

Dell EMC OpenManage Plug-in Version 3.0 For Nagios XI

User's Guide

Notes, cautions, and warnings

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

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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Introduction

This guide provides information about using the Dell EMC OpenManage Plug-in Version 3.0 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.

This plug-in provides capabilities to monitor Dell EMC devices in environments managed by Nagios XI. This plug-in gives you complete hardware-level visibility of Dell EMC devices including overall and component-level health monitoring. The plug-in provides basic inventory information and event monitoring of Dell EMC devices. The plug-in also supports 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 in Dell EMC OpenManage Plug-in version 3.0

The following table lists the new features and functionality of the Dell EMC OpenManage Plug-in version 3.0:

Table 1. New features and functionality

New Feature	Description
Support for new Dell EMC devices	<p>With this version, you can discover and monitor the following new Dell EMC devices:</p> <ul style="list-style-type: none"> • 14th generation of PowerEdge servers through Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller (LC) • OEM Servers • Dell EMC Network Switches • Hyper Converged Infrastructure <p>For more details on device support, see Support matrix in the "Dell EMC OpenManage Plug-in Version 3.0 for Nagios XI User's Guide."</p>
Monitor basic system information including component level	<p>This version provides basic system information including component level details of the following Dell EMC devices:</p> <ul style="list-style-type: none"> • 14th generation of PowerEdge servers • OEM servers • Dell EMC Network Switches • Hyper Converged Infrastructure
Latest firmware version	<p>This version supports the latest firmware versions for the following Dell EMC devices</p> <ul style="list-style-type: none"> • 12th and 13th generation of PowerEdge servers (iDRAC7 and iDRAC8) • 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 • Compellent Storage Arrays
Upgrade to Dell EMC OpenManage Plug-in version 3.0 for Nagios XI	You can upgrade from Dell OpenManage Plug-in Version 1.0 for Nagios XI to Dell EMC OpenManage Plug-In Version 3.0 for Nagios XI.
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	<p>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:</p> <ul style="list-style-type: none"> • iDRAC Console for OEM servers • HCI Console Launch for HCI devices • Dell EMC Network Switch Console
View warranty information	This feature allows you to view the warranty information for OEM servers and Dell EMC Network Switches.
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 and HCI Platforms.

Key features

The key features of the Dell EMC OpenManage Plug-in Version 3.0 for Nagios XI are as described in the following table.

Table 2. Key features

Feature	Functionality
Device discovery using Dell EMC Configuration Wizard	<p>Discovers the supported Dell EMC devices in the Nagios XI console using the Dell EMC configuration wizard. Once the discovery is complete, host and service definitions are created for each device.</p> <ul style="list-style-type: none"> You can discover iDRAC devices either using SNMP or WSMAN protocol or Redfish REST APIs . Dell EMC storage and Dell EMC Network Switch discovery is supported using SNMP protocol. Dell EMC Chassis discovery is supported using WSMAN protocol.
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 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 alerts and events (Traps)	<p>Monitors alerts or events generated by Dell EMC devices. This feature displays only the last received SNMP alert.</p> <p>You can also view the Alert Knowledge Base (KB) information for the supported Dell EMC devices corresponding to an SNMP alert for faster troubleshooting of the respective alert.</p> <p>For more information, see Knowledge Base (KB) messages for the generated alerts in the Dell EMC OpenManage Plug-in Version 3.0 for Nagios XI User's Guide.</p> <p>NOTE: KB information is not available for Compellent Storage Arrays, PowerVault MD Storage Arrays and Dell EMC Networking.</p>
Launching device specific consoles	Launches the respective Dell EMC one-to-one consoles to further troubleshoot and manage the supported Dell EMC devices. For more information, see Launching Dell EMC device consoles on page 33.
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 on page 34.
Knowledge Base (KB)	<p>Displays Knowledge Base (KB) information for the supported Dell EMC devices corresponding to the device alert or event for faster troubleshooting.</p> <p>For more information, see Knowledge Base (KB) information for the generated alerts.</p>

Support matrix

Dell EMC OpenManage Plug-in version 3.0 for Nagios XI supports the Dell EMC devices as listed in the following tables.

Datacenter Scalable Solutions

Table 3. Supported Datacenter Scalable Solutions.

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

Hyper-converged Infrastructure (HCI) Platforms

Table 4. Supported HCI Platforms

VxRail Devices	Nutanix XC Devices
VxRail E460	XC6320-6
VxRail E460F	XC430 Xpress
VxRail P470	XC430-4
VxRail P470F	XC630-10
VxRail V470	XC730xd-24
VxRail V470F	XC640-10
VxRail S470	XC740-12
	XC740-12C
	XC740-12R
	XC740-24
	XC640-4
	XC6420-6
	XC-940-24
	XC640-4 Xpress
	XC730-16G
	XC730xd-12
	XC730xd-12C
	XC730xd-12R

PowerEdge Servers

Table 5. Supported PowerEdge Servers.

12th generation of PowerEdge servers	13th generation of PowerEdge servers	14th generation of PowerEdge servers
FM120x4	C4130	R640
M420	C6320	R740
M520	FC430	R740xd
M620	FC630	R940
M820	FC830	C6420
R220	M630	M640
R320	M830	FC640
R420	R230	R440
R520	R330	R540
R620	R430	T440
R720xd	R530	T640
R820	R530xd	R6415
R920	R630	R7415
T320	R730	R7425
T420	R730xd	
T620	R830	
R720	R930	
C6320p	T130	
	T330	
	T430	
	T630	

PowerEdge Chassis

Table 6. Supported PowerEdge chassis.

- PowerEdge FX2
- PowerEdge FX2s
- PowerEdge VRTX
- PowerEdge M1000e

Compellent SC-Series Storage Arrays

Table 7. Supported Compellent Storage Arrays.

Compellent Series 40
Compellent SC4020
Compellent SC5020
Compellent SC7020

Table 7. Supported Compellent Storage Arrays. (continued)

Compellent SC8000
Compellent SC9000

EqualLogic PS-Series Storage Arrays

Table 8. Supported EqualLogic PS-Series Storage Arrays.

EqualLogic PS4000	EqualLogic PS6000
EqualLogic PS4110	EqualLogic PS6010
EqualLogic PS-M4110	EqualLogic PS6110
EqualLogic PS4210	EqualLogic PS6610
EqualLogic PS4100	EqualLogic PS6100
EqualLogic PSM4110	EqualLogic PS6210
	EqualLogic PS6500
	EqualLogic PS6510

PowerVault MD-Series Storage Arrays

Table 9. Supported PowerVault MD-Series Storage Arrays.

PowerVault MD3400
PowerVault MD3420
PowerVault MD3460
PowerVault MD3800f
PowerVault MD3800i
PowerVault MD3820f
PowerVault MD3820i
PowerVault MD3860f
PowerVault MD3860i

Dell EMC Network Switches

Table 10. 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	N4064F
S3124P			PowerEdge FN410S	Power Edge MXL 10/40GbE	N1124P	N4064
S3124F			PowerEdge FN410T		N1148T	N3024
S3148			PowerEdge FN340Q		N1148P	N3024F
S3148F					N1108T	N3024P
S3048					N1108P	N3048
S4048					N1524	N3048P

Table 10. Supported Network Switches (continued)

S Series	Z Series	C Series	FN Series	M Series	N Series	
S4048-ON					N1524P	N4032
S5000					N1548	N4032F
S6000					N1548P	
S6000-ON					N2024	
S6010-ON					N2024P	
S6100-ON					N2048	
S5048F					N2048P	

i NOTE: All the information of the discovered Dell EMC Network Switch will not be displayed if the firmware version is less than 9.11.2.8. You need to ensure that the firmware version is 9.11.2.8 or above.

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 REST APIs. WSMAN is the default protocol.
 - Dell EMC Chassis can be discovered using WSMAN protocol. WSMAN is the default 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. 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 – 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 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 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 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. WSMAN parameters

WSMAN Parameters		
Parameter Name	Default Value	Description
Username	root	Use to provide the WSMAN user name.
Password	NA. 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 14. Redfish parameters

Redfish Parameters		
Parameter Name	Default Value	Description
Username	root	Use to provide the Redfish user name.
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.
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 15. 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.
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 16. 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	✓	✓	X
Dell EMC Server Physical Disk Status	✓	✓	X
Dell EMC Server Virtual Disk Status	✓	✓	X
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	X
Dell EMC Server FC NIC Status	X	X	X
Dell EMC Server Warranty Information	✓	✓	✓

Table 17. 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)

Table 17. Services created for all Dell EMC Chassis based on WSMAN protocol (continued)

Services
Dell EMC Chassis Controller Status (This service is applicable to PowerEdge VRTX Chassis only)
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

Table 18. 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
Dell EMC Network Switch PowerSupplyTray Status
Dell EMC Network Switch Fan Status
Dell EMC Network Switch FanTray Status
Dell EMC Network Switch Processor Status
Dell EMC Network Switch vFlash Status
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 Network Switch 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 19. 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 20. 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 21. 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

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**.

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

Overview
Discover and Monitor Dell EMC servers through an agent-free method using Integrated Dell Remote Access Controller (iDRAC) with Lifecycle Controller, Dell EMC chassis, Dell EMC storage devices, Dell EMC HCI Compute nodes, and Dell EMC Network Switches.

Prerequisite Checks
Python version (2.7.5 / 3.4.3) or above is installed.
Python argparse module is installed.
Python netaddr module is installed.
OpenManage Python Software Development Kit (OMSDK) module is installed.

Discovery target
Auto-Discovery Job: Scan of [] - Found 2 New / 2 Total Hosts [] Discover all IP Addresses
Subnet: []
File: [Choose File] No file chosen

Communication Parameters
Preferred protocol to discover Dell EMC Agent-Free server: [] SNMP [x] WS-MAN [] Radfish

SNMP Parameters		WS-MAN / Radfish Parameters	
Community String	public	Username	root
Version	2	Password	*****
Timeout	3	Timeout	30
Retries	1	Retries	1
Port	161	Port	443

Configuration Parameters

Warranty URL	https://api.dell.com/support/
Warranty Critical Days	10
Warranty Warning Days	30
JAVA Install Path	jusrbinjava

Navigation: < Back 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 1**.

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](#) on page 14.

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

- 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.
- 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.
- 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.

- 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.

The screenshot shows the Nagios XI interface. The left sidebar contains a navigation menu with sections like 'Quick View', 'Details', 'Graphs', 'Maps', 'Incident Management', and 'Monitoring Process'. The 'Details' section is expanded, showing 'Host Detail' as the selected option. The main content area is titled 'Host Status' and displays a table of hosts. The table has columns for 'Host', 'Status', 'Duration', 'Attempt', 'Last Check', and 'Status Information'. The hosts listed include various Dell EMC servers and network devices, all showing 'Up' status. The right sidebar shows the 'Service Status Summary' for the selected host, displaying a table of services with their status (Up, Down, Unreachable, Pending) and a summary of overall service health.

- 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.

The screenshot shows the Nagios XI interface with the 'Service Detail' view selected. The left sidebar shows the navigation menu with 'Service Detail' selected. The main content area displays a table of services. The table has columns for 'Host', 'Service', 'Status', 'Duration', 'Attempt', 'Last Check', and 'Status Information'. The services listed include various Dell EMC server components like power supply, fan, and network status. The right sidebar shows the 'Service Status Summary' for the selected service, displaying a table of services with their status (Up, Down, Unreachable, Pending) and a summary of overall service health.

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 22. Device Information

Service	Status	Description	Attributes Displayed
Dell EMC Server Information	The following states are possible: <ul style="list-style-type: none"> • OK • Unknown • Critical • Warning 	This service provides the basic device inventory information. i NOTE: Chassis Tag is applicable only for modular servers and Node ID is applicable only for PowerEdge FM120x4. i NOTE: System Configuration Lockdown Mode, iDRAC Group Manager Status and iDRAC Group Name is applicable only for 14G Servers.	<ul style="list-style-type: none"> • Node Id • Chassis ServiceTag • System Generation • Service Tag • Model • OS Name • OS Version • iDRAC URL • iDRAC Firmware 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: <ul style="list-style-type: none"> • OK • Unknown • Critical • Warning 	This service provides the basic device inventory information for PowerEdge M1000e, PowerEdge VRTX, and PowerEdge FX2/FX2s chassis.	<ul style="list-style-type: none"> • Service Tag • Chassis Name • Model Name • CMC Firmware Version • CMC URL
Dell EMC Storage SC-Series Information	The following states are possible: <ul style="list-style-type: none"> • OK • Unknown • Critical • Warning 	This service provides the basic device inventory information for Compellent Management IP	<ul style="list-style-type: none"> • Overall Storage Center • Firmware Version • Compellent URL • Storage Name • Primary Controller Name • Primary Controller Model • Primary Controller IP Address • Primary Controller Service Tag

Table 22. Device Information (continued)

Service	Status	Description	Attributes Displayed
			<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> OK Unknown Critical Warning 	This service provides the basic device inventory information for Compellent Controller IP	<ul style="list-style-type: none"> Controller Name Service Tag Primary Controller Controller Name Model Name Compellent URL
Dell EMC Storage PS-Series Group Information	The following states are possible: <ul style="list-style-type: none"> OK Unknown Critical Warning 	This service provides the basic device inventory information for EqualLogic Groups.	<ul style="list-style-type: none"> Group Name Member Count Volume Count Group URL
Dell EMC Storage PS-Series Member Information	The following states are possible: <ul style="list-style-type: none"> OK Unknown Critical Warning 	This service provides the basic device inventory information for the EqualLogic Member.	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> OK Unknown Critical Warning 	This service provides the basic device inventory information for PowerVault MD Storage Arrays.	<ul style="list-style-type: none"> Overall Storage Array Service Tag Product ID World-wide ID Storage Name
Dell EMC Network Switch Information	The following states are possible: <ul style="list-style-type: none"> OK Unknown Critical Warning 	This service provides the basic information of the Network Switch.	<ul style="list-style-type: none"> 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 23. Overall health Status information

Service	Status	Description	Attributes Displayed when using WS-MAN	Attributes Displayed when using SNMP	Attributes Displayed when using Redfish
Dell EMC Server Overall Health Status	The following states are possible for the supported Dell devices: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides global health status of Dell EMC servers.	<ul style="list-style-type: none"> • Overall System • Storage • Voltage • Power Supply • Amperage • Fan • Intrusion • Memory • Battery • CPU • Temperature 	<ul style="list-style-type: none"> • Overall System • Storage • Voltage • Power Supply • Amperage • Fan • Intrusion • Memory • Battery • CPU • Temperature 	<ul style="list-style-type: none"> • Overall System • Memory • CPU
Dell EMC Chassis Overall Health Status		Provides global health status of Dell EMC chassis.	Overall Chassis	Not Available	Not Available
Dell EMC Storage PS-Series Member Overall Health Status		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 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 24. 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: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides the worst case aggregate health status of the memory in Dell EMC Servers.	<ul style="list-style-type: none"> • Status • FQDD • Type • PartNumber • Size • State • Speed 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Status • ProductID • SerialNumber • Size • MediaType • Revision • State 	<ul style="list-style-type: none"> • Status • FQDD • ProductID • SerialNumber • Size • MediaType • Revision • State 	Not Available
Dell EMC Server Virtual Disk Status		Provides the worst case aggregate health status of the virtual disks in Dell EMC servers.	<ul style="list-style-type: none"> • Status • FQDD • Layout • Size • MediaType • ReadCachePolicy • WriteCachePolicy • StripeSize • State 	<ul style="list-style-type: none"> • 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 servers.	<ul style="list-style-type: none"> • Status • FQDD • State 	<ul style="list-style-type: none"> • Status • FQDD • State 	<ul style="list-style-type: none"> • Status • FQDD • State
Dell EMC Server Network Device Status		Provides overall health status of the NIC in Dell EMC servers.	<ul style="list-style-type: none"> • ConnectionStatus • FQDD • LinkSpeed • FirmwareVersion • ProductName 	<ul style="list-style-type: none"> • ConnectionStatus • FQDD • LinkSpeed • FirmwareVersion • ProductName 	<ul style="list-style-type: none"> • ConnectionStatus • FQDD • LinkSpeed • FirmwareVersion • ProductName <p>NOTE: FirmwareVersion and ProductName attributes will display as Not Available.</p>
Dell EMC Server Intrusion Status		Provides overall health status of the chassis	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State 	Not Available

Table 24. 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
		intrusion in Dell EMC servers.			
Dell EMC Server CPU Status		Provides overall health status of the CPUs in Dell EMC servers.	<ul style="list-style-type: none"> • Status • FQDD • Model • CoreCount 	<ul style="list-style-type: none"> • Status • FQDD • Model • CoreCount 	<ul style="list-style-type: none"> • Status • FQDD • Model • CoreCount
Dell EMC Server Power Supply Status		Provides overall health status of the power supply in Dell EMC servers.	<ul style="list-style-type: none"> • Status • FQDD • FirmwareVersion • InputWattage • Redundancy 	<ul style="list-style-type: none"> • Status • FQDD • FirmwareVersion • InputWattage • Redundancy 	<ul style="list-style-type: none"> • Status • FQDD • FirmwareVersion • InputWattage • Redundancy <p>NOTE: Redundancy and InputWattage attributes will display as Not Available.</p>
Dell EMC Server Temperature Probe Status		Provides overall health status of the temperature probe in Dell EMC servers.	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State
Dell EMC Server Voltage Probe Status		Provides overall health status of the voltage probe in Dell EMC servers.	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State
Dell EMC Server Controller Status		Provides the worst case aggregate health status of the storage controllers in Dell EMC servers.	<ul style="list-style-type: none"> • Status • FQDD • CacheSize • FirmwareVersion • Name 	<ul style="list-style-type: none"> • Status • FQDD • CacheSize • FirmwareVersion • Name 	<ul style="list-style-type: none"> • Status • FQDD • CacheSize • FirmwareVersion • Name
Dell EMC Server Amperage Probe Status		Provides overall health status of the amperage probe in Dell EMC servers.	<ul style="list-style-type: none"> • Status • Location • State 	<ul style="list-style-type: none"> • Status • Location • State 	Not Available
Dell EMC Server SD Card Status		Provides overall health status of the SD card in Dell EMC servers.	<ul style="list-style-type: none"> • Status • FQDD • Size • WriteProtected • InitializedState • State 	Not Available	Not Available

Table 24. 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 FC NIC Status		Provides overall health status of the FC NIC in Dell EMC servers.	<ul style="list-style-type: none"> · ConnectionStatus · FQDD · Name · FirmwareVersion · LinkSpeed 	Not Available	Not Available
Dell EMC Server Warranty Information		Provides warranty information status for the Dell EMC servers.	<ul style="list-style-type: none"> · ServiceTag · Service Level Details · Item number · Device Type · Ship Date(UTC) · Start Date(UTC) · End Date(UTC) · Days Remaining 	<ul style="list-style-type: none"> · ServiceTag · Service Level Details · Item number · Device Type · Ship Date(UTC) · Start Date(UTC) · End Date(UTC) · Days Remaining 	<ul style="list-style-type: none"> · ServiceTag · Service Level Details · Item number · Device Type · Ship Date(UTC) · Start Date(UTC) · End Date(UTC) · Days Remaining

Table 25. Dell EMC Chassis component health information

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Chassis Physical Disk Status	<p>The following states are possible:</p> <ul style="list-style-type: none"> · OK · Warning · Unknown · Critical 	<p>Provides the worst case aggregate health status of the physical disks in Dell EMC chassis.</p> <p>Applicable only to PowerEdge VRTX chassis.</p>	<ul style="list-style-type: none"> · Status · FQDD · Model · PartNumber · Slot · FirmwareVersion · Capacity · FreeSpace · MediaType · SecurityState
Dell EMC Chassis Virtual Disk Status		<p>Provides the worst case aggregate health status of the virtual disks in Dell EMC chassis.</p> <p>Applicable only to PowerEdge VRTX chassis.</p>	<ul style="list-style-type: none"> · Status · FQDD · BusProtocol · Capacity · MediaType · Name · RAIDTypes · ReadPolicy · StripeSize · WritePolicy
Dell EMC Chassis PCIe Devices Status		<p>Provides the worst case aggregate health status of all the Dell EMC chassis PCIe device instances</p>	<ul style="list-style-type: none"> · Status · FQDD · Name · Fabric · PCIeSlot · PowerState · AssignedSlot · AssignedBlade

Table 25. Dell EMC Chassis component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Chassis Fan Status		Provides the worst case aggregate health status of the fans in Dell EMC chassis.	<ul style="list-style-type: none"> • Status • FQDD • Name • Slot
Dell EMC Chassis Power Supply Status		Provides the worst case aggregate health status of the power supply in Dell EMC chassis.	<ul style="list-style-type: none"> • Status • FQDD • Name • PartNumber • Slot
Dell EMC Chassis Controller Status Applicable only to PowerEdge VRTX chassis.		Provides the worst case aggregate health status of the storage controllers in Dell EMC chassis. Applicable only to PowerEdge VRTX chassis.	<ul style="list-style-type: none"> • Status • FQDD • CacheSize(MB) • 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. Applicable only to PowerEdge VRTX chassis.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Status • Name

Table 25. Dell EMC Chassis component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Chassis Warranty Information		Provides warranty information status for the Dell EMC chassis.	<ul style="list-style-type: none"> ServiceTag Service Level Details Item number Device Type Ship Date(UTC) Start Date(UTC) End Date(UTC) Days Remaining

Table 26. EqualLogic component health information

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Storage PS-Series Member Physical Disk Status	<p>The following states are possible:</p> <ul style="list-style-type: none"> OK Warning Unknown Critical 	Provides the worst case aggregate health status of the physical disks in the EqualLogic member.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Name MemberCount VolumeCount
Dell EMC Storage PS-Series Member Warranty Information		Provides warranty information status for the EqualLogic member.	<ul style="list-style-type: none"> ServiceTag Service Level Details Item number Device Type Ship Date(UTC) Start Date(UTC) End Date(UTC) Days Remaining

Table 27. Compellent component health information

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Storage SC-Series Physical Disk Status	<p>The following states are possible:</p> <ul style="list-style-type: none"> OK Warning Unknown Critical 	Provides the worst case aggregate health status of the physical disks in Compellent storage arrays.	<ul style="list-style-type: none"> Status Name TotalSize BusType DiskEnclosureNumber
Dell EMC Storage SC-Series Volume Status		Provides the worst case aggregate health status of the Compellent volume.	<ul style="list-style-type: none"> Status VolumeName

Table 27. Compellent component health information (continued)

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Storage SC-Series Controller Warranty Information		Provides warranty information status for the Compellent controller.	<ul style="list-style-type: none"> ServiceTag Service Level Details Item number Device Type Ship Date(UTC) Start Date(UTC) End Date(UTC) Days Remaining

Table 28. PowerVault MD warranty information

Service	Status	Description	Attributes Displayed when using WSMAN
Dell EMC Storage MD-Series Warranty Information	<p>The following states are possible:</p> <ul style="list-style-type: none"> OK Warning Unknown Critical 	Provides warranty information status for the PowerVault MD storage arrays.	<ul style="list-style-type: none"> ServiceTag Service Level Details Item number Device Type Ship Date(UTC) Start Date(UTC) End Date(UTC) Days Remaining

Table 29. Network Switch component health information

Service	Status	Description	Attributes Displayed when using SNMP
Dell EMC Network Switch Fan Status	<p>The following states are possible:</p> <ul style="list-style-type: none"> OK Warning Unknown Critical 	Provides the worst case aggregate Fan status of the Network Switch.	<ul style="list-style-type: none"> Status Index Description
Dell EMC Network Switch FanTray Status		Provides the worst case aggregate FanTray status of the Network Switch.	<ul style="list-style-type: none"> Status Type TrayIndex
Dell EMC Network Switch PowerSupply Status		Provides the worst case aggregate PowerSupply status of the Network Switch.	<ul style="list-style-type: none"> Status Index Description Source
Dell EMC Network Switch PowerSupplyTray Status		Provides the worst case aggregate PowerSupplyTray status of the Network Switch.	<ul style="list-style-type: none"> Index Type Status
Dell EMC Network Switch Processor Status		Provides overall health status of the processors in Dell EMC Network Switch.	<ul style="list-style-type: none"> ProcessorMemSize ProcessorModule Index <p>NOTE: ProcessorModule and Index is not applicable for N-Series Switch.</p>
Dell EMC Network Switch vFlash Status		Provides the worst case aggregate health status of the Network Switch.	<ul style="list-style-type: none"> MountPoint Size Name

Table 29. Network Switch component health information (continued)

Service	Status	Description	Attributes Displayed when using SNMP
Dell EMC Network Switch Physical Port Status		Provides the worst case aggregate health status of the physical ports in Dell EMC Network Switch.	<ul style="list-style-type: none"> Status <p>NOTE: The Status attribute displays the health status of the Admin Status.</p> <ul style="list-style-type: none"> Type Name
Dell EMC Network Switch Warranty Information		Provides warranty information status for the Dell EMC Network Switch	<ul style="list-style-type: none"> ServiceTag Service Level Details Item number Device Type Ship Date(UTC) Start Date(UTC) End Date(UTC) Days Remaining

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

By 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.
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	<p>The following states are possible:</p> <ul style="list-style-type: none"> OK Warning Unknown Critical 	Provides trap information of the Dell EMC servers discovered through the agent-free method.

Table 30. Dell EMC trap information (continued)

Service	Status	Description
Dell EMC Chassis Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the M1000e, VRTX, and FX2/FX2s chassis.
Dell EMC Storage PS-Series Member Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the EqualLogic PS-Series storage Arrays.
Dell EMC Storage PS-Series Group Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the EqualLogic PS-Series storage Arrays.
Dell EMC Storage SC-Series Management Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the Compellent SC-Series storage Arrays.
Dell EMC Storage SC-Series Controller Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the Compellent SC-Series storage Arrays.
Dell EMC Storage MD-Series Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	Provides trap information of the PowerVault MD-Series storage Arrays.
Dell EMC Network Switch Traps	The following states are possible: <ul style="list-style-type: none"> • OK • Warning • Unknown • Critical 	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.
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  (**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 31. Dell EMC devices and their consoles

Dell Device	Applicable Console
Dell EMC Servers, DSS and HCI Platforms	Integrated Remote Access Controller Console
PowerEdge M1000e Chassis	Chassis Controller Management Console
PowerEdge VRTX Chassis	Chassis Controller Management Console
PowerEdge FX2/FX2s Chassis	Chassis Controller Management Console
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 will be 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 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 EMC devices is displayed in the Nagios XI 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 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 <Warning> 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 EMC 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 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 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 **Dell EMC Chassis Warranty Information**.

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

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

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

Knowledge Base information for the generated alerts

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.

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 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.

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 EMC device.

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 Config 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 Config 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.

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](#) on page 8.

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](https://www.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

 **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.