Dell EMC OpenManage Plug-in Version 3.1 For Nagios XI

User's Guide

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

Introduction

This guide provides information about using the Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI and its various features such as discovering, monitoring, launching consoles, and troubleshooting of the supported Dell EMC devices. The guide also provides details of the supported Dell EMC devices and frequently asked questions by the customer.

The plug-in provides capabilities to monitor Dell EMC devices and also giving you a complete hardware-level visibility of Dell EMC devices including overall and component-level health monitoring. Provides basic inventory information and event monitoring of Dell EMC devices and supporting one-to-one web console launch of the supported Dell EMC devices for further troubleshooting, configuration, and management activities.

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

What is new

Table 1. New features and functionality of Dell EMC OpenManage Plug-in version 31

New Feature	Description
Support for new Dell EMC devices	With this version, you can discover and monitor the following new Dell EMC devices: • Dell EMC PowerEdge MX7000 Modular Chassis • PowerVault ME4 Storage Arrays • Support for iDRAC9 based PowerEdge servers • OEM Servers • Dell EMC Network Switches For more details on device support, see Support matrix in the "*Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI Users Guide*."
Security Enhancement	Enhanced security with AES 256-bit based password encryption in host definition files
OMSDK installation without pip	For those users who do not have permission to install OMSDK with pip. You can install Dell EMC OpenManage Python SDK (OMSDK) without pip. For more details on installation steps, see installation guide at *Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI Installation Guide.*
Component service	• Helps user to see the list of services that are added or to be added to host or host group • Allows users to add and remove services for host or host group
Monitor basic system information including component level.	This version provides basic system information including component level details of the following Dell EMC devices: • iDRAC 9 based PowerEdge servers. • PowerEdge MX7000 chassis • Dell EMC Ready Node VxFlex models • PowerVault ME4 series Storage Arrays
Latest Firmware Version	This version supports the latest firmware versions for the following Dell EMC devices • iDRAC 9 based PowerEdge Servers. • OEM servers • Dell EMC Network Switches • 12th and 13th Generation PowerEdge Servers • Datacenter Scalable Solutions (DSS) • PowerEdge FX2/FX2s chassis • PowerEdge VRTX chassis • PowerEdge M1000e chassis • EqualLogic PS Series Storage Arrays • PowerVault MD 34/38 Series Storage Arrays • Dell Compellent Storage Arrays
Upgrade	User can upgrade to the latest version of Nagios.
View and monitor SNMP alerts.	View and monitor SNMP alerts from all the supported devices.
Trap based health monitoring.	Trap based health monitoring of all the supported devices.
Launch Dell EMC device-specific consoles.	Supports the launch of the following Dell EMC one-to-one consoles to perform further troubleshooting, configuration, or management activities for the supported Dell EMC devices: • iDRAC Console for OEM servers

New Feature	Description
	• HCI Console Launch for HCI devices • Dell EMC Network Switches • Dell EMC OpenManage Enterprise Modular console for MX7000 • PowerVault Manager console for ME4 devices
View warranty information	This feature allows you to view the warranty information for OEM servers, Dell EMC Network Switches, Dell EMC MX7000 Modular Chassis and ME4 Storage Arrays.
View Knowledge Base (KB) messages.	You can get more information about the SNMP alerts through the KB articles associated with those alerts. You can view the KB messages for OEM servers, HCI Platforms, MX7000 modular chassis and PowerVault ME4 devices.

Key features

The key features of the Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI are as described in the following table.

Table 2. key features of the Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI

Feature	Functionality
Device discovery	Discovers the supported Dell EMC devices in the Nagios XI console
	Once the discovery is complete, host and service definitions are created for each device.
	• Discover of Dell EMC PowerEdge MX7000 modular chassis and Dell EMC Storage ME4 using Redfish protocol. • Discover iDRAC devices either using SNMP or WSMan protocol or Redfish . • Dell EMC storage and Dell EMC Network Switch discovery is supported using SNMP protocol. • Dell EMC chassis discovery is supported using WSMan protocol.
Security Enhancement	Enhanced security with AES 256-bit based password encryption in host definition files
Device information	Provides 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. You can view this information in the **Hosts** or **Services** view in the Nagios XI console.
	Users can list the services, add, or remove service for host or host group.
	For more information about the device information, see *Device Information*.
Monitor overall health of Dell EMC devices.	Monitors the overall health of Dell EMC devices in a scheduled or periodic manner
Component level health of Dell EMC devices	Monitors the health of device components (Physical Disks, Power Supply, Temperature Probe, Voltage Probe, and so on) and displays information about the Dell EMC device component status at scheduled time intervals.
Monitor SNMP alerts.	Monitors SNMP alerts for Dell EMC devices and displays only the last received SNMP alert.
	To view all received SNMP alerts, browse **Reports** > **Alerts** > **History** in the Nagios XI console.
	You can view KB information for the generated alerts corresponding to SNMP alerts for faster troubleshooting of the respective alerts.
	For more information, see **Knowledge Base (KB) messages for the generated alerts** in the *Dell EMC OpenManage Plug-in Version 3.1 for Nagios XI User'sGuide*. ⓘ **NOTE: KB information is not available for Dell Compellent Storage Arrays, PowerVault MD Storage Arrays, and Dell EMC Networking.**
Launching device-specific consoles	Launches the Dell EMC one-to-one consoles to further troubleshoot and manage. For more information, see *Launching Dell EMC Device Specific Consoles*.
Warranty information	Monitors and displays the warranty information for the supported Dell EMC devices in a periodic manner and displays the status in the Nagios XI console. For more information, see *Warranty information for Dell EMC devices*.

Support matrix

Dell EMC OpenManage Plug-in version 3.1 for Nagios XI supports the Dell EMC devices as listed in the following tables.

Table 3. Support for operating system

Operating System
RHEL 7.7
Ubuntu 18.04.3
Ubuntu 16.04.3

Table 4. Support for Nagios XI

Nagios XI
5.6.6 to 5.6.13

Datacenter Scalable Solutions

Table 5. Supported Datacenter Scalable Solutions.

Datacenter Scalable Solutions (DSS)
DSS 1500
DSS 1510
DSS 2500
DSS 7000
DSS 9620
DSS 7500
DSS 9000R
DSS 9630
DSS 8440
DSS 9600

Hyper-converged Infrastructure (HCI) Platforms

Table 6. Supported HCI Platforms

VxRail Devices	VxFlex	Nutanix XC Devices
VxRail E460	VxFlex Ready Node 840	XC6320-6
VxRail E460F	VxFlex Ready Node 640C	XC430-4 Xpress
VxRail P470	VxFlex Ready Node 740xd	XC430-4
VxRail P470F		XC630-10
VxRail V470		XC730xd-24
VxRail V470F		XC640-10

VxRail Devices	VxFlex	Nutanix XC Devices
VxRail S470		XC740-12
VxRail E560		XC740-12C
VxRail E560F		XC740-12R
VxRail G560		XC740-24
VxRail G560F		XC640-4
VxRail P570		XC6420-6
VxRail P570F		XC-940-24
VxRail P570		XC640-4 Xpress
VxRail S570		XC730-16G
		XC730xd-12
		XC730xd-12C
		XC730xd-12R
		XC6320-6AF
		XC430-8
		XC630-10AF
		XC630-10P
		XC730xd-12R Xpress
		XC730xd-12S
		XC730xd-24
		XC730xd-24S

PowerEdge Servers

Table 7. Supported PowerEdge Servers.

12th generation of PowerEdge servers	13th generation of PowerEdge servers	iDRAC 9 based PowerEdge servers
FM120x4	C4130	R640
M420	FC430	R740
M520	FC630	R740xd
M620	FC830	R940
M820	M630	C6420
R220	M830	M640
R320	R230	FC640
R420	R330	R440
R520	R430	R540
R620	R530	T440
R720xd	R530xd	T640
R820	R630	R6415
R920	R730	R7415
T320	R730xd	R7425
T420	R830	R240

12th generation of PowerEdge servers	13th generation of PowerEdge servers	iDRAC 9 based PowerEdge servers
T620	R930	R340
R720	T130	R740xd2
C6320p	T330	R840
C6320	T430	R940XA
R420xr	T630	T140
	C5230	T340
		FC640
		MX740C
		MX840C
		R6515
		R6525
		C6525
		XR2
		C4140
		R7515
		R7525

PowerEdge Chassis

Table 8. Supported PowerEdge chassis.

PowerEdge Chassis
PowerEdge FX2
PowerEdge FX2s
PowerEdge VRTX
PowerEdge M1000e
PowerEdge MX7000

Compellent SC-Series Storage Arrays

Table 9. Supported Compellent Storage Arrays.

Compellent Storage Series
Compellent Series 40
Compellent SC4020
Compellent SC5020
Compellent SC7020
Compellent SC8000
Compellent SC9000

EqualLogic PS-Series Storage Arrays

Table 10. Supported EqualLogic PS-Series Storage Arrays.

EqualLogic PS-Series	
EqualLogic PS4000	EqualLogic PS6000
EqualLogic PS4110	EqualLogic PS6010
EqualLogic PS4210	EqualLogic PS6610
EqualLogic PS4100	EqualLogic PS6100
	EqualLogic PS6210
	EqualLogic PS6110
	EqualLogic PS6500
	EqualLogic PS6510

PowerVault MD-Series Storage Arrays

Table 11. Supported PowerVault MD-Series Storage Arrays.

PowerVault MD-Series
PowerVault MD3400
PowerVault MD3420
PowerVault MD3460
PowerVault MD3800f
PowerVault MD3800i
PowerVault MD3820f
PowerVault MD3820i
PowerVault MD3860f
PowerVault MD3860i

PowerVault ME4 Storage Arrays

Table 12. Supported PowerVault ME4 Storage Arrays.

PowerVault ME4 Storage Arrays
PowerVault ME4012
PowerVault ME4024
PowerVault ME4084

(i) **NOTE: Fan module location displayed in ME4084 is different from internal Fan location.**

Dell EMC Network Switches

Table 13. Supported Network Switches

S Series	Z Series	C Series	FN Series	M Series	N Series
S3124	Z9100-ON	C9010	PowerEdge FN2210S	PowerEdge M I/O Aggregator	N1124T
S3124P	Z9264F	C1048P	PowerEdge FN410S	Power Edge MXL 10/40GbE	N1124P

S Series	Z Series	C Series	FN Series	M Series	N Series
S3124F	Z9332F	C9000	PowerEdge FN410T	MX5108n	N1148T
S3148				MX9116n	N1148P
S3148P					
S3148F					N1108T
S3048					N1524
S4048					N1524P
S4048-ON					N1548
S6010-ON					N1548P
S5048F					N2024
S3100					N2024P
S3048					N2048
S4048T-ON					N2048P
S5048F-ON					
S4112F					
S4112T					
S4128F					
S4128T					
S4148F					
S4148T					
S4148U					
S4148FE					
S4248FB					
S4248FBL					
S5296F					
S5248F					
S5224F					
S5212F					
S5232F					

(i) **NOTE:** MX5108n and MX9116n switches supports firmware version 10.5.0.5

For information on supported firmware versions for network switches, see Nagios installation guide

Dell EMC Configuration Wizard

You can discover Dell EMC devices using the Dell EMC 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 EMC 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 EMC 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 WSMan protocol or Redfish REST APIs. The monitoring protocols for the supported devices are as follows:

- Dell EMC Servers can be discovered using SNMP or WSMan protocol or Redfish. Redfish is the default protocol.
- Dell EMC Chassis can be discovered using WSMan protocol.

  Ensure that you only monitor Dell EMC Chassis using local user credentials.
- Dell EMC Storage and Dell EMC Network Switches can be discovered using SNMP protocol.
- MX7000 chassis and ME4 are discovered using REST protocol.

You can discover devices using any of the following:

- Auto-Discovery Jobs – Select an auto discovery job.
- Subnet – Subnet with mask.
- File – File Containing a list of device IP addresses or FQDNs.

Topics:

- Dell EMC Configuration Wizard discovery parameters
- Dell EMC devices and associated services

Dell EMC 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 14. 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.

Protocol Settings

The supported Dell EMC devices can be discovered through either SNMP or WSMan protocol or Redfish REST APIs . Based on the desired protocol, you must configure the communication parameters. By default, WSMan 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 EMC Chassis or Storage arrays or Network Switches. By default, Chassis is discovered using WSMan protocol and Storage arrays and Network Switches are discovered using SNMP.

Table 15. 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 16. WSMan parameters

WSMan Parameters		
Parameter Name	**Default Value**	**Description**
Username	root	Use to provide the WSMan user name. (i) **NOTE: For monitoring purpose, it is recommended to have read-only permission for the users.**
Password	Masked	Use to provide the WSMan password.
Timeout	3	Use to provide WSMan timeout value in seconds. Valid range is 1 to 1440.
Retries	1	Use to provide the number of times a WSMan request must be sent when a timeout occurs. Valid range is 1 to 10.
Port	443	Use to provide the WSMan port value. Valid range is 1 to 65535.

Table 17. Redfish parameters

Redfish Parameters		
Parameter Name	**Default Value**	**Description**
Username	root	Use to provide the Redfish user name. (i) **NOTE: For monitoring purpose, it is recommended to have read-only permission for the users.**
Password	NA. Masked	Use to provide the Redfish password.
Timeout	3	Use to provide Redfish timeout value in seconds. Valid range is 1 to 1440.
Retries	1	Use to provide the number of times a Redfish request must be sent when a timeout occurs. Valid range is 1 to 10.

Redfish Parameters		
Port	443	Use to provide the WSMan port value. Valid range is 1 to 65535.

Configuration Parameters

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

Table 18. Configuration parameters

Configuration Parameters		
Parameter Name	**Default Value**	**Description**
Warranty Critical Days	10	Number of days left before warranty expires.
Warranty Warning Days	30	Number of days left before warranty expires.
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 EMC 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 EMC devices and associated services

Based on the Dell EMC configuration wizard discovery parameters such as **Discovery Target**, **Communication Parameters**, and **Configuration Parameters** you have provided, a list of **Dell EMC 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 EMC warranty information.
- (Optional) SNMP Trap Translator (SNMPTT) is installed to receive SNMP alerts. Dell EMC recommends that you use the latest version.

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 EMC devices.

Table 19. Services created for Dell EMC servers based on the selected protocol

Services	SNMP	WSMan	Redfish
Basic Services			
Dell EMC Server Overall Health Status	√	√	√
Dell EMC Server Information	√	√	√
Dell EMC Server Traps	√	√	√
Detailed Services			
Dell EMC Memory Status	√	√	√
Dell EMC Server Physical Disk Status	√	√	√
Dell EMC Server Disk Group Status	√	√	√
Dell EMC Server Fan Status	√	√	√
Dell EMC Server Battery Status	√	√	X
Dell EMC Server Intrusion Status	√	√	X
Dell EMC Server Network Device Status	√	√	√
Dell EMC Server Voltage Probe Status	√	√	√
Dell EMC Server Controller Status	√	√	√
Dell EMC Server Amperage Probe Status	√	√	X
Dell EMC Server CPU Status	√	√	√
Dell EMC Server Power Supply Status	√	√	√
Dell Server Temperature Probe Status	√	√	√
Dell EMC Server SD Card Status	X	X	√
Dell EMC Server FC NIC Status	X	X	√
Dell EMC Server Warranty Information	√	√	√
Dell EMC Server GPU Status	X	X	√

Table 20. Services created for all Dell EMC Chassis based on WSMan protocol

Services
Basic Services
Dell EMC Chassis Overall Health Status
Dell EMC Chassis Information
Dell EMC Chassis Traps
Detailed Services
Dell EMC Chassis Fan Status
Dell EMC Chassis Slot Information
Dell EMC Chassis I/O Module Status
Dell EMC Chassis Power Supply Status
Dell EMC Chassis KVM Status
Dell EMC Chassis Enclosure Status (This service is applicable to PowerEdge VRTX Chassis only)
Dell EMC Chassis Controller Status (This service is applicable to PowerEdge VRTX Chassis only)

Services

Dell EMC Chassis Physical Disk Status (This service is applicable to PowerEdge VRTX Chassis only)
Dell EMC Chassis Virtual Disk Status (This service is applicable to PowerEdge VRTX Chassis only)
Dell EMC Chassis PCIe Devices Status (This service is applicable to PowerEdge VRTX Chassis and PowerEdge FX/FX2s Chassis only)
Dell EMC Chassis Warranty Information

ⓘ **NOTE: The detailed services listed for all DELL EMC chassis, it is also applicable for ME4 but with REST protocol**

Table 21. Services created for Dell EMC Network Switches based on SNMP protocol

Services
Basic Services
Dell EMC Network Switch Information
Dell EMC Network Switch Overall Health Status
Dell EMC Network Switch Traps
Detailed Services
Dell EMC Network Switch PowerSupply Status (Not applicable for firmware version 10)
Dell EMC Network Switch PowerSupplyTray Status
Dell EMC Network Switch Fan Status
Dell EMC Network Switch FanTray Status
Dell EMC Network Switch Processor Status (Not applicable for firmware version 10)
Dell EMC Network Switch vFlash Status (Not applicable for firmware version 10)
Dell EMC Network Switch Physical Port Status
Dell EMC Network Switch Warranty Status

ⓘ **NOTE: For M-Series and FN-Series Dell EMC Network Switch, Dell EMC Network Switch PowerSupply Status, Dell EMC Network Switch PowerSupplyTray Status, Dell EMC Switch Network FanTray Status, Dell EMC Network Switch Fan Status services are not applicable.**

ⓘ **NOTE: vFlash service is not applicable for N-Series Dell EMC Network Switch.**

Table 22. Services created for Compellent SC-Series Storage Arrays based on SNMP protocol

Services
Basic Services
Dell EMC Storage SC-Series Overall Health Status
Dell EMC Storage SC-Series Information
Dell EMC Storage SC-Series Management Traps
Dell EMC Storage SC-Series Controller Traps
Dell EMC Storage SC-Series Controller Overall Health Status
Dell EMC Storage SC-Series Controller Information
Detailed Services
Dell EMC Storage SC-Series Physical Disk Status
Dell EMC Storage SC-Series Volume Status
Dell EMC Storage SC-Series Controller Warranty Information

Table 23. Services created for EqualLogic PS-Series Storage Arrays based on SNMP protocol

Services
Basic Services
Dell EMC Storage PS-Series Member Overall Health Status
Dell EMC Storage PS-Series Member Information
Dell EMC Storage PS-Series Group Information
Dell EMC Storage PS-Series Member Traps
Dell EMC Storage PS-Series Member Group Traps
Detailed Services
Dell EMC Storage PS-Series Member Physical Disk Status
Dell EMC Storage PS-Series Group Volume Status
Dell EMC Storage PS-Series Group Storage Pool Status
Dell EMC Storage PS-Series Group Storage Pool Information
Dell EMC Storage PS-Series Member Warranty Information

Table 24. Services created for PowerVault MD-Series Storage Arrays based on SNMP protocol

Services
Basic Services
Dell EMC Storage MD-Series MD Overall Health Status
Dell EMC Storage MD-Series MD Information
Dell EMC Storage MD-Series MD Traps
Detailed Services
Dell EMC Storage MD-Series MD Warranty Information

Table 25. Default services created for PowerVault ME4-Series Storage Arrays based on REST protocol

Services
Basic Services
Dell EMC Storage ME4-Series ME4 Overall Health Status
Dell EMC Storage ME4-Series ME4 Information
Dell EMC Storage ME4-Series ME4 Traps
Detailed Services
Dell EMC Storage ME4-Series Warranty Information
Dell EMC Storage ME4-Series Controller Status
Dell EMC Storage ME4-Series Fans Status
Dell EMC Storage ME4-Series I/O Module Status
Dell EMC Storage ME4-Series NIC Status
Dell EMC Storage ME4-Series Physical Disk Status
Dell EMC Storage ME4-Series Disk Group Status
Dell EMC Storage ME4-Series Power Supply Status
Dell EMC Storage ME4-Series Storage Pool Status
Dell EMC Storage ME4-Series Storage Enclosure Status
Dell EMC Storage ME4-Series Volume Status

Selecting the services to monitor for a Dell EMC device

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

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

For example:

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

Device discovery using the Dell EMC configuration wizard

The following sections describe the process of discovering Dell EMC devices and their associated services using the Dell EMC 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 EMC OpenManage Plug-in for Nagios XI Installation Guide*.

Topics:

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

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

You can configure the various parameters for discovery of devices using the Dell EMC 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 EMC 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 EMC plug-in, under the **Configure** tab, select **Configuration Wizards** and then click **Dell EMC OpenManage Plug-in for Nagios XI**.
   The **Configuration Wizard: Dell EMC 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**.
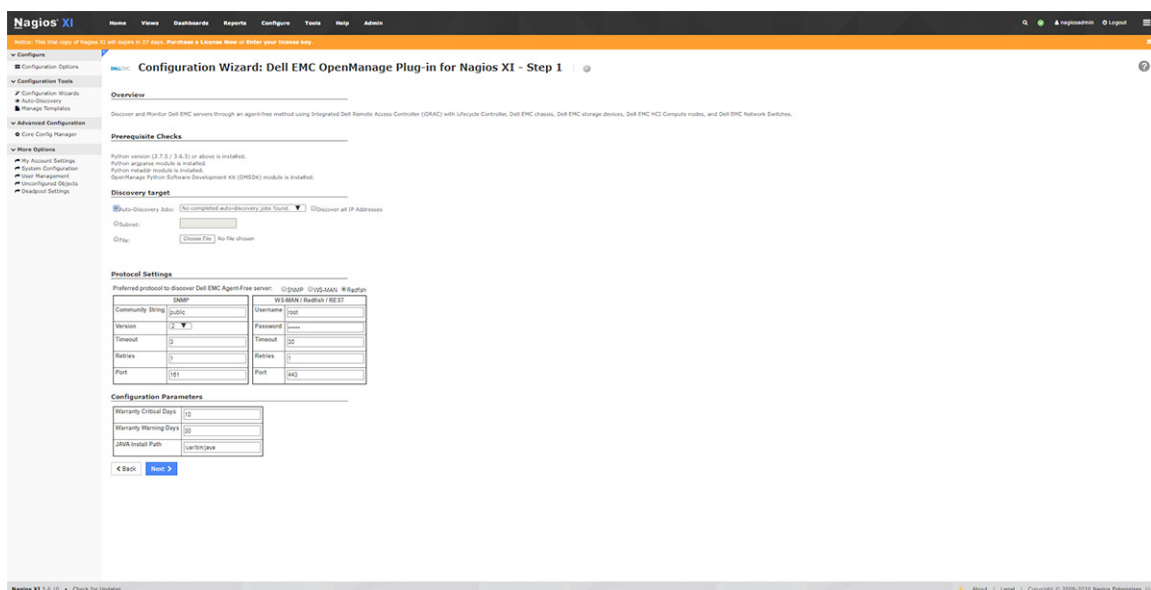
Once the given values are accepted without errors, the **Configuration Wizard: Dell EMC OpenManage Plug-in for Nagios XI - Step 2** page is displayed.

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

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

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

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

1. Under **Dell EMC Device Selection**, click the ▶ icon or the **Dell EMC 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 EMC 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 EMC 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 EMC OpenManage Plug-in for Nagios XI - Step 1**, in the previous page, you can do so by clicking the **Back** button.

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

You can view the Dell EMC devices and their associated services based on the selections you have made in **Configuration Wizard: Dell EMC 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 EMC 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 EMC 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 EMC OpenManage Plug-in for Nagios XI - Step 2**, you can do so by clicking the **Back** button.

The Dell EMC device host and its service definitions are created in the Nagios server and this is subsequently used for monitoring the Dell EMC devices. The discovered Dell EMC 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 EMC devices

You can view the discovered Dell EMC 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 EMC devices

Once you have discovered the Dell EMC devices, you can monitor these devices and their associated services such as device information, overall health, and other components. The various aspects of Dell EMC 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 26. 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: - **OK**	This service provides the basic device inventory information for Compellent Management IP	- Overall Storage Center Firmware Version - Compellent URL - Storage Name - Primary Controller Name - Primary Controller Model - Primary Controller IP Address - Primary Controller Service Tag - Secondary Controller Name - Secondary Controller Model

Service	Status	Description	Attributes Displayed
			• 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 information for PowerVault MD Storage Arrays.	• Overall Storage Array • Service Tag • 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 27. 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 uses REST protocol**		Provides global health status of Dell EMC Chassis.	Overall Chassis	Not Available	Over all chassis
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	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 28. 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	• Status • FQDD • State	• Status • FQDD • State	• Status • FQDD • State

Service	Status	Description	Attributes Displayed when using WSMan	Attributes Displayed when using SNMP	Attributes displayed when using Redfish
		the fans in Dell EMC servers.			
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.**
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	• Status • FQDD	• Status • FQDD	• Status • FQDD

Service	Status	Description	Attributes Displayed when using WSMan	Attributes Displayed when using SNMP	Attributes displayed when using Redfish
		aggregate health status of the storage controllers in Dell EMC servers.	· CacheSize · FirmwareVersion · Name	· CacheSize · FirmwareVersion · Name	· 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	· Status · FQDD · Size · WriteProtected · 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 29. 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

Service	Status	Description	Attributes Displayed
			- Capacity - FreeSpace - MediaType - SecurityState
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
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		Provides the worst case aggregate health status of the IO module in Dell EMC Chassis.	- Status - FQDD

Service	Status	Description	Attributes Displayed
PowerEdge MX7000 modular chassis.			· 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.	
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 30. 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**	Provides the worst case aggregate health status of the physical disks in the EqualLogic member.	· Status · Slot · Model · SerialNumber

Service	Status	Description	Attributes Displayed when using WSMan
	· **Unknown** · **Critical**		· 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 31. 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** · **Critical**	Provides the worst case aggregate health status of the physical disks in Compellent storage arrays.	· Status · Name · TotalSize · BusType · 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 32. 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)

Service	Status	Description	Attributes Displayed when using WSMan
			· End Date(UTC) · Days Remaining

Table 33. 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
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

Service	Status	Description	Attributes Displayed
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 34. 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 · 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 · ProductID · SerialNumber · Size	· Status · FQDD · ProductID · SerialNumber · Size · Media Type	Not Available

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
			• Media Type • Revision • State	• 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	Not Available
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

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
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 ⓘ **NOTE: Redundancy and 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

Service	Status	Description	Attributes displayed when using WSMan	Attributes displayed when using SNMP	Attributes displayed when using Redfish
			· FirmwareVersion · LinkSpeed		

Table 35. 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 · 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 36. 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.
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**	Provides trap Information of the EqualLogic PS-Series storage Arrays.

Service	Status	Description
	· **Critical**	
	· **Unknown**	
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 EMC device consoles

You can launch the Dell EMC 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 EMC device.
   The respective Dell EMC console is launched in a new window.

Topics:

- Dell EMC devices and their consoles

Dell EMC devices and their consoles

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

Table 37. Dell EMC devices and their consoles

Dell Device	Applicable Console
Dell EMC Servers, DSS, and HCI Platforms	**Integrated Dell Remote Access Controller Console**
PowerEdge M1000e Chassis	**Chassis Management Controller Console**
PowerEdge MX7000	**OpenManage Enterprise Modular Console**
PowerVault ME4 Storage Arrays	**ME Storage Manager Console**
PowerEdge VRTX Chassis	**Chassis Management Controller Console**
PowerEdge FX2/FX2s Chassis	**Chassis Management Controller Console**
Dell Compellent SC-Series Storage Arrays	**Enterprise Manager Client for managing Compellent devices**
EqualLogic PS-Series Storage Arrays	**EqualLogic Group Manager Console**
Dell EMC Network Switch	**Dell EMC Network Switch Console**

ⓘ NOTE: **Dell EMC Network Switch Console launch is not applicable for S, Z, and C Series Switches.**

ⓘ NOTE: **If the HCI devices are added to the cluster, by default VMM console launches. Else iDRAC console is launched.**

Warranty information for Dell EMC devices

With this feature, you can access the warranty information for the discovered Dell EMC devices. This feature allows you to monitor the Dell EMC device's warranty details in the 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 EMC devices is displayed in the console. The Dell EMC 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 will be displayed in the Nagios Core 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 severity will be determined based on the warranty parameter definitions and has the following severities:

- **Normal** - If the warranty is due to expire in more than <Warning> days. The default value is always greater than 30 days.
- **Warning** - If the warranty is due to expire within <Critical> to <Warning>days. The default value is 30 days.
- **Critical** - If the warranty is due to expire within <Critical> days. The default value is 10 days.
- **Unknown** - If the warranty information cannot be retrieved.

Configuring the Dell EMC warranty information parameters

You can configure the warranty related parameters manually. By default, for all the discovered Dell EMC devices, the value of Warranty Critical Days will be 10 and Warranty Warning Days will be 30.

If you wish to change the values of Warranty Critical Days and Warranty Warning Days, navigate to **<NAGIOS_HOME>/dell/config/objects** and open the Host Configuration File of the discovered Dell EMC device. You can now change the values of `--warranty.critical` and `--warranty.warning` parameters under the **Warranty Services**.

> (i) **NOTE: The warranty status will be determined based on the Configured warranty, critical thresholds and maximum value of the days remaining.**
>
> **The value of the warranty status will be shown as Critical, when the device warranty has expired.**

Topics:

- [Viewing warranty information](#)

Viewing warranty information

Before you can view the warranty information for the discovered Dell EMC 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 EMC device,

1. Discover a Dell EMC device.
2. Click on the **<Dell EMC 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 VRTX Chassis, click on **Dell EMC Chassis Warranty Information**.

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

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

Viewing KB information

You can get more information about the SNMP alerts generated by the discovered Dell EMC 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 EMC 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 EMC 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 EMC Chassis Traps such as `LIC212` to view further details about this Dell EMC Chassis alert.

(i) **NOTE: If you are unable to find the KB messages for any of the generated alerts by the process described above, go to dell.com/support and search for the KB messages using the event ID or KB message as generated by the Dell EMC device.**

If you cannot find KB messages for Server(iDRAC)/CMC and NGM

1. **Go to *qrl.dell.com* .**
2. **Go to Look up > Error code.**
3. **Enter the error code and click Look it up.**

See ME4 User Guide section Event and event messages for information about event messages.

(i) **NOTE: KB information is not available for Dell EMC SC-Series Storage Arrays, Dell EMC MD-Series Storage Arrays and Dell EMC Network Switches.**

Removing Dell EMC devices or services

You can remove a Dell EMC 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 EMC devices

Removing Dell EMC 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 EMC OpenManage Plug-in for Nagios XI and their workarounds.

Nagios console displays "Error:<protocol>: No response from Host: IP/hostname" on modifying passphrase

Resolution: If passphrase is changed, users needs to rediscover the devices.

Nagios Discovery shows "Error: Empty or invalid passphrase is configured"

Resolution: Configure the passphrase as defined in the post installation requirements as it cannot be empty passphrase text and should be minimum of 10 characters and maximum of 25 characters.

ⓘ **NOTE: Having empty passphrase text would affect the device check (monitoring) as well**

Nagios Discovery shows "Error: Macro $OMINAGIOSRESPATH$ has invalid path or file not found"

Resolution: resource.cfg in the location <NAGIOS_HOME> etc has a macro $OMINAGIOSRESPATH$ that has invalid path. Update the macro with correct path to file having the passphrase.

Nagios Discovery shows "Error: Path not configured for the macro $OMINAGIOSRESPATH$ in resource.cfg file "

Resolution: resource.cfg in the location <NAGIOS_HOME>etc has a macro $OMINAGIOSRESPATH$ but value is not provided, update the macro with the filepath having passphrase for encryption and decryption

"Status" and "Status Information" are shown incorrectly for all the services when devices are discovered with WSMan or RedFish protocol

Status: WARNING

Status Information: (No output on stdout) stderr: /bin/sh: -c: line 0: unexpected EOF while looking for matching `" /bin/sh: -c: line 1: syntax error: unexpected end of file

Resolution: Upgrade "pycparser" package to 2.20 or above and then 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 or iDRAC9 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*.

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

1. Install SNMPTT.

   If SNMPTT is not installed, then the trap service is not created for any of the discovered Dell EMC device.
2. Perform Trap Integration by navigating to `cd <NagiosXI installed path>/html/includes/configwizards/ Dell_EMC_OM_NagiosXI_monitoring_wizard/plugins`, 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 EMC OpenManage Plug-in for Nagios XI - Step 2**.

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

Ensure that the following conditions are met:

1. The IP addresses or hosts provided are reachable.
2. SNMP is enabled on the IP addresses or hosts.

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

Ensure that the following conditions are met:

1. The IP addresses or hosts provided are reachable.
2. WSMan parameters are proper for the IP address or hosts.

Dell EMC 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 EMC 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 EMC 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_EMC_OM_NagiosXI_monitoring_wizard/plugins` 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, `'/<NAGIOS_HOME>/libexec'`.
4. Once the trap integration is complete, restart the SNMPTT service, run the command:

   `service snmptt restart`

Unable to monitor the Warranty information for the discovered Dell EMC 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 EMC 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 EMC OpenManage Plug-in for Nagios XI - Step 2**.

Frequently asked questions

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

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

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

   Answer: For the list of supported Dell EMC platforms, see Support matrix.

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 EMC servers through iDRAC with LC, supported for 12th and later generations of 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 EMC servers?

   Answer: There are two ways to monitor Dell EMC 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 EMC 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 EMC 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 EMC 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 EMC 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 EMC devices' hardware through an agent-free, out-of-band method using iDRAC with LC (PowerEdge servers), Dell EMC Chassis, and Dell EMC Storage Arrays. With this plug-in, you can get a comprehensive hardware-level information about the discovered Dell EMC devices (including overall and component-level health monitoring) through SNMP and WSMan protocols as supported by the devices. The plug-in enables you to monitor alerts or events (traps) generated from Dell EMC 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.

Appendix

Configuring SNMP parameters for iDRAC using the iDRAC web console

1. Launch the iDRAC (12th and later generation of 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 trap destination address for iDRAC using iDRAC web console

For 12th and 13th Generation of PowerEdge servers.

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 on 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**.

For 14th Generation of PowerEdge servers.

1. Log in to iDRAC.
2. Select **Configuration** > **System Settings**.
3. You can perform the following actions:

   - In the **Alert Configuration** section, enable **Alerts** .
   - In the **Alerts and Remote System Log Configuration** section, select the required fields thereby configuring the SNMP alerts.
4. Click on the**SMTP(E-mai) Configuration** tab and then perform the following actions:

   - In the **Destination Email Address** 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** under the **SNMP Traps Configuration** section as required and then click **Apply**.
   - In the **SNMP Traps Configuration** section, select the required SNMP trap format and then click **Apply**.

Related documentation and resources

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

Topics:

- Other documents you may need
- Accessing documents 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*
- *Integrated Dell Remote Access Controller 7 User's Guide*
- *Chassis Management Controller for Dell PowerEdge M1000e User's Guide*
- *Chassis Management Controller for Dell PowerEdge VRTX User's Guide*
- *Chassis Management Controller for Dell PowerEdge FX2/FX2s User's Guide*
- *Compellent SC-Series Storage Arrays User's Guide*
- *EqualLogic PS-Series Storage Arrays User's Guide*
- *PowerVault MD-Series Storage Arrays User's Guide*

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

Accessing documents from the Dell EMC support site

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

- Using the following links:
    - For Dell EMC Enterprise Systems Management, Dell EMC Remote Enterprise Systems Management, and Dell EMC Virtualization Solutions documents — www.dell.com/esmmanuals
    - For Dell EMC OpenManage documents — www.dell.com/openmanagemanuals
    - For iDRAC documents — www.dell.com/idracmanuals
    - For Dell EMC OpenManage Connections Enterprise Systems Management documents — www.dell.com/OMConnectionsEnterpriseSystemsManagement
    - For Dell EMC Serviceability Tools documents — https://www.dell.com/serviceabilitytools
- From the Dell EMC Support site:
    1. Go to https://www.dell.com/support.
    2. Click **Browse all products**.
    3. From **All products** page, click **Software**, and then click the required link from the following:
        - **Analytics**
        - **Client Systems Management**
        - **Enterprise Applications**
        - **Enterprise Systems Management**
        - **Mainframe**
        - **Operating Systems**
        - **Public Sector Solutions**
        - **Serviceability Tools**

- **Support**
- **Utilities**
- **Virtualization Solutions**

4. To view a document, 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

(i) **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.