




**Dell Smart Plug-in Version 4.1 For HP Operations
Manager 9.0 For Microsoft Windows
User's Guide**



Notes, cautions, and warnings

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

Copyright © 2015 Dell Inc. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. Dell™ and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2015 - 04

Rev. A00

Contents

Introduction To Dell SPI For HPOM For Microsoft Windows.....	5
What is new in Dell SPI version 4.1.....	6
Key features and benefits of Dell SPI.....	8
Dell SPI deployed on HPOM console.....	10
Support Matrix.....	11
Management ServerManaged Nodes.....	11
Supported Dell Platforms.....	12
Supported Dell PowerEdge Servers.....	12
Supported Dell Workstations.....	13
Supported Dell Chassis.....	13
Supported Dell Compellent Storage Arrays.....	13
Supported Dell PowerVault NX Storage Arrays.....	13
Supported Dell EqualLogic PS-Series Storage Arrays.....	14
Supported Dell PowerVault MD Storage Arrays	14
Supported Dell Network Switches.....	14
Dell Smart Plug-in policies.....	16
Deploying Smart Plug-in policies.....	19
Using Dell Smart Plug-in (SPI) features.....	20
Classifying Dell devices.....	20
Monitoring the health of Dell devices.....	22
Monitoring Dell Connections License Manager.....	24
Processing SNMP traps from Dell devices.....	24
Understanding Dell SPI trap message severity.....	25
SNMP trap based severity propagation.....	25
Auto acknowledged traps.....	25
Manually acknowledged traps.....	26
Launching Dell consoles.....	26
Launching Dell consoles from services.....	28
Launching Dell consoles from tools.....	28
Launching Dell consoles from nodes.....	29
Launching Dell consoles from alert messages.....	29
Association of Dell devices.....	29
Associating Dell servers with RACs.....	30
Associating Dell Workstations with RACs.....	30
Associating Dell servers with CMC devices.....	30
Associating Dell servers with VRTX CMC devices.....	30
Associating Dell servers with FX2 CMC devices.....	30
Associating Dell PowerVault NX Storage Arrays with RACs.....	31
Associating Dell EqualLogic Blade Array with CMC devices.....	31
Association Of Blade IO (Dell M-Series Switches) with CMC devices.....	31
Dell unresponsive devices.....	31
Viewing Dell unresponsive devices.....	32



Viewing Knowledge Base articles.....	32
To view the KB article:.....	32
Troubleshooting Dell Smart Plug-in (SPI).....	33
"Failed to get the warranty details for the service tag: <Service Tag>".....	33
iDRAC7 or iDRAC8 devices are not getting classified in the HPOM console.....	33
"MMC has detected an error in a snap-in. It is recommended that you shut down and restart MMC.".....	33
"The Setup must update files or services not updateable while the system is running. If you choose to continue, a reboot is required to complete the setup.".....	33
Installer takes time to launch.....	34
DellSPIConfigUtility displays an error.....	34
SNMP trap messages are not created.....	34
SNMP traps received at wrong nodes due to an error in the DNS cache.....	34
Global System Status not retrieved for Dell devices.....	35
Trap correlation feature is not working after the Dell SPI repair operation.....	35
Related documents and resources.....	36
Other documents you may need.....	36
Contacting Dell.....	36



Introduction To Dell SPI For HPOM For Microsoft Windows


This guide provides information about using the Dell Smart Plug-in (SPI) Version 4.1 for Hewlett Packard Operations Manager (HPOM) 9.0 for Microsoft Windows features such as classification, monitoring, console launch, association, processing SNMP traps, and the steps to troubleshoot problems that you may encounter while monitoring the supported Dell devices.

The Dell SPI version 4.1 for HPOM 9.0 for Microsoft Windows enables data center management by providing features for monitoring Dell servers, workstations, storage, and networking infrastructures in an environment managed by HPOM. The Dell SPI also supports console launch of Dell devices and other Dell tools to perform troubleshooting, configuration, or management activities.

The Dell SPI for HPOM supports the following Dell devices:

- Dell 10th Generation of PowerEdge servers to Dell 13th Generation of PowerEdge servers
- Dell Precision Rack Workstations
- Integrated Dell Remote Access Controller 8 (iDRAC8), Integrated Dell Remote Access Controller 7 (iDRAC7), Integrated Dell Remote Access Controller 6 (iDRAC6), and Dell Remote Access Controller 5 (DRAC5)
- Dell PowerEdge FX2 (FX2 CMC), Dell PowerEdge VRTX (VRTX CMC), and Dell PowerEdge M1000e (CMC)
- Dell 10th generation of PowerVault NX Storage Arrays to Dell 12th generation of PowerVault NX Storage Arrays, Dell EqualLogic PS-Series Storage Arrays, Dell PowerVault MD Storage Arrays, and Dell Compellent Storage Arrays
- Dell Network Switches (N-Series, S-Series, M-Series, Z-Series, 8000 Series, and 8100 Series)

With the integration of Dell SPI into HPOM, you can use the HPOM console to monitor the availability of the Dell devices that are classified in HPOM for Microsoft Windows.

 **NOTE: This document contains information about the prerequisites and supported software necessary for installing the Dell Smart Plug-in (SPI) Version 4.1 for Hewlett Packard Operations Manager (HPOM) 9.0 for Microsoft Windows. If you are installing this version of Dell Smart Plug-in (SPI) after a long time after its release date, check to see if there is an updated version of this document at dell.com/support/manuals.**

Dell Workstations used in this guide refers to Dell Precision R7910 Rack Workstations.



What is new in Dell SPI version 4.1

The following table lists the new features and functionalities of Dell SPI Version 4.1:

Table 1. New Features and Functionalities

New Feature	Functionality
Latest operating system support	Dell SPI version 4.1 supports Microsoft Windows Server 2012 R2 operating system on the management server.
Latest OMSA version	Dell SPI version 4.1 supports the latest OMSA version 8.1 for the following Dell devices: <ul style="list-style-type: none"> • Dell 10th Generation of PowerEdge servers to Dell 13th Generation of PowerEdge servers • Dell 10th Generation of PowerVault Storage Arrays to Dell 12th Generation of PowerVault Storage Arrays
Latest Firmware version	Dell SPI version 4.1 supports the latest firmware versions for the following Dell devices: <ul style="list-style-type: none"> • Dell Remote Access Controllers <ul style="list-style-type: none"> – iDRAC7 – iDRAC8 • Dell Chassis <ul style="list-style-type: none"> – CMC – VRTX CMC – FX2 CMC • Dell Storage Arrays <ul style="list-style-type: none"> – Compellent Storage Arrays – EqualLogic PS-Series Storage Arrays – PowerVault MD Storage Arrays • Dell Network Switches <ul style="list-style-type: none"> – S-Series – Z-Series – M-Series – N-Series – 8100-Series – 8000-Series
Upgrade to Dell SPI version 4.1	Upgrade from Dell SPI version 3.0 or later to Dell SPI version 4.1. The Dell trap policy files can either be auto-deployed during the upgrade process or can be manually deployed at a later point of time based on the user preference.
Classification	Classify the following devices: <ul style="list-style-type: none"> • Dell Workstations and their associated Remote Access Controllers (RACs) under the Dell Workstations hierarchy • Dell 13th generation of PowerEdge servers and their associated RACs under the Dell Servers hierarchy • Dell N-Series Switches under the Dell Network Switches hierarchy
Monitoring	Monitor the following devices: <ul style="list-style-type: none"> • Dell 13th Generation of PowerEdge servers • Dell Workstations

New Feature	Functionality
	<ul style="list-style-type: none"> · Dell N-Series Switches
View and monitor alerts	<p>View and monitor alerts from the following Dell devices with respect to the device specific component's status change like power supply, voltage, temperature, and so on:</p> <ul style="list-style-type: none"> · Dell 13th Generation of PowerEdge servers · Dell Workstations · Dell N-Series Switches
Trap based health monitoring	<p>Trap based health monitoring of the following Dell devices:</p> <ul style="list-style-type: none"> · Dell 13th Generation of PowerEdge servers · Dell Workstations · Dell N-Series Switches
Auto-correlation	<p>Auto-correlation of SNMP traps generated by Dell S-Series, M-Series, and Z-Series Switches.</p>
Launch consoles and tools	<p>Launch the following Dell consoles and tools to view, monitor, configure, deploy, or update Dell devices:</p> <ul style="list-style-type: none"> · Dell OpenManage Network Manager Console for Dell N-Series Switches · Dell OpenManage Switch Administrator Console for Dell N-Series Switches · Dell Switch Telnet Tool for Dell N-Series Switches · OpenManage Essentials Console for Dell 13th Generation of PowerEdge servers, Dell Workstations, and N-Series Switches. · OpenManage Power Center Console for Dell 13th Generation of PowerEdge servers and their associated RACs. · OpenManage Server Administrator Console for Dell 13th Generation of PowerEdge servers, Dell Workstations, and iDRAC8 running Windows or Linux operating systems. · OpenManage Server Administrator Web Server Console for Dell 13th Generation of PowerEdge servers, Dell Workstations, and iDRAC8 running ESXi operating systems. · Warranty Report Console for Dell Workstations, Dell 13th Generation of PowerEdge servers, and Dell N-Series Switches.
Warranty information	<p>View warranty informations for the following Dell devices:</p> <ul style="list-style-type: none"> · Dell 13th Generation of PowerEdge Servers · Dell Workstations · Dell N-Series Switches
Knowledge Base Articles	<p>Knowledge base articles associated with alerts except for Dell Compellent Storage Arrays, Dell PowerVault MD Storage Arrays, and Dell Network Switches (N-Series, S-Series, M-Series, Z-Series, 8000 Series, and 8100 Series).</p>



Key features and benefits of Dell SPI

Dell SPI version 4.1 provides the following features for managing the Dell devices:

Table 2. Features And Functionalities

Feature	Functionality
Classification	<p>Classifies the Dell devices and creates the following hierarchies in the HPOM console:</p> <ul style="list-style-type: none"> • Dell Hardware, and Dell SPI Licensing under the Services → Systems Infrastructure hierarchy • Dell Managed Systems under the Nodes hierarchy • Dell Tools under the Tools hierarchy • SPI for Dell Devices under the Policy management → Policy groups hierarchy <p>The Dell devices (managed nodes or external nodes) are classified either as Dell Servers, Dell Workstations, Dell DRAC , Dell Chassis, Dell Storage, and Dell Network Switches within their respective hierarchies. For more information, see Classifying Dell devices.</p>
Global Health Monitoring	<p>Periodically monitors the global system health of Dell devices grouped under the Dell Hardware services group. For more information, see Monitoring The Health Of Dell Devices.</p>
SNMP Trap Monitoring	<p>Processes Simple Network Management Protocol (SNMP) v1 and v2 traps generated by Dell device SNMP agents running on Dell devices and generates the health message for those devices. The Dell SPI also supports auto-correlation of SNMP traps for certain devices. For more information, see Processing SNMP Traps From Dell Devices.</p>
Launch device specific Dell one-to-one element management consoles	<p>You can launch the following Dell one-to-one consoles to perform further troubleshooting, configuration, update, or management of devices.</p> <ul style="list-style-type: none"> • OpenManage Server Administrator Console This tool can be launched from the classified Dell PowerEdge servers or Dell Workstations for troubleshooting the Dell Servers running Windows or Linux operating systems, or Dell PowerVault NX Storage Arrays running Windows operating systems. This tool can also be launched from the classified iDRAC7 or iDRAC8 (Agent-free Servers) devices. • Dell Remote Access Controller (DRAC) Console (in-band) This tool can be launched from the classified Dell PowerEdge servers, Dell Workstations, or Dell PowerVault NX Storage Array to view, configure, or troubleshoot the Agent-free servers, DRACs (DRAC5, iDRAC6, iDRAC7, or iDRAC8) devices, or the Dell Workstations in the HPOM console. • Server Administrator Web Server Console This tool can be launched from the classified Dell PowerEdge servers, Dell Workstations, or Dell PowerVault NX Storage Arrays running ESXi operating systems or Dell PowerVault NX Storage Array running Windows operating systems. • DRAC Console This tool can be launched from the classified Dell DRAC (DRAC5, iDRAC6, iDRAC7, and iDRAC8) devices. • CMC Console This tool can be launched from the classified Dell Chassis (CMC , VRTX CMC, or FX2 CMC).

Feature	Functionality
	<ul style="list-style-type: none"> • EqualLogic Group Manager Console This tool can be launched from the classified Dell EqualLogic PS-Series Storage Arrays. • Dell Compellent Storage Manager Console This tool can be launched from the classified Dell Compellent Storage Arrays. • Dell OpenManage Switch Administrator Console This tool can be launched from the classified Dell 8000, Dell 8100 Series Switches, or Dell N-Series switches. • Dell Switch Telnet Tool This tool can be launched from the classified Dell Network Switches (N-Series, S-Series, M-Series, Z-Series, 8000 Series, or 8100 Series). <p>For more information, see Launching Dell Consoles.</p>
Launch Dell one-to-many tools	<p>You can launch the following Dell one-to-one consoles to perform further troubleshooting, configuration, update, or management of devices.</p> <ul style="list-style-type: none"> • OpenManage Essentials Console This tool can be launched from the classified Dell Devices. • MD Storage Manager Console This tool can be launched from the classified Dell PowerVault MD Storage Arrays. • Dell Compellent Enterprise Manager Client Console This tool can be launched from the classified Dell Compellent Storage Arrays. • Dell OpenManage Network Manager Console This tool can be launched from the classified Dell Network Switches (N-Series, S-Series, M-Series, Z-Series, 8000 Series, or 8100 Series). • OpenManage Power Center Console This tool can be launched from the classified Dell devices to monitor and manage power consumption and temperature in the data center through the management console. <p>For more information, see Launching Dell Consoles.</p>
Launching Warranty Report	<p>Launches the Warranty Report from a classified Dell Device to retrieve the warranty information for that device in the HPOM console. For more information, see Launching Dell Consoles.</p>
Launching Dell Connections License Manager Console	<p>Launches the Dell Connections License Manager Console to view the number of licenses used in the HPOM console. For more information, see Launching Dell Consoles.</p>
Association of Dell Devices	<p>Associates Dell EqualLogic Blade Arrays, modular servers, Dell Workstations and their corresponding RACs, and the Dell M-Series network switches with their respective chassis. For more information, see Association Of Dell Devices.</p>
Dell Unresponsive Devices	<p>Classifies unreachable Dell devices as Dell Unresponsive Devices. For more information, see Dell Unresponsive Devices.</p>
Knowledge Base (KB) Articles	<p>View knowledge base article that contains information about summary, causes, and steps to resolve the alert condition. For more information, see Viewing Knowledge Base Articles.</p>



Support Matrix

Dell SPI version 4.1 supports the Dell devices and operating systems as listed in the following sections:

- Supported operating systems for the management server
- Supported operating systems for the managed nodes
- Supported Dell Platforms

Management Server

The following table lists the supported operating systems on the management server:

Table 3. Supported Operating Systems On The Management Server

Windows
Windows Server 2012 R2
Windows Server 2012
Windows Server 2008 R2 SP1

Managed Nodes

The following table lists the supported operating systems on the managed nodes:

Table 4. Supported Operating Systems On The Managed Nodes

ESXi	Windows	Linux
VMware ESXi 6.0	Windows Server 2012 R2	Red Hat Enterprise Linux 7.0
VMware ESXi 5.5 U2	Windows Server 2012	Red Hat Enterprise Linux 6.5 (64 bit)
VMware ESXi 5.1 Server	Windows Small Business Server 2011 Standard	Red Hat Enterprise Linux 6.3 (64 bit)
VMware ESXi 5.0 U1 Server	Windows Small Business Server 2011 Essentials	Red Hat Enterprise Linux 6.0 (64 bit)
VMware ESXi 5.0 P1 Server	Windows Essential Business Server 2008 SP1	Red Hat Enterprise Linux 6.0 SP1 (64 bit)
VMware ESXi 4.1 U3 Server	Windows Server 2008 R2 SP1	Red Hat Enterprise Linux 5.9 (32 and 64 bit)
VMware ESXi 4.1 U2 Server	Windows Server 2008 R2	Red Hat Enterprise Linux 5.5 (64 bit)
VMware ESXi 4.1 U1 Server	Windows Server 2008 HPC Edition R2 SP1	Red Hat Enterprise Linux 5.3 (64 bit)
VMware ESXi 4.1 Server	Windows Server 2008 HPC Edition R2	Red Hat Enterprise Linux 5 (64 bit)
VMware ESXi 4.0 U3 Server	Windows Server 2008 x86	Red Hat Enterprise Linux 4.8 (32 and 64 bit)



ESXi	Windows	Linux
VMware ESXi 4.0 U2 Server	Windows Small Business Server 2008 R2	Red Hat Enterprise Linux 4.7 (32 and 64 bit)
VMware ESXi 4.0 U1 Server	Windows Small Business Server 2008 SP2	SUSE Linux Enterprise Server 12 (64 bit)
VMware ESXi 4.0 Server	Windows Server 2008	SUSE Linux Enterprise Server 11 SP3 (64 bit)
	Windows Small Business Server 2003 R2 SP2	SUSE Linux Enterprise Server 11 SP2 (64 bit)
	Windows Storage Server 2003 R2 SP2	SUSE Linux Enterprise Server 11 SP1 (64 bit)
	Windows Storage Server 2003	SUSE Linux Enterprise Server 11 (64 bit)
	Windows Server 2003 R2 SP2	SUSE Linux Enterprise Server 10 SP4 (64 bit)
		SUSE Linux Enterprise Server 10 SP3 (64 bit)
		SUSE Linux Enterprise Server 10 SP2 (64 bit)
		SUSE Linux Enterprise Server 10 (64 bit)

Supported Dell Platforms

Supported Dell PowerEdge Servers

10th generation of PowerEdge servers	11th generation of PowerEdge servers	12th generation of PowerEdge servers	13th generation of PowerEdge servers
M605	R210	FM120x4	FC230
M905	R210 II	M420	FC430
R200	R410	M520	FC630
R805	R415	M620	FC830
R905	R510	M820	M630
T100	R515	R220	M830
T105	R610	R320	R430
	R710	R420	R530
	R715	R520	R630
	R810	R620	R730
	R815	R720xd	R730XD
	R910	R820	T230



10th generation of PowerEdge servers	11th generation of PowerEdge servers	12th generation of PowerEdge servers	13th generation of PowerEdge servers
	T110	R920	T330
	T110 II	T320	T430
	T310	T420	T630
	T410	T620	
	T610		
	T710		
	M610		
	M610x		
	M710		
	M710HD		
	M910		
	M915		

 **NOTE: The corresponding Dell Remote Access Controllers (DRAC5, iDRAC6, iDRAC7 and iDRAC8) are included as part of their respective generation of Dell PowerEdge servers in the preceding table.**

Supported Dell Workstations

Dell Precision R7910

Supported Dell Chassis

Dell PowerEdge FX2

Dell PowerEdge FX2s

Dell PowerEdge VRTX

Dell PowerEdge M1000e

Supported Dell Compellent Storage Arrays

Compellent Series 40

Compellent SC4020

Compellent SC8000

Supported Dell PowerVault NX Storage Arrays

PowerVault NX200

PowerVault NX300

PowerVault NX400



PowerVault NX3000
 PowerVault NX3100
 PowerVault NX3200
 PowerVault NX3300

Supported Dell EqualLogic PS-Series Storage Arrays

EqualLogic PS4000	EqualLogic PS5000	EqualLogic PS6000
EqualLogic PS4100	EqualLogic PS5500	EqualLogic PS6010
EqualLogic PS4110		EqualLogic PS6100
EqualLogic PSM4110		EqualLogic PS6110
		EqualLogic PS6210
		EqualLogic PS6500
		EqualLogic PS6510

Supported Dell PowerVault MD Storage Arrays

PowerVault MD3200	PowerVault MD3400
PowerVault MD3220i	PowerVault MD3420
PowerVault MD3220	PowerVault MD3460
PowerVault MD3200i	PowerVault MD3800f
PowerVault MD3260	PowerVault MD3800i
PowerVault MD3260i	PowerVault MD3820f
PowerVault MD3600f	PowerVault MD3820i
PowerVault MD3600i	PowerVault MD3860f
PowerVault MD3620f	PowerVault MD3860i
PowerVault MD3620i	
PowerVault MD3660f	

Supported Dell Network Switches

S-Series	M-Series	Z-Series	N-Series	8000 8100 Series
S55	MXL	Z9500	N2024	8024
S60	MIOA	Z9000	N2024P	8132
S4810			N2048	8164
S4820T			N2048P	8024F
S5000			N3024	8132F
S6000			N3024F	8164F
			N3024P	



S-Series	M-Series	Z-Series	N-Series	8000 8100 Series
			N3048	
			N3048P	
			N4032	
			N4032F	
			N4064	
			N4064F	



Dell Smart Plug-in policies

The Dell SPI consists of the following policies:

1. Dell Hardware Autogroup Policy
2. Dell Device Generic Traps
3. Dell Connections License Manager Scheduled Status Poll
4. Dell Server
 - Dell DRAC and Chassis Scheduled Status Poll
 - Dell DRAC and Chassis Traps
 - Dell DRAC and Chassis Traps (Manual Ack)
 - Dell Agent-free Server Traps
 - Dell Agent-free Server Traps (Manual Ack)
 - Dell Server Scheduled Status Poll
 - Dell Server Traps
 - Dell Server Traps (Manual Ack)
5. Dell Workstations
 - Dell Workstation Scheduled Status Poll
6. Dell Storage
 - Dell Compellent Storage Traps
 - Dell Compellent Storage Traps (Manual Ack)
 - Dell Compellent Storage Scheduled Status Poll
 - Dell EqualLogic PS-Series Storage Scheduled Status Poll
 - Dell EqualLogic PS-Series Storage Traps
 - Dell EqualLogic PS-Series Storage Traps (Manual Ack)
 - Dell PowerVault MD Storage Scheduled Status Poll
 - Dell PowerVault MD Storage Traps (Manual Ack)
 - Dell PowerVault NX Storage Scheduled Status Poll
7. Dell Switches
 - Dell 8000 | 8100 Network Switch Scheduled Status Poll
 - Dell Enterprise Switch Traps
 - Dell Enterprise Switch Traps (Manual Ack)
 - Dell Enterprise Switch Scheduled Status Poll
 - Dell N-Series Network Switch Scheduled Status Poll
 - Dell N-Series | 8000 | 8100 Network Switch Traps (Manual Ack)
 - Dell N-Series | 8000 | 8100 Network Switch Traps

Table 5. Policy Files And Their Description

Policy File	Description
Dell Hardware Autogroup Policy	Classifies all the managed and external nodes, identifies the supported Dell Servers, Workstations, DRACs, Chassis, Storage, and Network Switches and groups them in Dell Hardware under the Services hierarchy and Dell Managed Systems under the Nodes hierarchy respectively in the HPOM console.
Dell Device Generic Traps	Processes the generic SNMP traps generated by Dell Devices and sends appropriate messages to the HPOM console. It supports auto-correlation of traps.

Policy File	Description
Dell Connections License Manager Scheduled Status Poll	Periodically polls the Dell Connections License Manager (DCLM) health, license availability, verifies the DCLM configuration parameters and provides the corresponding status information to the HPOM console.
Dell DRAC and Chassis Scheduled Status Poll	Periodically polls the DRAC (DRAC5 and DRAC6) and Chassis devices grouped in Dell Hardware under the Services hierarchy and retrieves the global system health status information.
Dell DRAC and Chassis Traps	Processes the SNMP traps generated by DRAC (DRAC5 or iDRAC6), and Chassis (CMC, VRTX CMC, or FX2 CMC) and sends the appropriate messages to HPOM console. It performs auto-correlation of the traps.
Dell DRAC and Chassis Traps (Manual Ack)	Processes the SNMP traps generated by DRAC (DRAC5 or iDRAC6), and Chassis (CMC, VRTX CMC, or FX2 CMC), and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.
Dell Agent-free Server Traps	Processes the SNMP traps generated by Dell Agent-free servers (iDRAC7 or iDRAC8) and sends appropriate messages to the HPOM console. It supports auto-correlations of messages.
Dell Agent-free Server Traps (Manual Ack)	Processes the SNMP traps generated by Dell Agent-free servers (iDRAC7 or iDRAC8) and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.
Dell Server Scheduled Status Poll	Periodically polls both the Dell PowerEdge Servers and Dell Agent-free servers (iDRAC7 or iDRAC8) grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell Server Traps	This policy processes the SNMP traps generated by Dell OpenManage Server Administrator (OMSA) and Dell OpenManage Storage Management (OMSS) agents on the Dell PowerEdge servers, Dell Workstations, and Dell PowerVault NX Storage Arrays and sends appropriate messages to the HPOM console. This policy supports auto-correlation of the traps.
Dell Server Traps (Manual Ack)	Processes the SNMP traps generated by Dell OpenManage Server Administrator (OMSA) and OpenManage Storage Management (OMSS) agents on the Dell PowerEdge servers, Dell Workstations, and Dell PowerVault NX Storage Arrays and sends appropriate messages to the HPOM. You have to acknowledge these messages manually.
Dell Workstation Scheduled Status Poll	Periodically polls both the Rack Workstations and its corresponding iDRAC8 grouped in Dell Workstations under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell Compellent Storage Scheduled Status Poll	Periodically polls the Dell Compellent Storage Arrays grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell Compellent Storage Traps	Processes the SNMP traps generated by Dell Compellent Storage Arrays and sends appropriate messages to the HPOM console. It supports auto-correlations of messages.
Dell Compellent Storage Traps (Manual Ack)	Processes the SNMP traps generated by Dell Compellent Storage Arrays and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.



Policy File	Description
Dell EqualLogic PS-Series Storage Scheduled Status Poll	This policy periodically polls the EqualLogic PS-Series Storage Arrays grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell EqualLogic PS-Series Storage Traps	Processes the SNMP traps generated by Dell EqualLogic PS-Series Storage Arrays and sends appropriate messages to the HPOM console. It supports auto-correlations of messages.
Dell EqualLogic PS-Series Storage Traps (Manual Ack)	Processes the SNMP traps generated by Dell EqualLogic PS-Series Storage Arrays and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.
Dell PowerVault MD Storage Scheduled Status Poll	Periodically polls the Dell PowerVault MD Storage Arrays grouped in Dell Hardware under the Services hierarchy and provides the system health status information to the HPOM console.
Dell PowerVault MD Storage Traps (Manual Ack)	Processes the SNMP traps generated by the Dell Modular Disk Storage Manager (MDSM) for the Dell PowerVault MD Storage Array grouped under Dell Managed Systems and sends appropriate messages to the HPOM console. This policy does not correlate the traps. You have to acknowledge these messages manually.
Dell PowerVault NX Storage Scheduled Status Poll	Periodically polls the Dell PowerVault NX Storage Arrays grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell 8000 8100 Network Switch Scheduled Status Poll	Periodically polls the Dell 8000 Series and 8100 Series Network Switches grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell N-Series 8000 8100 Network Switch Traps	Processes the SNMP traps from the Dell 8000 Series, 8100 Series, or N-Series Network switches and sends appropriate messages to the HPOM console. It supports auto-correlation of messages.
Dell N-Series 8000 8100 Network Switch Traps (Manual Ack)	Processes the SNMP traps from the Dell 8000 Series, 8100 Series, or N-Series Network switches and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.
Dell Enterprise Switch Scheduled Status Poll	Periodically polls the Dell Enterprise Switches such as the Dell M-Series, S-Series, and Z-Series Switches grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.
Dell Enterprise Switch Traps	Processes the SNMP traps from the Dell Enterprise Switches such as the Dell M-Series, S-Series, or Z-Series and sends appropriate messages to the HPOM console. It supports auto-correlation of messages.
Dell Enterprise Switch Traps (Manual Ack)	Processes the SNMP traps from the Dell Enterprise Switches such as the Dell M-Series, S-Series, or Z-Series and sends appropriate messages to the HPOM console. You have to acknowledge these messages manually.
Dell N-Series Network Switch Scheduled Status Poll	Periodically polls the N-Series Network Switches grouped in Dell Hardware under the Services hierarchy and provides the global system health status information to the HPOM console.

Deploying Smart Plug-in policies

The following Dell policies are automatically deployed on the management server when you install the Dell SPI and run as per the default schedule:


- Dell Hardware Autogroup Policy
- Dell Device Generic Traps
- Dell Connections License Manager Scheduled Status Poll
- Dell Server Traps
- Dell Server Scheduled Status Poll
- Dell Agent-free Server Traps
- Dell Workstation Scheduled Status Poll
- Dell DRAC and Chassis Traps
- Dell DRAC and Chassis Scheduled Status Poll
- Dell Compellent Storage Traps
- Dell Compellent Storage Scheduled Status Poll
- Dell EqualLogic PS-Series Storage Traps
- Dell EqualLogic PS-Series Storage Scheduled Status Poll
- Dell MD Storage Scheduled Status Poll
- Dell PowerVault MD Storage Traps (Manual Ack)
- Dell PowerVault NX Storage Scheduled Status Poll
- Dell N-Series | 8000 | 8100 Network Switch Traps
- Dell 8000 | 8100 Network Switch Scheduled Status Poll
- Dell Enterprise Switch Traps
- Dell Enterprise Switch Scheduled Status Poll
- Dell N-Series Network Switch Scheduled Status Poll

The Dell SPI policies can be deployed manually after you install the Dell SPI:

To deploy the policies manually:

1. Launch the HPOM console and navigate to **Policy Management** → **Policy Groups** → **SPI for Dell Devices**.
2. Right-click and then click **All Tasks** → **Deploy on**.
The **Deploy policies on** screen is displayed.
3. Select the management server and click **OK**.

 **NOTE: Ensure that you deploy the policies only on the management server and not on the managed nodes.**

 **NOTE: You can deploy only one policy at a time; that is, you can deploy either auto acknowledged traps or manually acknowledged traps on the management server.**



Using Dell Smart Plug-in (SPI) features

This chapter discusses the various operations that you can perform after you install the Dell SPI on the HP Operations Manager (HPOM) management server.

Classifying Dell devices

The **Dell Hardware Autogroup Policy** is a scheduled task. By default, the policy is scheduled to run at 04:00 hours every Sunday. You can change this default schedule as per your requirement.

1. Classifying Dell devices under the Services hierarchy

Click **Systems Infrastructure** → **Dell Hardware** under **Services** in the HPOM console to view the Dell devices.

The auto-grouping policy identifies and classifies the Dell PowerEdge servers, Dell Workstations, Dell DRACs, Dell Chassis, Dell Storage, and Dell Network Switches under the **Dell Hardware** services hierarchy on the HPOM console as listed in the following section:

- Creates the following service groups under **Dell Servers** group along with the `<hostname (service tag)>`:
 - **Windows Servers** service group for the Dell PowerEdge servers running Windows
 - **ESXi Servers** service group for the Dell servers running ESXi
 - **Linux Servers** service group for the Dell servers running Linux
- Creates the following service groups under **Dell Workstations** group along with the `<hostname (service tag)>`:
 - **Windows Workstations** service group for the Dell Workstations running Windows
 - **ESXi Workstations** service group for the Dell Workstations running ESXi
 - **Linux Workstations** service group for the Dell Workstations running Linux
- Creates the following service groups under **Dell DRAC** group along with the `<hostname (service tag)>`:
 - **DRAC5** service group for DRAC5 devices
 - **iDRAC6 Modular** service group for iDRAC6 Modular devices
 - **iDRAC6 Monolithic** service group for iDRAC6 Monolithic devices
 - **iDRAC7 Modular** service group for iDRAC7 Modular devices
 - **iDRAC7 Monolithic** service group for iDRAC7 Monolithic devices
 - **iDRAC8 Modular** service group for iDRAC8 Modular devices
 - **iDRAC8 Monolithic** service group for iDRAC8 Monolithic devices
- Creates the following service groups under **Dell Chassis** group along with the `<hostname (service tag)>`:
 - **CMC** service group for CMC devices
 - **VRTX CMC** service group for VRTX CMC devices
 - **FX2 CMC** service group for FX2 CMC devices
- Creates the following service groups under **Dell Storage** group:
 - **Compellent Storage** service group for Dell Compellent Storage Arrays
 - **EqualLogic PS-Series Storage** service group for Dell EqualLogic PS-Series Storage Arrays
 - **PowerVault MD Storage** service group for MD Storage Arrays
 - **PowerVault NX Storage** service group for Dell PowerVault NX Storage Arrays
- Creates the following service groups under **Dell Network Switches** group:
 - **N-Series Switches** service group for Dell N-Series Switches

- **M-Series Switches** service group for Dell M-Series Switches
- **S-Series Switches** service group for Dell S-Series Switches
- **Z-Series Switches** service group for Dell Z-Series Switches
- **8000 | 8100 Series Switches** service group for Dell 8000 Series and 8100 Series network switches
- Creates the following service group under **Dell SPI Licensing** group:
 - **Agent Free Server Monitoring v3** service group for providing a representation for Dell server out-of-band licensing feature for the agent-free server monitoring of Dell devices.

2. Classifying Dell devices under the Node hierarchy

Click **Dell Managed Systems** under **Nodes** hierarchy in the HPOM console to view the Dell devices.

The auto-grouping policy identifies and classifies the following Dell servers, Dell Workstations, Dell DRACs, Dell Chassis, Dell Storage, and Dell Network Switches under the **Dell Managed Systems** node group on the HPOM console as listed in the following section:

- Classifies the Dell Servers and its associated RACs under the following categories according to their hardware configuration:
 - **Modular Servers**
 - **Monolithic Servers**
- Classifies the Dell Workstations under the following categories according to their hardware configuration:
 - **Rack Workstations**
- Classifies the DRAC devices under the following categories according to their hardware configuration:
 - **DRAC5**
 - **iDRAC6 Modular**
 - **iDRAC6 Monolithic**
 - **iDRAC7 Modular**
 - **iDRAC7 Monolithic**
 - **iDRAC8 Modular**
 - **iDRAC8 Monolithic**
- Classifies the Dell Chassis under the following categories according to their hardware configuration:
 - **CMC**
 - **VRTX CMC**
 - **FX2 CMC**
- Classifies the Dell Storage under the following categories according to their hardware configuration:
 - **EqualLogic PS-Series Storage**
 - **PowerVault MD Storage**
 - **Compellent Storage**
 - **PowerVault NX Storage**
- Classifies the Dell Network Switches under the following categories according to their hardware configuration:
 - **N-Series Switches**
 - **M-Series Switches**
 - **S-Series Switches**
 - **Z-Series Switches**
 - **8000 | 8100 Series Switches**
- Classifies the previously classified Dell devices that are not reachable or have failed to respond to SNMP, WS-MAN, or Symbol SDK queries under the following category:
 - **Unresponsive Dell Devices**



**NOTE:**

When the Auto-grouping policy is scheduled along with other Monitoring policies at the same time, an error message may be displayed in a pop-up window. You can ignore the error message by clicking **OK** in the pop-up window.

The auto-grouping policy classifies the iDRAC7 or iDRAC8 devices only if valid licenses are available in the Dell Connections License Manager (DCLM).

Before classifying the iDRAC7 or iDRAC8 devices, configure the Dell Connections License Manager Webservice URL and the required credentials. For more information, see **Configuring Dell Connections License Manager Webservice URL** section from *Dell Smart Plug-in Version 4.1 for HP Operations Manager 9.0 For Microsoft Windows Installation Guide*.



NOTE: To monitor Dell Compellent Storage Arrays, use the Dell Compellent Storage Array Management IP.



NOTE: The 8100 Series switches with firmware version 6.0.0.8 or later will be grouped as N-Series switches after the auto discovery cycle completes.

Monitoring the health of Dell devices

You can monitor the health of Dell devices using the scheduled policies. Scheduled policies update the global system status of the Dell devices at 02:00 A.M. every day. These policies poll each Dell device grouped under the **Services** → **Systems Infrastructure** → **Dell Hardware** hierarchy to obtain the global system status and send corresponding severity messages to the active message browser of the HPOM console.

Dell SPI provides the following scheduled policies:

- Dell Server Scheduled Status Poll
- Dell Workstation Scheduled Status Poll
- Dell DRAC and Chassis Scheduled Status Poll
- Dell Compellent Storage Scheduled Status Poll
- Dell EqualLogic PS-Series Storage Scheduled Status Poll
- Dell PowerVault MD Storage Scheduled Status Poll
- Dell PowerVault NX Storage Scheduled Status Poll
- Dell 8000 | 8100 Network Switch Scheduled Status Poll
- Dell Enterprise Switch Scheduled Status Poll
- Dell N-Series Network Switch Scheduled Status Poll

The global health status is the overall health of the device. However, the health of the individual components of the device may differ. To view the health of the individual components of the Dell devices, launch the respective tools associated with the Dell devices.

Table 6. Dell SPI scheduled policies and their description


Policy Name	Description
Dell Server Scheduled Status Poll	<p>This policy periodically polls both the Dell PowerEdge servers and iDRAC7 or iDRAC8 (agent-free servers) and provides the global system health status information to the HPOM console in the active message browser of the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> • Windows or Linux systems, launch the OpenManage Server Administrator Console. For more information, see Launching Dell Consoles. • ESXi systems, launch the OpenManage Server Administrator Web Server Console to access Server Administrator. For more information, see Launching Dell Consoles.



Policy Name	Description
	<ul style="list-style-type: none"> IDRAC7 or iDRAC8 (Agent-free servers) devices, launch the Dell Remote Access Controller Console (in-band). For more information, see Launching Dell Consoles.
Dell Workstation Scheduled Status Poll	<p>This policy periodically polls both the Dell Workstations and its corresponding RACs and provides the global system health status information to the HPOM console in the active message browser of the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Windows or Linux Workstations, launch the OpenManage Server Administrator Console tool. For more information, see Launching Dell Consoles. ESXi Workstations, launch the OpenManage Server Administrator Web Server Console to access the Server Administrator. For more information, see Launching Dell Consoles. IDRAC7 or iDRAC8 (agent-free servers) devices, launch the Dell Remote Access Controller Console (in-band). For more information, see Launching Dell Consoles.
Dell DRAC and Chassis Scheduled Status Poll	<p>This policy periodically polls the DRAC (DRAC5 and iDRAC6) and Chassis (CMC, VRTX CMC, and FX2 CMC) devices grouped under Dell Managed Systems and retrieves the global system health status information.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell DRAC devices, launch the DRAC Console. For more information, see Launching Dell Consoles. Dell Chassis, launch the CMC Console. For more information, see Launching Dell Consoles.
Dell Compellent Storage Scheduled Status Poll	<p>This policy periodically polls the Dell Compellent Storage Arrays grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell Compellent arrays, launch the Dell Compellent Storage Manager Console. For more information, see Launching Dell Consoles.
Dell EqualLogic PS-Series Storage Scheduled Status Poll	<p>This policy periodically polls the EqualLogic PS-Series Storage Arrays grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell EqualLogic devices, launch the EqualLogic Group Manager Console. For more information, see Launching Dell Consoles.
Dell PowerVault MD Storage Scheduled Status Poll	<p>This policy periodically polls the PowerVault MD Storage Arrays grouped under Dell Managed Systems and provides the system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell PowerVault MD Storage Array , launch the MD Storage Manager Console. For more information, see Launching Dell Consoles.
Dell PowerVault NX Storage Scheduled Status Poll	<p>This policy periodically polls the Dell PowerVault NX Storage Arrays grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell PowerVault NX Storage Array, launch the OpenManage Server Administration Console. For more information, see Launching Dell Consoles.
Dell N-Series Network Switch Scheduled Status Poll	<p>This policy periodically polls the Dell N-Series Network Switches grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell N-Series Network switches, launch the OpenManage Switch Administrator Console. For more information, see Launching Dell Consoles.



Policy Name	Description
Dell 8000 8100 Network Switch Scheduled Status Poll	<p>This policy periodically polls the Dell 8000 Series and 8100 Series Network Switches grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell 8000 8100 Series switches, launch the OpenManage Switch Administrator Console. For more information, see Launching Dell Consoles.
Dell Enterprise Switch Scheduled Status Poll	<p>This policy periodically polls the Dell Enterprise Switches such as the Dell M-Series, S-Series, and Z-Series Switches grouped under Dell Managed Systems and provides the global system health status information to the HPOM console.</p> <p>To view the health of the individual components for:</p> <ul style="list-style-type: none"> Dell M-Series, S-Series, or Z-Series switches, launch the Dell OpenManage Network Manager Console or the Dell Switch Telnet tool. For more information, see Launching Dell Consoles.

 **NOTE: The global health status of the Dell devices is not displayed on the HPOM console until the Dell Hardware Autogroup Policy runs for the first time, and the Dell devices are grouped under the Dell Managed Systems and the Dell Hardware group. The policies then update the health status of the devices under the corresponding Dell Device's Global System Status under the Services and the Nodes tree.**

 **NOTE: The health status of Dell devices is represented as Critical when their actual health status is Unknown.**

Monitoring Dell Connections License Manager

You can monitor the Dell Connections License Manager by using the Dell Connections License Manager Scheduled Status Poll policy which is scheduled to run every 3 hours. This policy monitors the Dell Connections License Manager (DCLM) health, license availability, verifies the DCLM configuration parameters and sends corresponding severity messages to the active message browser of the HPOM console.

To view the status of the number of licenses available, launch the Dell Connections License Manager Console Launch Tool. For more information, see [Launching Dell Consoles](#).

 **NOTE: The global health status of the Dell Connections License Manager is not displayed on the HPOM console until the Dell Hardware Autogroup Policy runs for the first time, and the Dell devices are classified.**

You can disable this policy if you are not monitoring iDRAC7 or iDRAC8 devices.

Processing SNMP traps from Dell devices

The Dell SPI uses the SNMP interceptor policies to process SNMP traps. They have predefined rules to process all the SNMP traps sent by the Dell devices to the management server, generate formatted messages, and send them to the HPOM console.

Dell SPI provides the following two categories of SNMP policies:

- Auto acknowledged traps
 - Dell Server Traps
 - Dell Agent-free Server Traps
 - Dell DRAC and Chassis Traps
 - Dell Compellent Storage Array Traps
 - Dell EqualLogic Traps
 - Dell Enterprise Switch Traps

- Dell N-Series | 8000 | 8100 Network Switch Traps
2. Manually acknowledged traps
 - Dell Server Traps (Manual Ack)
 - Dell Agent-free Server Traps (Manual Ack)
 - Dell DRAC and Chassis Traps (Manual Ack)
 - Dell PowerVault MD Storage Array Traps (Manual Ack)
 - Dell Compellent Storage Array Traps (Manual Ack)
 - Dell EqualLogic Traps (Manual Ack)
 - Dell N-Series | 8000 | 8100 Network Switch Traps (Manual Ack)
 - Dell Enterprise Switch Traps (Manual Ack)

For more information about deploying the preceding Dell SPI policies, see [Deploying Smart Plug-in Policies](#).

 **NOTE: Dell SPI version 4.1 does not support Dell Compellent SNMPv2 traps.**

 **NOTE: The Dell SPI does not support a multi-valued pattern for the Fully Qualified Domain Name (FQDN), IP Address, and Node name for external nodes and managed nodes.**

For example, if you have an IP address pattern like 10.44.176.100 and 10.44.176.10 to group and monitor nodes, the Dell SPI does not recognize the pattern, which may result in alerts not received on the correct nodes.

Understanding Dell SPI trap message severity

Traps often contain information about values recorded by probes or sensors. Probes and sensors monitor critical components for values such as amperage, voltage, and temperature. When an event occurs on the Dell system, it sends a trap having one of the following severities:

- **Normal** — An event that describes the successful operation of a unit, such as a power supply turning on, or a sensor reading returning to normal.
- **Warning** — An event that is not necessarily significant, but may indicate a possible future problem, such as crossing a warning threshold.
- **Critical** — A significant event that indicates actual or imminent loss of data or loss of function, such as crossing a failure threshold or a hardware failure.

SNMP trap based severity propagation

The following table describes the severity propagation for the **Nodes** hierarchy based on SNMP traps.

Table 7. SNMP Trap Based Severity Propagation

View	Description
Nodes hierarchy	The node status displays the highest severity of all the active messages. This status is propagated to the parent node groups. To know the actual health of the node, view the status in the Global System Status for the node under the Services hierarchy.

Auto acknowledged traps

These trap policies intercept and process the SNMP traps generated by the respective Dell device and display the corresponding alert messages on the HPOM console. This policy has the trap-correlation feature enabled and is auto-deployed when you are installing the Dell SPI.

For every trap received from the Dell device, the Dell SPI processes the traps in the following manner:

1. Sends a message to the active message browser of the node on the HPOM console.
2. For all **Normal** traps, the policy auto-acknowledges the messages and moves them from the active message browser to the acknowledged message browser.



3. For all **Critical** and **Warning** traps, it retains the messages in the active message browser and auto correlates the trap once it receives a corresponding **Critical**, **Warning**, or **Normal** trap.
4. Retrieves the global system status of the node and sends a message with the global system status to the active message browser of the node.

If a node is not DNS resolvable, the Dell SPI may not update the global health status for that node.

 **NOTE: All Normal, Warning, and Critical traps are retained in the active message browser.**

Manually acknowledged traps

These trap policies intercept and process the SNMP traps generated by the respective Dell device and display the corresponding alert messages on the HPOM console. The manually acknowledged traps have to be manually deployed after installing the Dell SPI and does not automatically acknowledge the received traps.

For every trap received from the Dell device, it processes the traps in the following manner:

1. Sends a message to the active message browser of the node on the HPOM console.
2. Retains all the **Normal**, **Critical**, and **Warning** traps in the active message browser of the node.
You must manually acknowledge the traps.
3. Retrieves the global system status of the node and sends a message with the global system status to the active message browser of the node.

If a node is not DNS resolvable, the Dell SPI may not update the global health status for that node.

Launching Dell consoles



The Dell SPI for HPOM enables you to launch various Dell consoles to get more information about the Dell devices you are monitoring. You can launch the Dell consoles for a Dell device from any of the following hierarchies:

- **Services** → **Dell Hardware**. For more information, see [Launching Dell Console from Services](#).
- **Nodes** → **Dell Managed Systems**. For more information, see [Launching Dell Consoles From Nodes](#).
- **Tools** → **Dell Tools**. For more information, see [Launching Dell Consoles From Tools](#).

 **NOTE: You cannot launch the Dell tools from an HPOM remote console.**

- **Alert Messages**. For more information, see [Launching Dell Consoles From Alert Messages](#).

Table 8. Dell One to One console launches

Dell Device	Console launch tools
Dell Servers	<ul style="list-style-type: none"> • OpenManage Server Administrator Console • Dell Remote Access Controller Console (in-band) • OpenManage Server Administrator Web Server Console <p> NOTE: The OpenManage Server Administrator (OMSA) Web Server URL has to be configured by using the Dell SPI config utility to launch the OMSA Web Server console.</p>
Dell Workstations	<ul style="list-style-type: none"> • OpenManage Server Administrator Console • Dell Remote Access Controller Console (in-band) • OpenManage Server Administrator Web Server Console <p> NOTE: The OpenManage Server Administrator (OMSA) Web Server URL has to be configured by using the Dell SPI config utility to launch the OMSA Web Server console.</p>
Dell DRACs	<ul style="list-style-type: none"> • OpenManage Server Administrator Console • DRAC Console








Dell Device	Console launch tools
	<p> NOTE: The OpenManage Server Administrator Console can be launched only from iDRAC7 or iDRAC8 devices.</p>
Dell Chassis	<ul style="list-style-type: none"> · CMC Console <p> NOTE: The CMC Console can be launched from CMC, VRTX CMC, and FX2 CMC devices.</p>
Dell Storage	<ul style="list-style-type: none"> · Dell Compellent Storage Arrays: <ul style="list-style-type: none"> – Dell Compellent Storage Manager Console · Dell EqualLogic Storage Arrays: <ul style="list-style-type: none"> – EqualLogic Group Manager Console · Dell PowerVault NX Storage Arrays: <ul style="list-style-type: none"> – OpenManage Server Administrator Console – Dell Remote Access Controller Console (in-band) – OpenManage Server Administrator Web Server Console
Dell Switches	<ul style="list-style-type: none"> · Dell switches (N-Series, M-Series, S-Series, Z-Series, 8000 Series, and 8100 Series): <ul style="list-style-type: none"> – Dell Switch Telnet tool <p> NOTE: You must configure the Telnet Client on the management server as a prerequisite to using this feature.</p> · Dell N-Series, 8000 Series, or 8100 Series switches: <ul style="list-style-type: none"> – OpenManage Switch Administrator Console
Any Dell device	<ul style="list-style-type: none"> · Any Dell device <ul style="list-style-type: none"> – Warranty Console <p> NOTE: An active Internet connection is required to retrieve the warranty information.</p>

Table 9. Dell One to Many console launches

Dell Device	Description
Any Dell device	<p>Any Dell device</p> <p>OpenManage Essentials (OME) Console</p> <p> NOTE: If OME is installed in a non-default location, then you need to manually configure the location where the OME is installed in the OME Console launch Tools.</p>
Dell Servers	<p>OpenManage Power Center (OMPC) Console</p>
Dell DRACs	<p>OpenManage Power Center (OMPC) Console</p> <p>OMPC console can be launched from iDRAC7 and iDRAC8 devices only.</p>
Dell Chassis	<p>OpenManage Power Center (OMPC) Console</p> <p>OMPC console can be launched from CMC and VRTX CMC devices only.</p>
Dell Storage	<ul style="list-style-type: none"> · Dell Compellent Storage Arrays: <ul style="list-style-type: none"> – Dell Compellent Enterprise Manager Client Console <p> NOTE: If the Dell Compellent Enterprise Manager Client Console is installed in a non-default location, then you need to manually configure the location where the Dell Compellent Enterprise Manager Client Console is installed.</p> · Dell PowerVault MD Storage Arrays

Dell Device	Description
	<ul style="list-style-type: none"> – MD Storage Manager Console <p> NOTE: If the MD Storage Manager Client is installed in a non-default location, then you need to manually configure the location where the MD Storage Manager Client is installed in the MD Storage Manager Console Tools.</p>
Dell Switches	<ul style="list-style-type: none"> · Dell switches (N-Series, M-Series, S-Series, Z-Series, 8000 Series, and 8100 Series): – Dell OpenManage Network Manager Console
Dell Connections License Manager Server	<ul style="list-style-type: none"> · Dell Connections License Manager – Dell Connections License Manager Console Launch Tool

Launching Dell consoles from services

You can launch a console for a specific Dell Device from the Services hierarchy. The devices include Dell Servers, Dell Workstations, Dell Chassis, Dell Remote Access Controllers, Dell Storage, and Dell Network Switches.

For more information about Dell consoles, see Table 7 and Table 8 in the [Launching Dell Consoles](#) section.

To launch a Dell device specific console from the **Services** hierarchy:

1. Navigate to **Services** → **Systems Infrastructure** → **Dell Hardware** and expand any Dell device group.

Example:

To launch the **Dell Compellent Storage Manager Console** for the Dell Compellent Storage Arrays, navigate to **Services** → **Systems Infrastructure** → **Dell Hardware** → **Dell Storage** → **Compellent Storage Arrays**.

2. Right-click the desired **Dell Device** for which you want to launch the console.
The **Select the Tool to Execute** window is displayed for that Dell device.
3. Select the respective **Dell Device** Console and click **Launch**.

The respective Dell Device Console is launched in the default browser in the system.

Launching Dell consoles from tools

You can launch a console for a specific Dell Device from the Tools hierarchy. The devices include Dell Servers, Dell Workstations, Dell Chassis, Dell Remote Access Controllers, Dell Storage, and Dell Network Switches. For more information about Dell devices, see Table 7 and Table 8 in the **Launching Dell Consoles** section.

For more information about Dell consoles, see Table 7 and Table 8 in the [Launching Dell Consoles](#) section.

To launch a Dell device specific console from the **Tools** hierarchy:

1. Navigate to **Tools** → **Dell Tools** and expand any Dell device group.

Example:


To launch the **Dell Compellent Storage Manager Console** for the Dell Compellent Storage Arrays, navigate to **Tools** → **Dell Tools** → **Dell Storage** → **Compellent Storage Arrays**.

2. In the right pane, right-click the desired **Console Launch Tool** for the selected Dell device group.
3. Select **All Tasks** → **Launch Tool** from the pop-up menu.
The **Edit Parameters** window is displayed.
4. Expand either **Nodes** or **Services** hierarchy, navigate to the respective **Dell Device**, and click **Launch**.

You can only select a single Dell device. If you select more than one Dell device, the following message is displayed:

Tool cannot be launched on multiple nodes.

The desired **Dell Device** Console is launched in the default browser in the system.

 **NOTE: HPOM enables you to select non-Dell devices. However, you cannot launch the Dell Device console for troubleshooting a non-Dell device.**

Launching Dell consoles from nodes

You can launch a console for a specific Dell Device from the **Nodes** hierarchy. The devices include Dell Servers, Dell Workstations, Dell Chassis, Dell Remote Access Controllers, Dell Storage, and Dell Network Switches. For more information about Dell devices, see Table 7 and Table 8 in the **Launching Dell Consoles** section.

For more information about Dell consoles, see Table 7 and Table 8 in the [Launching Dell Consoles](#) section.

To can launch a Dell device specific console from the Nodes hierarchy:

1. Navigate to **Nodes** → **Dell Managed Systems** and select any Dell device under the parent node.

Example:

To launch the **Dell Compellent Storage Manager Console** for the Dell Compellent Storage Arrays, navigate to **Nodes** → **Dell Managed Systems** → **Dell Storage** → **Compellent Storage Arrays** and select any Dell Compellent device.

2. Right-click the desired **Dell Device**, and select **All Tasks** → **Launch Tool** from the pop-up menu.

The **Select the Tool to Execute** window is displayed.

3. Select the respective **Dell Device** Console and click **Launch**.

The respective **Dell Device Console** is launched in the default browser in the system.

Launching Dell consoles from alert messages

You can launch a console for a specific Dell Device from the Alert Messages associated with that Dell device. The devices include Dell Servers, Dell Workstations, Dell Chassis, Dell Remote Access Controllers, Dell Storage, and Dell Network Switches. For more information about Dell devices, see Table 7 and Table 8 in the **Launching Dell Consoles** section.

For more information about Dell consoles, see Table 7 and Table 8 in the [Launching Dell Consoles](#) section.

To launch a Dell device specific console from the Alert Messages:

1. Select any alert message associated with a Dell device in the Active Message Browser.
2. Right-click and select **Launch Tool** → **Message**, **Launch Tool** → **Nodes**, or **Launch Tool** → **Services** from the pop-up menu.

Example:

To launch the **Dell Compellent Storage Manager Console** for the Dell Compellent Storage Arrays, right- click any alert message associated with a Dell Compellent Storage Array in the right pane and select **Launch Tool** → **Message**, **Launch Tool** → **Nodes**, or **Launch Tool** → **Services** from the pop-up menu.

The **Select the Tool to Execute** window is displayed.



NOTE: For external nodes, only the Launch Tool → Message option is available.

3. Select the respective **Dell Device** Console and click **Launch**.

The respective Dell Device Console is launched in the default browser in the system.

Association of Dell devices

The **Dell Hardware Autogroup Policy** classifies all the Dell devices under their respective hierarchies based upon the underlying hardware of each of the Dell device. After a Dell Chassis is classified, its corresponding blade servers and their Remote Access Controllers (RACs), and Dell EqualLogic Blade Arrays get associated with their respective slots, and the IO modules (Modular Switches) get associated with their respective Dell chassis. The classified Dell Workstations are associated with their respective RACs. In case of Dell 12th or later generation of PowerEdge servers, Dell Workstations, or Dell Powervault NX Storage Arrays the respective iDRAC7 or iDRAC8 gets associated with its respective host server.

Dell SPI supports the following associations:

- Dell Servers with RACs
- Dell Workstations with RACs
- Dell Servers and their respective RACs with CMC, VRTX CMC, or FX2 CMC Devices
- Dell EqualLogic Blade Array with CMC Devices
- Blade IO (Dell M-Series Switches) with CMC Devices



Associating Dell servers with RACs

You can view the classified in-band or out-of-band Dell 10th or later generation of PowerEdge servers and their corresponding RACs that are associated with the Dell servers in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Servers** → **<Dell Server sub group>** → **Server IP/FQDN (Service Tag)**.
Dell Server sub group refers to either one of the servers listed under the Dell Servers group. The Dell Server sub group refers to devices such as Dell Modular Servers, Dell Monolithic Servers, Windows Servers, Linux Servers, or ESXi Servers that fall under the Dell Servers group.

The **Server IP/FQDN (Service Tag)** nodes are displayed.
2. Click a service tag to view the managed nodes of the servers and its associated RACs.

Associating Dell Workstations with RACs

You can view the association of Dell Workstations and their corresponding RACs in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Workstations** → **Dell Rack Workstations** → **Workstation IP/FQDN (Service Tag)**.
The **Workstation IP/FQDN (Service Tag)** nodes are displayed.
2. Click a service tag to view the classified Workstations and its associated RACs.

Associating Dell servers with CMC devices

You can view classified in-band or out-of-band modular servers and their corresponding RACs that are associated with CMC devices in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Chassis** → **CMC** → **CMC Node (Service Tag)**.
The **CMC (Chassis Service Tag)** nodes are displayed.
2. Expand the **CMC** node to view all the CMC slots of the discovered Dell servers and the RACs associated with that CMC Device.
3. Click a service tag to view the managed nodes of the servers and their corresponding RACs that are associated with CMC.

Associating Dell servers with VRTX CMC devices

You can view the classified in-band or out-of-band (OOB) modular servers and the corresponding RACs that are associated with VRTX CMC devices in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Chassis** → **VRTX CMC** → **VRTX CMC Node (Service Tag)**.
The **VRTX CMC (Chassis Service Tag)** nodes are displayed.
2. Expand **VRTX CMC** node to view the service tags of the Dell servers and the corresponding RACs associated with that VRTX CMC node.
3. Click a service tag to view the managed nodes of the servers and their corresponding RACs that are associated with VRTX CMC.

Associating Dell servers with FX2 CMC devices

You can view the classified in-band or out-of-band modular servers and their corresponding RACs that are associated with FX2 CMC devices in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Chassis** → **FX2 CMC** → **FX2 CMC Node (Service Tag)**.
2. Expand the **FX2 CMC (Chassis Service Tag)** node.
All the FX2 CMC slots of the classified Dell servers and its RACs associated with that FX2 CMC Device are displayed.
The FX2 CMC slots are represented as follows:

SLOT <number> - <Server Service Tag>

 **NOTE: For Dell PowerEdge FM120x4 server nodes associated with FX2 CMC devices, the Server Node ID is used in the slot representation as shown below:**

<SLOT Number> - < Slot Name (Server Node ID)>

3. Click a service tag to view the managed nodes of the servers and their corresponding RACs that are associated with FX2 CMC.

Associating Dell PowerVault NX Storage Arrays with RACs

You can view the classified Dell 10th or later generation of PowerVault NX Storage Arrays and their corresponding RACs that are associated in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Storage** → **PowerVault NX Storage** → **Server IP/FQDN (Service Tag)**.
The Dell PowerVault NX Storage Arrays **Server IP/FQDN (Service Tag)** nodes are displayed.
2. Click a service tag to view the managed nodes of the Dell PowerVault NX Storage Arrays and its associated RACs.

Associating Dell EqualLogic Blade Array with CMC devices

You can view the Dell EqualLogic Blade Arrays that are associated with CMC devices in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Chassis** → **CMC** → **CMC Node (Chassis Service Tag)**.
2. Expand the **CMC Node (Chassis Service Tag)**.
The CMC slots of the discovered modular EqualLogic Blade Arrays associated with that CMC device are displayed.

 **NOTE: The CMC slots are represented as follows:**
SLOT <number> - < SLOT Name (EqualLogic Service Tag)>

Example: SLOT 3/4 - SNAC (3ZKXS2F)

3. Click the required service tag to view the associated Dell EqualLogic Blade Array member node.

Association Of Blade IO (Dell M-Series Switches) with CMC devices

You can view the Dell M-Series network switches that are associated with CMC devices in the **Nodes** view of the HPOM console.

1. Click **Nodes** → **Dell Managed Systems** → **Dell Chassis** → **CMC** → **CMC Node (Service Tag)** → **IO Modules**.
2. Expand **IO Modules**.
The service tags of the Dell M-Series network switches associated with the CMC devices are displayed under the chassis tag of the CMC device.
3. Click the required IO Module to view the associated Dell M-Series network switch.

Dell unresponsive devices

If a previously classified Dell device does not respond to a subsequent auto-grouping cycle, then that device will be classified under the **Dell Unresponsive Device** group.

You can attribute such non responsiveness to the following conditions:

- Nodes not responding to SNMP, WSMAN, or Symbol SDK queries
- SNMP services has stopped
- WSMAN parameters are incorrect or not configured
- Cannot ping the devices' IP address
- Device is powered off or shutdown

 **NOTE: None of the Dell Tools will get associated with any of the nodes listed under the Dell Unresponsive Devices group.**



 **NOTE:** In a particular auto-grouping cycle, if an unreachable device becomes reachable, then this device is removed from the Dell Unresponsive Devices folder and classified under its corresponding device classification.

Viewing Dell unresponsive devices

To view the Dell Unresponsive devices from the **Nodes** hierarchy:

Navigate to **Nodes** → **Dell Managed Systems** and click **Dell Unresponsive Devices**.

The Dell unresponsive devices are displayed.

Viewing Knowledge Base articles

You can view knowledge base (KB) articles associated with all alert messages for Dell devices. The KB articles contain the summary, causes and steps to resolve the alert condition.

To view the KB article:

1. Select the desired Dell device from the **Nodes** hierarchy.
2. Right-click any alert message associated with the device in the right pane and select **Properties** from the pop-up menu.
3. In the **Properties** screen, click the **Instructions** tab.
4. Click on the HyperText Markup Language (HTML) link provided.

Troubleshooting Dell Smart Plug-in (SPI)

This section lists the problems that you may encounter while using the Dell SPI and their resolutions.

“Failed to get the warranty details for the service tag: <Service Tag>”

Problem

Unable to retrieve the Warranty details for any Dell device.

Reason

The Warranty URL is not resolvable from the management server.

Solution

If you do not have direct internet access or if you are using proxy settings to access the internet, ensure that you are able to resolve the host name api.dell.com. You can add the entry for Warranty URL in the `windows\system32\drivers\etc\hosts` file on the management server.

For example:

```
143.166.11.198 api.dell.com
```

iDRAC7 or iDRAC8 devices are not getting classified in the HPOM console

Problem

The iDRAC7 or iDRAC8 devices are not getting classified after enabling the proxy server, even though DCLM has been configured correctly.

Solution

Add the DCLM IP address to the internet browser proxy exception list to bypass the internet proxy server and classify the Dell iDRAC7 and iDRAC8 devices in HPOM console.

“MMC has detected an error in a snap-in. It is recommended that you shut down and restart MMC.”

Problem

The following error is displayed during uninstallation:

“MMC has detected an error in a snap-in. It is recommended that you shut down and restart MMC.”

Solution

Close the HPOM console and re-launch it again.

"The Setup must update files or services not updateable while the system is running. If you choose to continue, a reboot is required to complete the setup."

Problem

The following error is displayed during uninstallation:



"The Setup must update files or services not updateable while the system is running. If you choose to continue, a reboot is required to complete the setup."

Solution

You can ignore this error as the uninstallation of the Dell SPI is successful.

Installer takes time to launch

Problem

When the Dell SPI installer is run for the first time on the management server, there is a delay of 40-45 seconds to launch the installer if the system does not have access to the internet.

Reason

This problem occurs because the .NET Framework managed assembly that has an Authenticode signature takes longer than usual to load. The signature is always verified when the .NET Framework managed assembly that has an Authenticode signature is loaded.

Solution

To resolve this, ensure that the management server is connected to the Internet when you run the installer.

DellSPICongUtility displays an error

Problem

DellSPICongUtility displays an error for a Local User when the user access control (UAC) is enabled.

Solution

When UAC is enabled, run the DellSPICongUtility using Run as Administrator command prompt.

1. Select the command prompt application, right-click and then select **Run as Administrator**.
2. Configure the SNMP and WSMAN parameters in the administrator command line.



NOTE: You should have Administrators and HP_OVE_Admins privileges; otherwise, you must provide the required security credentials.

SNMP trap messages are not created

Problem

The SNMP Interceptor policy may not display the SNMP trap messages in the active message browser of the node from which it receives the traps.

Solution

To resolve this, ensure that the trap destinations and the community strings on the Dell managed nodes are configured correctly and communication is established between the managed node and the management server.

SNMP traps received at wrong nodes due to an error in the DNS cache

Problem

After you start monitoring the Dell systems grouped under Dell Managed Systems group, if you interchange the IP addresses of the nodes, then the SNMP traps are received on the wrong nodes. For example, if you have two nodes A and B under **Dell Managed Systems** → **Dell Monolithic Servers group** and you interchange the IP addresses of the two nodes, then the traps from A are displayed as messages in the active message browser of B and vice versa.

Solution

To resolve this:

1. Launch the Server Configuration Editor on the HP Operations Manager (HPOM) console.

- Under the **Node Cache Settings** option, set the **DNS cache** value to **False** to disable the DNS caching. The nodes now display the traps correctly.

Global System Status not retrieved for Dell devices

Problem

The **Dell Server Scheduled Status Poll** policy does not retrieve the global system status of the classified Dell devices until the devices are grouped under the **Dell Managed Systems** group.

Solution

The global status update policy is scheduled to run at 02:00 hours every day and starts polling systems for global system status. If you choose to auto-deploy the policy files during the Dell SPI installation, the policies start running as per the default schedule. However, the auto grouping policy is scheduled to run only at 04:00 hours every week. Therefore, until the **Dell Hardware Autogroup Policy** runs and the Dell devices are grouped under the **Dell Managed Systems** group, the global system status of the devices are not displayed on the HPOM console.

Trap correlation feature is not working after the Dell SPI repair operation

Problem

After the repair operation, correlation of traps do not occur for some groups of Dell devices.

Reason

The Dell SPI does not identify and disable the policies that have been manually deployed on the management server prior to using the repair feature. After using the repair feature of the Dell SPI, the default policies are deployed along with the previously deployed Manual Ack policies, if any. For more information about Dell SPI default and Manual Ack policies, see [Deploying Smart Plug-in Policies](#).

Solution

It is recommended to either have correlation policies or Manual Ack policies enabled for the Dell devices you want to monitor at any given time. To have trap correlation feature for a Dell device, disable the device specific Manual Ack policy.



Related documents and resources

This chapter gives you the details of other documents and resources to help you work with the Dell Smart Plug-in version 4.1.

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** → **Systems Management**. Click the appropriate product link on the right-side to access the documents:

- *HP Operations Manager 9.0 for Windows Installation Guide*
- *Dell OpenManage Installation and Security User's Guide*
- *Dell OpenManage Server Administrator User's Guide*
- *Dell OpenManage Server Administrator Compatibility Guide*
- *Dell OpenManage Server Administrator Messages Reference Guide*
- *Dell OpenManage Server Administrator Command Line Interface User's Guide*
- *Dell OpenManage With VMware ESX/ESXi Systems Management Guide*. To access this guide, click **Software** → **Virtualization Solutions** → **VMware Software** on dell.com/support/manuals.
- *SNMP Trap Correlation Guide*
- *Dell Chassis Management Controller User's Guide*
- *Dell Chassis Management Controller for Dell PowerEdge VRTX User's Guide*
- *Dell Chassis Management Controller for Dell PowerEdge FX2/FX2s User's Guide*
- *Dell Integrated Remote Access Controller User's Guide*
- *Dell Remote Access Controller 5 User's Guide*
- *Dell Remote Access Controller/ Modular Chassis User's Guide*
- *Dell OpenManage Essentials User's Guide*
- *Dell OpenManage Power Center User's Guide*
- *Dell OpenManage Network Manager User's Guide*
- *Dell Connections License Manager User's Guide*
- To view the *Dell PowerVault MD Storage Arrays User's Guide*, pertaining to a MD Storage Arrays device, select the desired Dell MD Storage Arrays device under **Systems** → **PowerVault Storage** on dell.com/support/manuals
- To view the *Dell EqualLogic User's Guide* click **Systems** → **Dell EqualLogic** → **Dell EqualLogic Documentation** on dell.com/support/manuals.

For information on terms used in this document, see the *Glossary* on the Dell Support website at dell.com/support/manuals.

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. Visit dell.com/support/manuals.
2. Select your support category.
3. If you are not a U.S. customer, select your country code at the bottom of the dell.com/support page, or select **All** to see more choices.

4. Select the appropriate service or support link based on your need.

