMAN and its Perl binding and Net-IP are installed.
2. The IP addresses or hosts provided are reachable.

Dell OpenManage Plug-in specific services display the message, "Component Information = UNKNOWN"

ⓘ **NOTE:** This is an expected message if the component is not available in the discovered Dell device.

If the component is available and you are still receiving the message, then it could be due to a protocol timeout. Rediscover the device using the monitoring wizard, and set the protocol specific timeout values based on your monitoring requirements.

Unable to view the SNMP alerts generated by the Dell device in the Nagios XI Console

Verify that you have correctly installed SNMPTT and then perform the following steps to integrate traps:
1. Navigate to `cd <NagiosXI installed path>/html/includes/configwizards/Dell_OM_NagiosXI_monitoring_wizard/script` and run the command:

   `./postinstall.sh trap`

2. Provide the path where the `snmptt.ini` file is installed, and then press **ENTER**. Alternatively, you can press **Enter** to continue with the default file path, `/etc/snmp/snmptt.ini`.

3. Provide the path where trap configuration files are installed, and then press **ENTER** to continue. Alternatively, you can press **Enter** to continue with the default file path, `'/usr/local/nagios/libexec'`.

4. Once the trap integration is complete, restart the SNMPTT service, run the command:

   ```
   service snmptt restart
   ```

Unable to monitor certain chassis specific component attribute information in the Nagios XI Console

The following component attribute information of Dell chassis are dependant on the RACADM utility:
- **Speed(RPM)** of the **Dell Chassis Fan Status**.
- **InputCurrent(A)** of the **Dell Chassis PowerSupply Status**.
- **InputVoltage(V)** of the **Dell Chassis PowerSupply Status**.
- **OutputPower(W)** of the **Dell Chassis PowerSupply Status**.
- **Status** of the **Dell Chassis I/O Module Status**.

Install RACADM and wait till the next polling cycle to complete.

Alternatively, you can select the service and then click the **Force an immediate check** link under **Quick Actions** in the **Service Status Detail** page.

For more information about downloading and installing RACADM, go to "*en.community.dell.com/techcenter/systems-management/w/wiki/3205.racadm-command-line-interface-for-drac*"

Unable to monitor the Warranty information for the discovered Dell devices in the Nagios XI Console

- Ensure that you have an active internet connection. If you do not have direct internet access and are using proxy settings to access the internet, ensure that you resolve the host name `api.dell.com` in the `etc/hosts` file.

If you are still not able to view the warranty information, then ensure that you have Java version 1.6 or later installed in your system. If Java was installed after the Dell Plug-in was installed, then perform the following steps:

1. Install JAVA.
2. Rediscover the device using the monitoring wizard and select the Warranty information service in **Configuration Wizard: Dell OpenManage Plug-in for Nagios XI - Step 2**.

Frequently asked questions

1. **Question:** Can you provide information about licensing of Dell OpenManage Plug-in for Nagios XI?

   Answer: You can install and use this plug-in for free.

2. **Question:** What are the Dell hardware models supported by the plug-in?

   Answer: For the list of supported Dell platforms, see Support matrix on page 7.

3. **Question:** I have an earlier generation of servers (9th Generation – 11th Generation) in my data center. Can I still monitor them using the plug-in?

   Answer: No, you cannot monitor earlier generations of servers (9th Generation through 11th Generation) using this plug-in. You can only monitor Dell servers through iDRAC with LC, supported for 12th and later generations of Dell PowerEdge servers using this plug-in. There are other plug-ins available on Nagios Exchange using which you can monitor earlier generation of servers.

4. **Question:** What is the difference between in-band versus out-of-band (OOB) method of monitoring Dell servers?

   Answer: There are two ways to monitor Dell servers, one is by using in-band method through software called OpenManage Server Administrator (OMSA) installed on a server operating system and the other is out-of-band method through iDRAC with LC.

   iDRAC with LC, a hardware, is on the server motherboard and iDRAC with LC enables system administrators to monitor and manage Dell servers regardless of whether the machine is powered on, or if an operating system is installed or functional. The technology works from any location and without the use of software agents like OMSA. By contrast, in-band management, that is, OMSA must be installed on the server being managed and only works after the machine is booted and the operating system is running and functional. The OMSA software has its limitations such as it does not allow access to BIOS settings or the reinstallation of the operating system and cannot be used to fix problems that prevent the system from booting.

5. **Question:** Can I monitor Dell servers using OpenManage Server Administrator (OMSA) agent instead of iDRAC with LC using this plug-in?

   Answer: No, by using this plug-in, you cannot monitor Dell servers using OMSA agent. However, there are other plug-ins available on Nagios Exchange using which you can achieve the same. For more information, regarding the list of available Dell Plug-ins, visit URL: exchange.nagios.org/directory/Plugins/Hardware/Server-Hardware/Dell.

6. **Question:** How is this plug-in different from other plug-ins available on the Nagios Exchange site?

   Answer: The primary functionality of this plug-in is to monitor the supported Dell devices' hardware through an agent-free, out-of-band method using iDRAC with LC (Dell PowerEdge servers), Dell Chassis, and Dell Storage Arrays. With this plug-in, you can get a comprehensive hardware-level information about the discovered Dell devices (including overall and component-level health monitoring) through SNMP and WS-MAN protocols as supported by the devices. The plug-in enables you to monitor alerts or events (traps) generated from Dell devices and supports web console launch for the same to perform further troubleshooting, configuration, and management activities. Some of the capabilities provided here are not available in other plug-ins present on Nagios Exchange.

7. **Question:** What are the languages supported by the plug-in?

   Answer: The plug-in currently supports only English language.

8. **Question:** Where do I find the OpenWSMAN distribution and its Perl binding?

   Answer: If the system has default Perl version (installed as part of operating system), go to *"Build.opensuse.org/package/ show/Openwsman/openwsman"* and download the OpenWSMAN library and its Perl binding.

   If you have installed a Perl version other than the default version or the Perl binding is not available, then go to *"Github.com/ Openwsman/openwsman"* and follow the instructions to compile and use the Perl bindings.

Appendix

Configuring SNMP parameters for iDRAC using the iDRAC web console

1. Launch the iDRAC (12th and later generation of Dell PowerEdge servers) web console, and navigate to **Network** > **Services** in the console.
2. Configure the following SNMP Agent properties:
   a. Set Enabled to `True` and SNMP Protocol to `All` (SNMP v1/v2/v3).
   b. Set **SNMP Community Name** to a community string.
   c. Click **Apply** to submit the configuration.

ⓘ **NOTE:** The Plug-in communicates with iDRAC using only SNMP v1 or SNMP v2 protocol.

Configuring SNMP parameters for iDRAC using RACADM script

1. Launch the iDRAC RACADM CLI by running the following ssh command:

   ```
   ssh root@<iDRAC IP>
   ```

2. Change the command mode to **racadm** by running the following command:

   ```
   racadm
   ```

3. Set the SNMP community string by running the following command:

   ```
   racadm set idrac.SNMP.AgentCommunity <community string>
   ```

4. Enable the SNMP agent by running the following command:

   ```
   racadm set idrac.SNMP.AgentEnable 1
   ```

   (Values: 0 – Disabled, 1 – Enabled)
5. Set the SNMP protocol to **All** by running the following command:

   ```
   racadm set idrac.SNMP.SNMPProtocol 0
   ```

   (Values: 0 – All, 1 – SNMPv3)
6. Verify the configuration by running the following command:

   ```
   racadm get idrac.SNMP.Alert
   ```

Configuring SNMP trap destination address for iDRAC using iDRAC web console

1. Log in to iDRAC.
2. Select **Overview** > **Alerts**.
3. In the right pane, perform the following actions:

- In the **Alerts** section, enable **Alerts**.
- In the **Alerts Filter section**, select the required fields under **Category** and **Severity**.

   You will not receive any SNMP alerts if none of these fields are selected.

- In the **Alerts and Remote System Log Configuration** section, select the required fields thereby configuring the SNMP alerts.

4. In the right pane, click the **SNMP and Email Settings** tab and then perform the following actions:
   - In the **IP Destination List** section, populate the **Destination Address** fields as per your requirement and ensure that its respective **State** checkboxes are selected and then click **Apply**.
   - Configure the **Community String** and the **SNMP Alert Port Number** at the bottom of the **IP Destination List** section as required and then click **Apply**.
   - In the **SNMP Trap Format** section, select the required SNMP trap format and then click **Apply**.

Configuring SNMP trap destination address for iDRAC using RACADM

1. Launch the iDRAC RACADM CLI by running the following ssh command:

```
ssh root@<iDRAC IP>
```

2. Change the command mode to **racadm** by running the following command:

```
racadm
```

3. Set the iDRAC SNMP port for receiving alerts by running the following command:

```
racadm set idrac.SNMP.AlertPort <Trap Port Number>
```

4. Enable the SNMP monitoring protocol by running the following command:

```
racadm set idrac.SNMP.TrapFormat <Trap Format>
```

   (Values for <Trap Format>: 0– SNMPv1, 1–SNMPv2, 2–SNMPv3)

5. Set the SNMP trap destination by running the following command:

```
racadm set iDRAC.SNMP.Alert.DestAddr.<index> <Trap Destination IP Address>
```

   (This will override the trap destination address, if any, existing in that index)

6. Enable the index by running the following command:

```
racadm set iDRAC.SNMP.Alert.Enable.<index> 1
```

   (Only eight trap destinations can be configured in iDRAC. You can only pass a trap destination <index> value from 1 to 8.)

7. Run the following command to enable global email alerting:

```
racadm set iDRAC.IPMILan.AlertEnable 1
```

8. Run the following command to clear all available alert settings:

```
racadm eventfilters set –c idrac.alert.all –a none –n SNMP
```

You can also use the Perl based command line script to configure the SNMP parameters for multiple iDRACs (Dell 12th and later generation of PowerEdge Servers). For more information, go to *en.community.dell.com/techcenter/systems-management/w/ wiki/11460.snmp-parameters-configuration-script-for-dell-idracs.*

For more information about RACADM commands, see the *iDRAC RACADM Command Line Interface Reference Guide* available at *dell.com/iDRACManuals.*

15

Related documentation and resources

This chapter gives you the details of other documents and resources to help you work with the Dell OpenManage Plug-in for Nagios XI.

Topics:

- Other documents you may need
- Accessing support content from the Dell EMC support site
- Contacting Dell

Other documents you may need

In addition to this guide, you can access the following guides available on the Dell Support website at **Dell.com/support/ manuals**. On the Manuals page, click **Software & Security** and click the appropriate product link to access the documents:

- *Integrated Dell Remote Access Controller 8 with Lifecycle Controller User's Guide*
- *Dell Integrated Remote Access Controller 7 User's Guide*
- *Dell Chassis Management Controller for Dell PowerEdge M1000e User's Guide*
- *Dell Chassis Management Controller for Dell PowerEdge VRTX User's Guide*
- *Dell Chassis Management Controller for Dell PowerEdge FX2/FX2s User's Guide*
- *Dell Compellent Storage Arrays User's Guide*
- *Dell EqualLogic PS-Series Storage Arrays User's Guide*
- *Dell PowerVault MD Storage Arrays User's Guide*

Also see **www.nagios.org/documentation** for any Nagios XI related documentation.

Accessing support content from the Dell EMC support site

Access supporting content related to an array of systems management tools using direct links, going to the Dell EMC support site, or using a search engine.

- Direct links:
  - For Dell EMC Enterprise Systems Management and Dell EMC Remote Enterprise Systems Management—https:// www.dell.com/esmmanuals
  - For Dell EMC Virtualization Solutions—https://www.dell.com/SoftwareManuals
  - For Dell EMC OpenManage—https://www.dell.com/openmanagemanuals
  - For iDRAC—https://www.dell.com/idracmanuals
  - For Dell EMC OpenManage Connections Enterprise Systems Management—https://www.dell.com/ OMConnectionsEnterpriseSystemsManagement
  - For Dell EMC Serviceability Tools—https://www.dell.com/serviceabilitytools
- Dell EMC support site:
  1. Go to https://www.dell.com/support.
  2. Click **Browse all products**.
  3. From the **All products** page, click **Software**, and then click the required link.
  4. Click the required product and then click the required version.

Using search engines, type the name and version of the document in the search box.

Contacting Dell

ⓘ **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **Dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.