Dell Smart Plug-in Version 4.1 For HP Operations Manager 9.0 For Microsoft Windows

Installation 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.

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Contents

Introduction to Dell SPI for HPOM for Microsoft Windows....4
Prerequisites for installing the Dell SPI....5
Software requirements for management server....5
Software requirements for managed systems....5
Supported firmware versions....6
Configuring user authorization for WINRM....7
Installing the Dell SPI for HPOM for Microsoft Windows....8
Verifying the Dell SPI installation....8
What to do next?....16
Using the Dell SPI configuration utility....18
Configuring Dell Connections License Manager parameters....18
Configuring Dell Connections License Manager URL....19
Configuring Dell Modular Disk (MD) Storage Manager Console....19
Configuring Dell OpenManage Power Center (OMPC) tool....20
Configuring Dell OpenManage Essentials (OME) tool....20
Configuring Dell OpenManage Network Manager (OMNM) tool....20
Configuring Dell Compellent Enterprise Manager Client Console....21
Configuring Dell Switch Telnet tool....21
Setting the schedule for Dell Auto-grouping policy....22
Creating Connections License Manager domain groups....25
Removing Dell devices....26
Using the repair option in the installer....27
Repairing the program features....27
Repairing the Dell SPI program features using Windows control panel....27
Upgrading to Dell SPI version 4.1....29
Upgrading Dell SPI....29
Uninstalling the Dell SPI for HPOM for Microsoft Windows....30
Removing Dell SPI using Windows Control Panel....30
Removing Dell SPI using the installer....30
Verifying the uninstallation of Dell SPI....31
Related documents....32

Introduction to Dell SPI for HPOM for Microsoft Windows

The Dell Smart Plug-in (SPI) Version 4.1 for Hewlett Packard Operations Manager (HPOM) 9.0 for Microsoft Windows Installation Guide provides information about the software and system requirements to upgrade, install, configure, repair, and uninstall Dell SPI for HPOM. This plug-in is applicable for 64-bit systems.

Dell SPI for HPOM enables the datacenter customers to monitor the Dell devices (servers, workstations, chassis, remote access controllers, storage, and network switches) in an environment managed by HPOM console. Dell SPI for HPOM also supports console launch of Dell devices and other Dell tools to perform further troubleshooting, configuration, and 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)

The Dell SPI installer **(Dell Smart Plug-in v4.1_x64.msi)**, Installation Guide, and the Release Notes are packaged in the self-extracting executable **Dell_Smart_Plug-in v4.1_Axx.exe** file. Before installing this version of Dell SPI, download the latest documents from **dell.com/omconnectionsEnterpriseSystemsManagement** or **dell.com/openmanagemanuals**. For the latest information about known issues and their resolutions, see the Dell SPI Release Notes. For more information on the supported Dell devices and the Operating systems, see **Support matrix** in the *Dell Smart Plug-in Version 4.1 For HP Operations Manager 9.0 For Microsoft Windows User's Guide*.

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

Prerequisites for installing the Dell SPI

The requirements for installing the Dell SPI are as follows:

- Ensure that you install Dell SPI only on the HPOM 9.0 for Windows management server.
- Ensure that you have administrator and **HP_OVE_ADMIN** privileges on the HPOM management server.
- Ensure that .Net Framework 3.5 is installed on the management server.

Software requirements for management server

The following table lists the software requirements for the management server.

Table 1. Software requirements for the management server

Requirement	Description
Operating systems supported by Dell SPI for HPOM 9.0 for Microsoft Windows	Dell SPI for HPOM 9.0 for Microsoft Windows supports the following operating systems: • Windows Server 2012 R2 • Windows Server 2012 • Windows Server 2008 R2 SP1
HPOM 9.0 for Microsoft Windows with the latest HPOM 9.0 patches	For more information about installing HPOM, see the *HP Operations Manager 9.0 Installation Guide* available on the HP support website.
Trap Interceptor with SNMPv2 (Optional)	If you want to monitor the SNMPv2 traps from Dell devices such as iDRAC7, Dell EqualLogic storage arrays, or Dell switches, then configure the HPOM trap interceptor to receive SNMPv2 traps. For more information, see **Configure SNMP conditions** section in HP Operations Manager online help.
SNMP Service (Optional)	If you want to monitor the SNMPv1 or SNMP v2 traps from Dell devices, install and enable SNMP Service. For more information, see Related Documents.
WinRM 2.0 service (Optional)	Install and configure WinRM version 2.0 or later to establish communication with the Dell ESXi systems that you are monitoring. For more information, see Configuring User Authorization For WinRM.
Dell Connections License Manager (Optional)	Install and configure the licensing server only if you choose to monitor Dell servers, Dell Workstations, or Dell PowerVault NX storage arrays through the Out-of-Band (OOB) method by using Integrated Dell Remote Access Controller (iDRAC). For more information, see *Dell Connections License Manager Installation Guide* at **dell.com/support/manuals**.

Software requirements for managed systems

The following table lists the software requirements for the managed systems.

NOTE: Ensure that you have WinRM privileges to monitor Dell systems running ESXi.

Ensure that DNS is configured properly for all managed systems, and the managed nodes have DNS resolvable Fully Qualified Domain Name (FQDN) host names.

Table 2. Software requirements for managed systems

Requirement	Description
Operating Systems	Install the supported Microsoft Windows, Linux, or ESXi version. For more information about the supported operating systems, see Related Documents.
SNMP service	Install and enable the SNMP service, and ensure that the management server can communicate with the managed node. For more information, see Related Documents and What To Do Next?
SNMP agent	Configure the SNMP agent to set the community name, enable **Get operations**, and send traps to the HPOM management server. Configure the SNMP service trap destination to receive traps on the management server. For more information about configuring the SNMP agent on Dell devices, see Related Documents.
Dell OpenManage Server Administrator (Optional)	Install and configure OMSA only if you choose to monitor Dell servers, Dell workstations, or Dell PowerVault NX storage arrays through the In-Band method. Dell OpenManage Server Administrator (OMSA) is supported on Dell servers, Dell workstations, and Dell PowerVault NX Storage Arrays running Windows, or Linux operating systems. Install Dell OpenManage Server Administrator vSphere Installation Bundle (VIB) on Dell servers or workstations running ESXi and enable the OEM CIM providers and ensure that the management server can communicate with the systems. For more information about enabling the OEM CIM providers or configuring SNMP for Dell servers running Windows, ESXi, or Linux operating systems, see Related Documents.

Supported firmware versions

The following table lists the supported firmware versions for Dell devices.

Table 3. Supported firmware versions for Dell devices

Dell Device	Supported OMSA Versions	Supported Firmware Versions
Dell 10th Generation of PowerEdge servers to Dell 13th Generation of PowerEdge servers	7.4–8.1	NA
Dell Workstations	8.0.1–8.1	NA
DRAC5	NA	1.6 and 1.5
iDRAC6 11th Generation Modular	NA	3.50 and 3.42
iDRAC6 11th Generation Monolithic	NA	1.96 and 1.95

Dell Device	Supported OMSA Versions	Supported Firmware Versions
iDRAC7	NA	2.10.10.10 and 1.66.65
iDRAC8	NA	2.10.10.10 and 2.05.05.05
CMC	NA	5.1 and 5.0
VRTX CMC	NA	2.1 and 2.0
FX2 CMC	NA	1.2 and 1.1
Dell Compellent Storage Arrays	NA	6.6 and 6.5
Dell EqualLogic PS-Series Storage Arrays	NA	8.0 and 7.0
Dell PowerVault MD Storage Arrays	NA	8.20.05.60, 07.84.53.60
Dell 10th Generation of PowerVault Storage Arrays to Dell 12th Generation of PowerVault Storage Arrays	7.4–8.1	NA
Dell Network Switches	NA	• S-Series – S6000 (9.6.0.0 and 9.5.0.1) – S5000 (9.6.0.0 and 9.1) – S4820T (9.6.0.0 and 9.5.0.1) – S4810 (9.6.0.0 and 9.5.0.1) – S55 (8.3.5.6) – S60(8.3.3.10) • Z-Series – Z9500(9.6.0.0 and 9.5.0.1) – Z9000 (9.6.0.0 and 9.5.0.1) • M-Series – MXL (9.6.0.0 and 9.5.0.1) – MIOA (9.6.0.0 and 9.5.0.1) • N-Series – 6.1.2.4 and 6.1.1.7 • 8100 Series – 5.1.4.5 and 5.1.3.7 • 8000 Series – 5.1.7.5 and 5.1.6.3

Configuring user authorization for WINRM

To configure user authorization for WinRM:

1. From the **Windows** menu, click **Start** → **Run**.
2. In the **Run** window, type `winrm configsddl default` and click **OK**.
3. Click **Add** to add the required local or domain users or groups to the list.
4. Provide the appropriate permission(s) to the respective users and click **OK**.

Installing the Dell SPI for HPOM for Microsoft Windows

You must close the HPOM console before you install Dell SPI.

To install the Dell SPI on the HPOM management server:

1. Download the Dell SPI installer from the Dell support website at **dell.com/support**.
2. Extract the contents of **Dell_Smart_Plug-in v4.1_Axx.exe** on the management server.
3. Navigate to the directory where you have extracted the contents of **Dell_Smart_Plug-in v4.1_Axx.exe** and run the **Dell Smart Plug-in v4.1_x64.msi**.
4. In the **Welcome** screen, click **Next**.
5. Select the **I accept the terms in the license agreement** option and click **Next**.
6. In the **Documentation Availability and Location** screen, click **Next**.
7. In the **Destination Folder** screen, click **Next** to install Dell Smart Plug-in v4.1 in the default destination. To install Dell Smart Plug-in v4.1 in a custom folder, click **Change** and provide a destination folder path.
8. In the **Auto Deploy** screen, select **Yes** to auto-deploy the policy files during installation and click **Next**. To deploy them manually on the management server, select **No** and click **Next**.

   The **Ready to Install** screen displays information about the Dell devices supported by the Dell SPI and the Dell SPI installation location.
9. Click **Install**, then click **Finish**.

Verifying the Dell SPI installation

To verify the Dell SPI installation:

1. Launch the HPOM console and verify that the following hierarchies are created:
   - Services Hierarchy
     - Systems Infrastructure
       * Dell Hardware
         1. Dell Chassis
            - CMC
            - FX2 CMC
            - VRTX CMC
         2. Dell DRAC
            - DRAC5
            - iDRAC6 Modular
            - iDRAC6 Monolithic
            - iDRAC7 Modular
            - iDRAC7 Monolithic
            - iDRAC8 Modular

- iDRAC8 Monolithic

3. Dell Network Switches
    - 8000 | 8100 Series Switches
    - M-Series Switches
    - N-Series Switches
    - S-Series Switches
    - Z-Series Switches
4. Dell Servers
    - ESXi Servers
    - Linux Servers
    - Windows Servers
5. Dell Storage
    - Compellent Storage
    - EqualLogic PS-Series Storage
    - PowerVault MD Storage
    - PowerVault NX Storage
6. Dell Workstations
    - ESXi Workstations
    - Linux Workstations
    - Windows Workstations

– Dell SPI Licensing

NOTE: The Dell SPI Licensing service will appear when the auto grouping policy has completed its cycle.

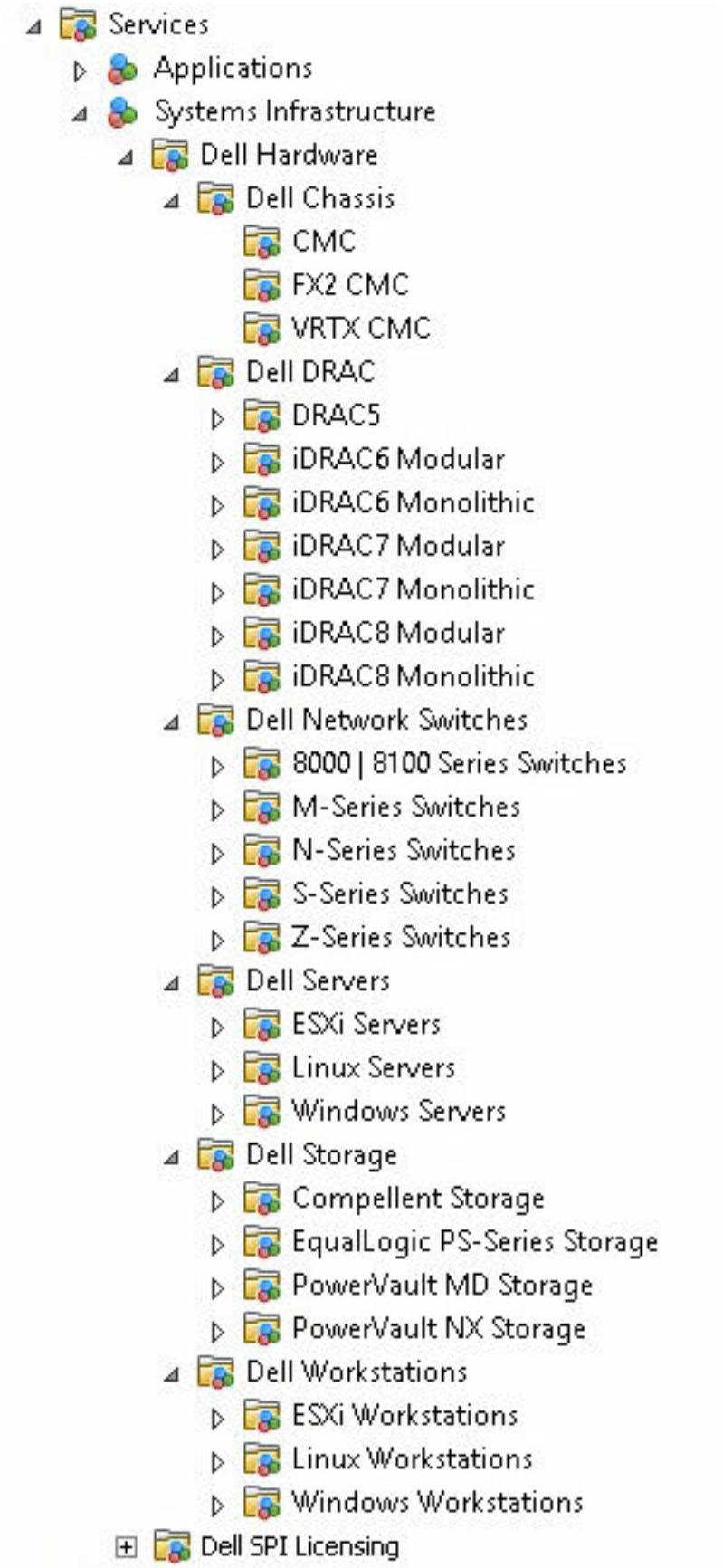

Figure 1. Dell Hardware Services hierarchy after installation

- Nodes Hierarchy
  - Dell Managed Systems
    a. Dell Chassis
       * CMC
       * FX2 CMC
       * VRTX CMC
    b. Dell DRAC
       * DRAC5
       * iDRAC6 Modular
       * iDRAC6 Monolithic
       * iDRAC7 Modular
       * iDRAC7 Monolithic
       * iDRAC8 Modular
       * iDRAC8 Monolithic
    c. Dell Network Switches
       * 8000 | 8100 Series Switches
       * M-Series Switches
       * N-Series Switches
       * S-Series Switches
       * Z-Series Switches
    d. Dell Servers
       * Modular Servers
       * Monolithic Servers
    e. Dell Storage
       * Compellent Storage
       * EqualLogic PS-Series Storage
       * PowerVault MD Storage
       * PowerVault NX Storage
    f. Dell Unresponsive Devices
    g. Dell Workstations
       * Rack Workstations

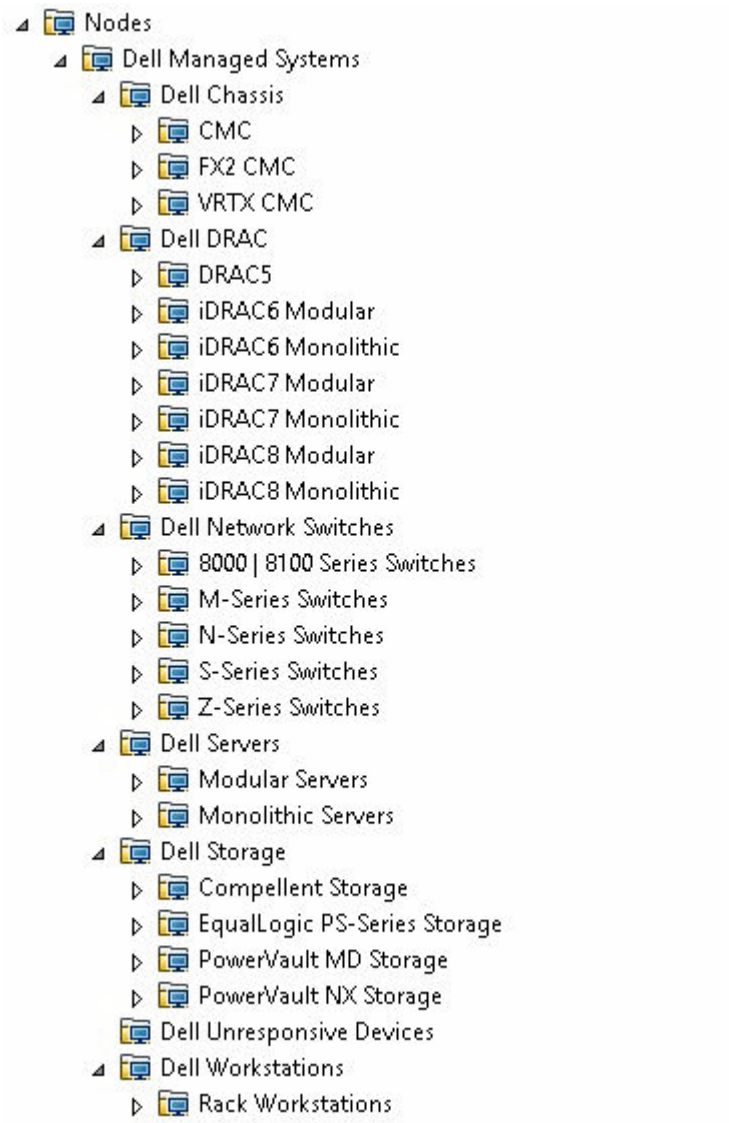

Figure 2. Dell Hardware Nodes hierarchy after installation

2. Navigate to **Policy Management** → **Policy Groups** → **SPI for Dell Devices**.
   a. Verify that the following are present under **SPI for Dell Devices**:
      - Dell Server
      - Dell Storage
      - Dell Switches
      - Dell Workstations
      - Dell Connections License Manager Scheduled Status Poll
      - Dell Device Generic Traps
      - Dell Hardware Autogroup Policy
   b. Verify that the following policies are present under **SPI for Dell Devices** → **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)

c. Verify that the following policies are present under **SPI for Dell Devices** → **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

d. Verify that the following policies are present under **SPI for Dell Devices** → **Dell Switches**:
   - Dell 8000 | 8100 Network Switch Scheduled Status Poll
   - Dell N-Series | 8000 | 8100 Network Switch Traps
   - Dell N-Series | 8000 | 8100 Network Switch Traps (Manual Ack)
   - Dell Enterprise Series Switch Traps (Manual Ack)
   - Dell Enterprise Switch Scheduled Status Poll
   - Dell N-Series Network Switch Scheduled Status Poll

e. Verify that the following policies are present under **SPI for Dell Devices** → **Dell Workstation**:
   - Dell Workstation Scheduled Status Poll

3. Verify that the auto-deployed policies are present in the Policy Inventory.

From **Nodes**, right-click on the management server, and click **View** → **Policy Inventory** to view the following policies:

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

4. Verify that the following tools are displayed under their respective folders under **Tools**.

a. The following tools are displayed under **Tools** → **Dell Tools**:

- Dell Chassis
- Dell DRAC
- Dell Network Switches
- Dell Server
- Dell Workstations
- Dell SPI Licensing
- Dell Storage
- OpenManage Essentials Console
- OpenManage Power Center Console
- Warranty Report

b. The following tools are displayed under **Tools → Dell Tools → Dell Chassis**:
   - CMC Console

c. The following tools are displayed under **Tools → Dell Tools → Dell DRAC**:
   - DRAC Console
   - OpenManage Server Administrator Console

d. The following tools are displayed under **Tools → Dell Tools → Dell Network Switches**:
   - 8000 | 8100 Switches
     - OpenManage Switch Administrator Console
   - N-Series Switches
     - OpenManage Switch Administrator Console
   - Dell OpenManage Network Manager Console
   - Dell Switch Telnet tool

e. The following tools are displayed under **Tools → Dell Tools → Dell Server**:
   - Dell Remote Access Controller Console (in-band)
   - OpenManage Server Administrator Console
   - OpenManage Server Administrator Web Server Console

f. The following tools are displayed under **Tools → Dell Tools → Dell SPI Licensing**:
   - Dell Connections License Manager Console Launch Tool

g. The following tools are displayed under **Tools → Dell Tools → Dell Storage**:
   - Dell Compellent Storage
     - Dell Compellent Enterprise Manager Client Console
     - Dell Compellent Storage Manager Console
   - Dell EqualLogic PS-Series Storage
     - EqualLogic Group Manager Console
   - Dell PowerVault MD Storage
     - MD Storage Manager Console
   - Dell PowerVault NX Storage
     - OpenManage Server Administration Console
     - OpenManage Server Administration Web Server Console
     - Dell Remote Access Controller Console (in-band)

h. The following tools are displayed under **Tools → Dell Tools → Dell Workstations**:
   - OpenManage Server Administration Console
   - OpenManage Server Administration Web Server Console
   - Dell Remote Access Controller Console (in-band)

5. Verify that the Dell SPI configuration utility is installed in the default or the custom directory. The default location is:
C:\Program Files\Dell\OpenManage Connection for HP\

If any of the step fails, check the prerequisites and try again.

To use the **Repair**, and **Uninstall** options in the installer, see:

- Using The Repair Option In The Installer.
- Uninstalling the Dell SPI for HPOM for Microsoft Windows.

What to do next?

After installing the Dell SPI, configure the SNMP parameters for the supported Dell devices, Dell Connections License Manager (DCLM) parameters for OOB server monitoring, and WSMAN parameters for ESXi systems to ensure that communication between the management server and the Dell systems is established correctly. To configure the communication parameters, run the DellSPICongfigUtility.exe that is part of the Dell SPI installer.

You can configure the following:

- SNMP parameters
  - `Timeout`
  - `Retries`
- Dell OpenManage Server Administrator Web Server Console URL
  - `-dwsurl`
- DCLM Parameters
  - `Webservice URL`
  - `Username`
  - `Password`
- WSMAN Connection Parameters
  - `Username`
  - `Password`
  - `Timeout`
  - Security options that include `Certificate Authority check`, `Common Name check`, and `Revocation check`

NOTE: You can configure the DCLM Webservice URL and the Dell OpenManage Server Administrator Web Server Console URL according to the environment.

There is no specific configuration settings that needs to be performed by the user in order to launch the following consoles from Dell SPI for HPOM:

- Warranty Console
- DRAC Console
- Dell Remote Access Controller Console (in-band)
- CMC Console
- EqualLogic Group Manager Console
- Dell Compellent Storage Manager Console
- OpenManage Server Administrator Console
- OpenManage Switch Administrator Console

NOTE: If you are using a proxy server to access the internet, then add the DCLM IP address to the internet proxy exception list in your internet browser to be able to classify the iDRAC7 or iDRAC8 devices in the HPOM console.

The following table lists the command line options to set the different values for SNMP, Dell OpenManage Server Administrator Web Server Console URL, WSMAN, DCLM, and Warranty Report URL.

Table 4. Command line options

Option	Description
`-snmptimeout`	Specifies the SNMP timeout value in milliseconds. The default value is 5000 (5 seconds). Set a value between 100 milliseconds to 4294967290 milliseconds.
`-snmpretries`	Specifies the number of SNMP retries. The default value is 1.
`-dwsurl`	Specifies the Dell OpenManage Server Administrator Web Server Console URL. Example: **https://dwshost:1311/**
`-dclmwebserviceurl`	Specifies the DCLM webservice URL. Example: **http://dclmserver.domain.com:8543/**
`-dclmusername`	Specifies the DCLM user name for logging in with basic authentication. Example: **domain\username**
`-dclmpassword`	Specifies the DCLM password for logging in with basic authentication.
`-getall`	Specifies the values of all the options and displays them on the screen. This option obtains the values for all the individual parameters except the following: • `wsmanusername` • `wsmanpassword` • `dclmusername` • `dclmpassword`
`-resetdefaults`	Resets all the configurable values to the default values. **NOTE: This option does not reset the values for the following options:** • `wsmanusername` • `wsmanpassword` • `dclmusername` • `dclmpassword`
`-help`	Displays the Help for using this tool.
`-wsmanusername`	Specifies the user name of a local or a domain account on Dell servers running ESXi operating system. Specifies the WSMAN user name for logging into the ESXi system with basic authentication.
`-wsmanpassword`	Specifies the password for the user name you specified.
`-wsmancacheck`	Skips the authentication of Certificate Authority that issued the certificate. The value is either `yes` or `no`. The default value is **no**. If you set the value to **yes**, then the authentication of Certificate Authority is checked.
`-wsmancncheck`	Skips authentication of the Common Name (CN). The value is either `yes` or `no`. The default value is **no**. If you set the value to yes, then the Common Name is checked.

Option	Description
-wsmanrevocationcheck	Specifies a value to indicate whether the WSMAN connection should validate the revocation status of the server certificate or not. The value is either yes or no. The default value is **no**. If you set the value to **yes**, then the revocation status of the server certificate is checked.
-wsmantimeout	Specifies WSMAN timeout value in milliseconds. The default value is 30000 (30 seconds). Set a value between 500 milliseconds to 4294967290 milliseconds.

Using the Dell SPI configuration utility

To use the Dell SPI configuration utility:

1. Launch a command prompt on the management server.
2. Navigate to DellSPIConfigUtility.exe.
   The default location is C:\Program Files\Dell\OpenManage Connection for HP
3. To set any of the parameters, listed in Table 4. in the preceding section, for the supported Dell Devices, type the following command:
   `DellSPIConfigUtility.exe -<option>=<value>` and press **Enter**.
   For example, if you want to set the WSMAN timeout, type the following command: `DellSPIConfigUtility.exe -wsmantimeout=500`

   If you are monitoring the ESXi systems, you must set the values for `wsmanusername` and `wsmanpassword`. You can also set the values to launch the Dell OpenManage Server Administrator Web Server Console.

   When you specify the value for `wsmanpassword` , type the following command: `DellSPIConfigUtility.exe -wsmanpassword` and press **Enter**. While specifying the `wsmanpassword`,
   - You need not specify = after `-wsmanpassword`.
   - When you modify the password, the utility prompts you to enter the old password and then the new password twice.
   - When you specify the password for the first time, you need to enter the password twice.

   NOTE: The utility prompts you to change the password even when you change the username.
   If you enter invalid values, the utility displays the error message with the help text.

   To view the values for each option other than the values for `wsmanusername` and `wsmanpassword`, type the following command: `DellSPIConfigUtility.exe -<option>`

Configuring Dell Connections License Manager parameters

To configure the Dell Connections License Manager (DCLM) parameters:

1. Install the **Dell Connections License Manager**.
   For more information, see *Dell Connections License Manager Installation Guide* at **dell.com/support/manuals**.
2. Launch the command prompt on the management server.
3. Navigate to DellSPIConfigUtility.exe.
   The default location is C:\Program Files\Dell\OpenManage Connection for HP
4. Set the Dell Connections License Manager web service URL by typing the following command:
   `DellSPIConfigUtility.exe -dclmwebserviceurl=http://<License Server IP>:<port number>/`

For example: `DellSPIConfigUtility.exe -dclmwebserviceurl=http://mylicenseserver.mydomain.com:8543/`

5. Set the Dell Connections License Manager user name by typing the following command:
   `DellSPIConfigUtility.exe -dclmusername=<username>`
6. Enter the password by typing the following command:
   `DellSPIConfigUtility.exe -dclmpassword`.

   NOTE: You do not have to specify = after `-dclmpassword`.

   You have to re-enter the password to verify if you have entered the password correctly.

   When you modify the password, the utility prompts you to enter the old password and then the new password twice.

   NOTE: The utility prompts you to change the `dclmpassword` when you change the `dclmusername`.

Configuring Dell Connections License Manager URL

To configure the Dell Connections License Manager (DCLM) URL:

1. Click **Tools → Dell Tools → Dell SPI Licensing → Dell Connections License Manager Console Launch Tool**.
2. In the right pane, right-click **Dell Connections License Manager Console Launch Tool** , and then click **Properties** from the pop-up menu.
   The **Dell Connections License Manager Console Launch Tool Properties** window is displayed.
3. In the **Dell Connections License Manager Console Launch Tool Properties** window, click the **Details** tab.
4. In the **URL: (Required)** box, enter the URL of the Dell Connections License Manager Console.
   Example: **http://mylicenseserver.mydomain.com:8544/DellLicenseManagement**
5. Click **Apply**, and then click **OK**.
   The Dell Connections License Manager URL is configured on the HPOM Console.

Configuring Dell Modular Disk (MD) Storage Manager Console

To configure the Dell Modular Disk (MD) Storage Manager Console:

1. Install the Modular Disk (MD) Storage Manager Client on the management server.
2. Click **Tools → Dell Tools → Dell Storage → Dell PowerVault MD Storage** .
3. In the right pane, right-click **MD Storage Manager Console**, and then click **Properties** from the pop-up menu.
   The **MD Storage Manager Console Properties** window is displayed.
4. In the **MD Storage Manager Console Properties** window, click the **Details** tab.
5. From the **Command Type: (Required)** drop-down list, click **Executable**.
6. Obtain the path of **Modular Disk Storage Manager Client.exe**
   The default path is C:\Program Files (x86)\Dell\MD Storage Software\MD Storage Manager\client\Modular Disk Storage Manager Client.exe
7. In the **Command: (Required)** box, enter the **Modular Disk Storage Manager Client.exe** location details or click **Browse** to navigate to the location where you installed the **Modular Disk Storage Manager Client.exe** file.
8. Click **Apply**, and then click **OK**.
   The **MD Storage Manager Console** is configured on the HPOM Console.

Configuring Dell OpenManage Power Center (OMPC) tool

To configure the Dell OMPC tool:

1. Install the OpenManage Power Center (OMPC).
   For more information, see *Dell OpenManage Power Center User's Guide* at **dell.com/support/manuals**.
2. In the HPOM console, select **Tools** → **Dell Tools**.
3. In the right pane, right-click **OpenManage Power Center Console** , and then click **Properties** from the pop-up menu.
   The **OpenManage Power Center Console Properties** window is displayed.
4. In the **OpenManage Power Center Console Properties** window, click the **Details** tab.
5. From the **Command Type: (Required)** drop-down list, select **URL**.
6. In the **Command: (Required)** box, enter the URL of the **OMPC Console**.
   The default URL is **https://localhost:8643/powercenter**

   NOTE: OMPC Console will launch successfully using the default URL only if OMPC is installed on the same HPOM server. If OMPC is installed on another server, obtain the URL from the respective OMPC server where OMPC is installed, and then set the OMPC URL.

   - Example: **https://10.94.145.132:8643/powercenter**
   - Example: **https://hpom1w2k8r2.hpdom.com:8643/powercenter**
7. Click **Apply**, and then click **OK**.
   The **OMPC Console** is configured on the HPOM Console.

Configuring Dell OpenManage Essentials (OME) tool

To configure the Dell OME tool:

1. Install the OpenManage Essentials (OME).
   For more information, see *Dell OpenManage Essentials User's Guide* at **dell.com/support/manuals**.
2. In the HPOM console, click **Tools** → **Dell Tools**.
3. On the right pane, right-click **OpenManage Essentials Console**, and then click **Properties** from the pop-up menu.
   The **OpenManage Essentials Console Properties** window is displayed.
4. In the **OpenManage Essentials Console Properties** window, click the **Details** tab.
5. From the **Command Type: (Required)** drop-down list, select **URL**.
6. In the **Command: (Required)** box, enter the URL of the **OME Console**.
   The default URL is **https://localhost:2607/Web/Default.aspx**

   NOTE: OME Console will launch successfully using the default URL only if OME is installed on the same HPOM server. If OME is installed on another server, obtain the URL from the respective OME server, and then set the OME URL.

   - Example: **https://<IP Address Or Fully Qualified Domain Name>:2607/Web/Default.aspx**
   - Example: **https://10.94.149.172:2607/Web/Default.aspx**
   - Example: **https://hpom1w2k8r2.hpdom.com:2607/Web/Default.aspx**
7. Click **Apply**, and then click **OK**.
   The **OME Console** is configured on the HPOM Console.

Configuring Dell OpenManage Network Manager (OMNM) tool

To configure the Dell OMNM tool:

1. Install Dell OpenManage Network Manager.

For more information, see *Dell OpenManage Network Manager Quick Start Guide* at **dell.com/support/manuals**.

2. In the HPOM console, click **Tools** → **Dell Tools** → **Dell Network Switches**.
3. In the right pane, right-click **OpenManage Network Manager Console**, and then click **Properties** from the pop-up menu.

   The **Dell OpenManage Network Manager Console Properties** window is displayed.
4. In the **Dell OpenManage Network Manager Console Properties** window, click the **Details** tab.
5. From the **Command Type: (Required)** drop-down list, select **URL**.
6. In the **Command: (Required)** box, enter the Dell OpenManage Network Manager Console URL

   The default URL is **https://localhost:8080**

   NOTE: The Dell OpenManage Network Manager Console will launch successfully using the default URL only if OMNM is installed on the same HPOM server. If OMNM is installed on another server, obtain the URL from the respective OMNM server, and then set the OMNM URL.

   - Example: **https://<IP Address Or Fully Qualified Domain Name>:8080**
   - Example: **https://10.94.149.172:8080**
   - Example: **https://hpom1w2k8r2.hpdom.com:8080**
7. Click **Apply**, and then click **OK**.

   The **Dell OpenManage Network Manager Console** is configured on the HPOM Console.

Configuring Dell Compellent Enterprise Manager Client Console

To configure the Dell Compellent Enterprise Manager Client Console:

1. Install the Dell Compellent Enterprise Manager client on the management server where you have installed HPOM.
2. Click **Tools** → **Dell Tools** → **Dell Storage** → **Dell Compellent Storage**.
3. In the right pane, right-click **Dell Compellent Enterprise Manager Client Console**, and then click **Properties** from the pop-up menu.

   The **Dell Compellent Enterprise Manager Client Console Properties** window is displayed.
4. In the **Dell Compellent Enterprise Manager Client Console Properties** window, click the **Details** tab.
5. From the **Command Type: (Required)** drop-down list, click **Executable**.
6. Obtain the path of **EnterpriseClient.exe**

   The default command is: **/c "cd C:\Program Files (x86)\Compellent Technologies\Compellent Enterprise Manager\msagui\" & start EnterpriseClient.exe**
7. In the **Command: (Required)** box, enter the **EnterpriseClient.exe** location details or click **Browse** to navigate to the location where you installed the **EnterpriseClient.exe** file.
8. Click **Apply**.
9. Click **OK**.

   The **Dell Compellent Enterprise Manager Client Console** is configured on the HPOM Console.

Configuring Dell Switch Telnet tool

To configure the Dell Switch Telnet Tool:

1. Click **Features** → **Add Features** on the **Server Manager**.

   The **Select Features** window is displayed.
2. Click **Telnet Client** features and click **Next**.
3. In the **Confirm Installation Selections** window, click **Install**.
4. Click **System Properties** → **Advanced** → **Environment variables** and ensure that the path for **Telnet.exe** is included in the `%Path%`.

   The **Dell Switch Telnet Tool** is configured on the HPOM Console.

Setting the schedule for Dell Auto-grouping policy

To set the schedule for the Dell policies:

1. Click **Policy Management** → **Policy Groups** → **SPI for Dell Devices**.
2. From the list of Dell policies, right-click **Dell Hardware Autogroup Policy**, and then click **All Tasks** → **Edit**.
   The **Dell Hardware Autogroup Policy [4.1] (Scheduled Task)** screen is displayed.
3. In the **Schedule** tab, click any of the options in the drop-down menu, and input the desired schedule.
   Ensure that the values of the desired schedules are equal to or greater than the values of the Dell recommended default schedules.
4. Click **Save and Close**.
5. Deploy the **Dell Hardware Autogroup Policy** on the management server after setting the schedule.
   For more information about deploying the **Dell Hardware Autogroup Policy**, see *Dell Smart Plug-in Version 4.1 for HP Operations Manager 9.0 For Microsoft Windows User's Guide*.

   The following figure displays the Dell Hardware Services hierarchy after auto-grouping:

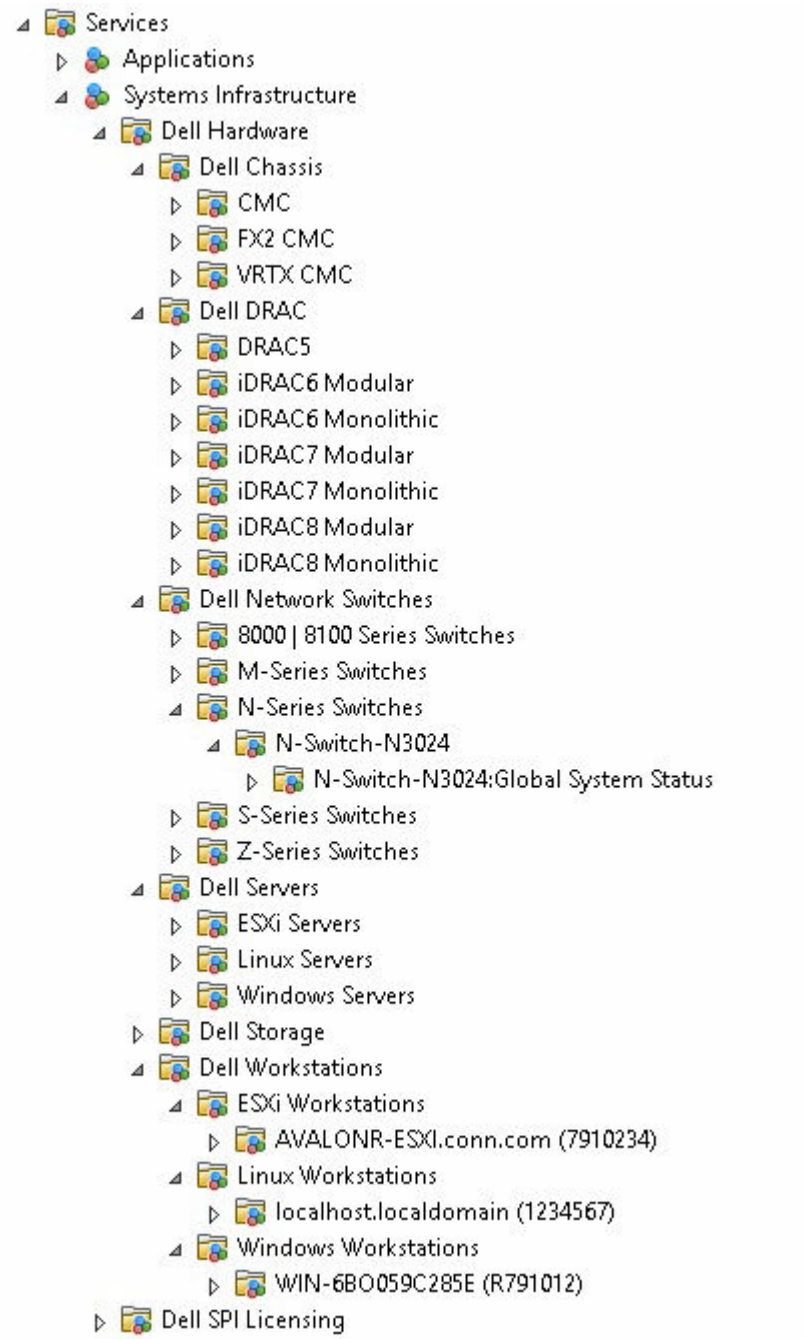

Figure 3. Dell Services hierarchy after auto-grouping

The following figure displays the Dell Hardware Nodes hierarchy after auto-grouping:

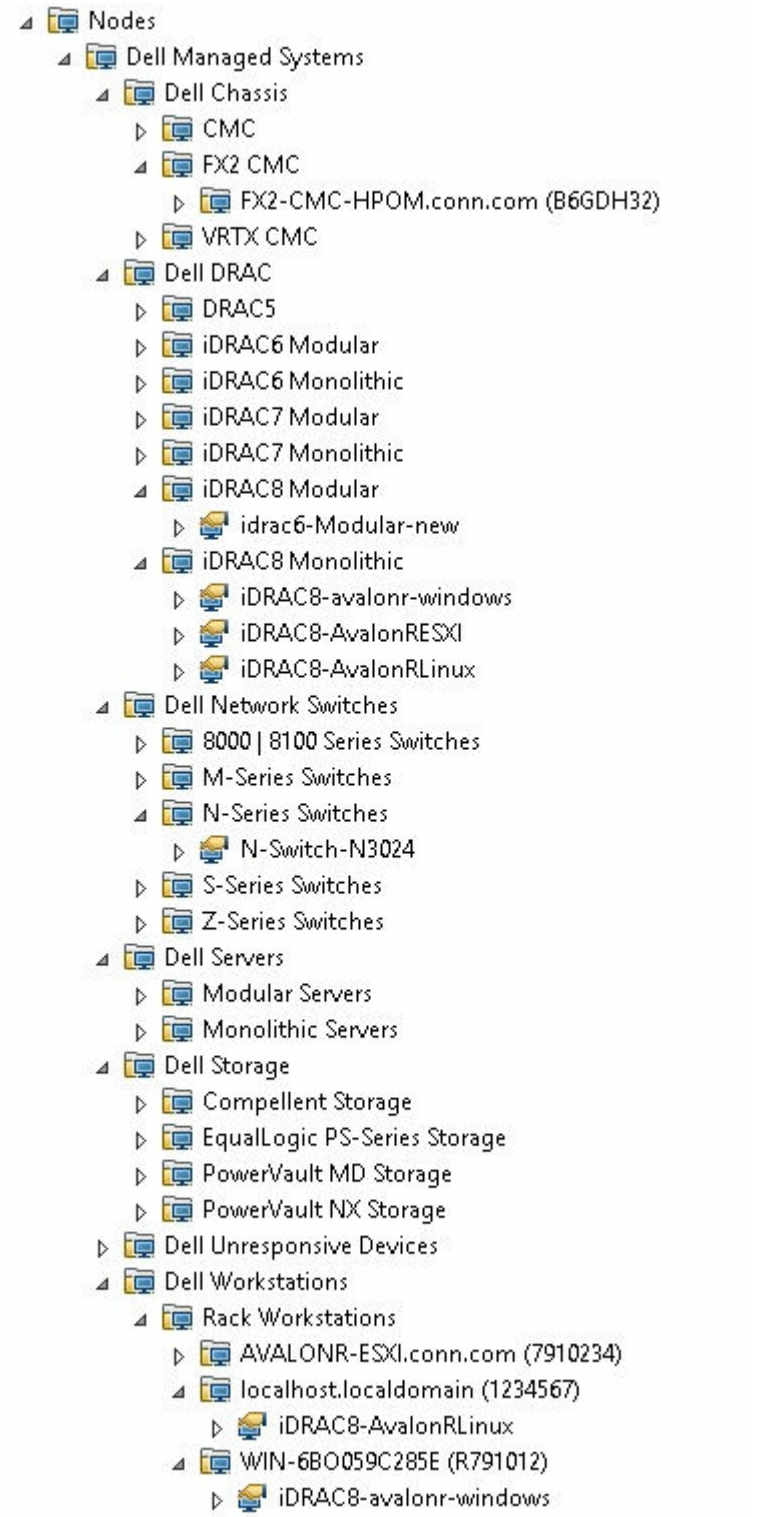

Figure 4. Dell Nodes hierarchy after auto-grouping

Creating Connections License Manager domain groups

The following groups are created in the Windows Server Active Directory during installation of Dell Connections License Manager:

- Dell Connections License Administrators
- Dell Connections License Operators
- Dell Connections License Users

If the preceding domain groups are not automatically created during installation, then manually create the preceding groups. To create domains and add users to domains, see the Windows documentation from Microsoft at **technet.microsoft.com**.

NOTE: After creating the required domain groups, add your Management Server Machine Account as part of the Dell Connections License Users group and add the current user account to the Dell Connections License Administrators group.

Removing Dell devices

To remove Dell devices from the HPOM console, perform the following steps:

1. To remove a Dell device from the HPOM console, see the section **Delete, copy, and move managed nodes** under **Maintaining nodes** in the HP Operations Manager online help.
2. Before removing Dell 12th or later Generation of PowerEdge servers, Dell PowerVault Storage servers, or Dell Workstations from the HPOM console, relinquish the acquired Dell Connections License by performing the following steps:

   a. Launch the command prompt on the management server.

   b. Navigate to DellSPIConfigUtility.exe.

   The default location is C:\Program Files\Dell\OpenManage Connection for HP.

   c. Type the following command:

   ```
   DellSPIConfigUtility.exe –relinquish=<iDRAC7/iDRAC8 device servicetag/ServerNodeID>
   ```

   NOTE:
   The `ServerNodeID` is used only when you want to remove a Dell PowerEdge FM120 device.

Using the repair option in the installer

If you accidentally delete any of the policies from the **SPI for Dell Devices** policy group or from the Policy Inventory of the management server, use the **Repair** option in the Dell SPI installer to reinstall the policies.

The **Repair** option installs the missing Dell SPI policies and automatically deploys the policies on the management server, when the Auto Deploy option is selected. Before you use the **Repair** option, ensure that you remove or undeploy all the Dell SPI policies from the HPOM management server node on the HPOM console.

NOTE: If you modify any of the policies and then delete them, the Repair option installs only the original version of the policies. You must modify them again as per the requirements. The repair option resets the values of the SNMP, WSMAN, DWSURL, DCLM Webservice URL and Warranty Report URL parameters to the default values only if the Retain Dell SPI configuration was not checked during the installation steps. You must set the values of the parameters again.

Additionally, if any of the files are missing or corrupted, the **Repair** option replaces the file.

Repairing the Dell SPI program features using Windows **Control Panel** ensures that your existing Dell SPI configuration settings are retained on the HP Management system.

NOTE: It is recommended that you close the HPOM console before you begin the repair process.

Repairing the program features

To repair the program features:

1. Run the **Dell Smart Plug-In v4.1_x64.msi** from the extracted folder.
   The **Welcome** screen is displayed.
2. Click **Next**.
   The installer displays two options: **Repair** and **Remove**.
3. Select the **Repair** option, and then click **Next**.
   The **Retain the User Configuration** screen is displayed.
4. In the **Retain the User Configuration**, select **Yes** to retain the current Dell SPI configuration during the **Repair** operation or **No** to reset the default configuration, and then click **Next**.

   NOTE: If you select Yes, the parameters that were configured by using the DellSPIConfigUtility.exe are retained.
5. In the **Auto Deploy** screen, select **Yes** to auto-deploy the policy files during installation and click **Next**. To deploy them manually on the management server, select **No** and click **Next**.
6. In the **Ready to Repair** screen, click **Install**.
7. Click **Finish** once the repair process is complete.

Repairing the Dell SPI program features using Windows control panel

To repair the Dell SPI Program Features using Windows Control Panel:

1. From the Start menu, click **Control Panel** → **Programs** → **Uninstall a program**.
2. In the **Uninstall or change a program** window, select **Dell Smart Plug-in v4.1 for HP Operations Manager for Windows**, and click **Repair** to initiate the repair process.
   The parameters that were configured by using the **DellSPIConfigUtility.exe** are retained by default.

   The Dell SPI is repaired.

NOTE: You can also repair The Dell SPI Program Features by using the Change option in the Windows Control Panel.

Upgrading to Dell SPI version 4.1

If you have Dell SPI version 3.0 or later installed on the management server, you can upgrade the same to version 4.1.

When you upgrade from version 3.0 or later, the existing policies are upgraded to the version 4.1 and the existing Dell groups from **Nodes** and **Services** are removed and recreated automatically.

NOTE: The upgrade process does not preserve the schedule settings for the policy files. However, the parameters that were configured using the DellSPIConfigUtility.exe are retained.

Upgrading Dell SPI

1. Run the **Dell Smart Plug-In v4.1.msi** from the extracted folder.
   The **Welcome** screen is displayed. You are also prompted with a message that another version of Dell SPI is installed and whether you want to upgrade to a newer version.
2. Click **Yes** to proceed with the installation.
3. Follow steps 5 to 11 mentioned in Installing the Dell SPI for HPOM for Microsoft Windows.

   NOTE: After the upgrade process is complete, the Dell Hardware Autogroup Policy runs automatically to group the Dell devices.

Uninstalling the Dell SPI for HPOM for Microsoft Windows

You can uninstall the Dell SPI from the Windows Control Panel or use the **Remove** option in the Dell SPI installer. When you uninstall Dell SPI, the Dell SPI components such as files and scripts are removed from the installed system.

Before you uninstall Dell SPI, ensure that the following requirements are met:

- Dell policies are not running on the management server.
- All the Dell SPI policies are either removed or undeployed from the HPOM management server node on the HPOM console.
- The Dell SPI directories are closed.

CAUTION: Uninstall the Dell SPI before you uninstall HPOM. If you uninstall HPOM first and then attempt to uninstall the Dell SPI, the uninstallation process may fail with errors.

NOTE: When you uninstall the Dell SPI, the following errors maybe displayed:

- – "One or more Dell SPI processes in progress."
  – "Stop all Dell SPI processes and try again."

  To resolve this, disable the policies, or wait till the policies complete, and then retry the uninstallation.
- "MMC has detected an error in a snap-in. It is recommended that you shut down and restart MMC."

  To resolve this, you must 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."

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

Removing Dell SPI using Windows Control Panel

To remove the Dell SPI using Windows Control Panel:

1. From the Start menu, select **Control Panel** → **Programs** → **Uninstall a program**.
2. In **Uninstall or change a program**, click **Dell Smart Plug-in v4.1 for HP Operations Manager for Windows**, and then click **Uninstall**.
3. In the **Programs and Features** window, click **Yes**.

   The Dell SPI v4.1 is removed from the HPOM management server.

   NOTE: You can also remove The Dell SPI Program Features using the Change option in the Windows Control Panel.

Removing Dell SPI using the installer

To remove Dell SPI using the installer:

1. Run the **Dell Smart Plug-In v4.1_x64.msi** from the folder where you extracted the contents of the self extracting package **Dell_Smart_Plug-in v4.1_Axx.exe**.

   The **Welcome** screen is displayed.
2. Click **Next**.

   The installer displays two options: **Repair** and **Remove**.
3. Select **Remove** and click **Next**.

   The **Remove the Program** screen is displayed.

4. In the **Remove the Program** screen, click **Remove** and wait for the process to complete.
   The Dell SPI for HP Operations Manager is removed from the management server.

Verifying the uninstallation of Dell SPI

To verify that the Dell SPI is completely uninstalled from the management server:

1. From the HPOM console, click **Policy Management** → **Policy Group** and ensure that the **SPI for Dell Devices** is removed.
2. Click **Nodes** and ensure that the **Dell Managed Systems Group** is removed.
3. Click **Services** → **System Infrastructure** and ensure that the **Dell Hardware** service, **Dell SPI Licensing** service, and the services tree for all Dell devices are removed.
4. Click **Tools** and ensure that the **Dell Tools** folder is removed.
5. Ensure that the Dell SPI installation directory is removed from the default or the custom path.
   The default path is C:\Program Files\Dell\OpenManage Connection For HP.
6. Ensure that the policies directory is removed.
   The default path is C:\Program Files\HP\HP BTO Software\install\DellSPIPolicy.

Related documents

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 and Security → Enterprise System Management**. Click the appropriate product link on the right side to access the documents.

For example, to view Dell SPI documentation, click **Software and Security → Enterprise System Management → Dell Smart Plug-in for HP Operations Manager Version 9.0 for Microsoft Windows**.

- *Dell Smart Plug-in Version 4.1 For HP Operations Manager 9.0 For Microsoft Windows User's Guide*
- *Dell Connections License Manager User's Guide*
- *Dell Integrated Remote Access Controller User's Guide*
- *Dell OpenManage Essentials User's Guide*
- *Dell OpenManage Power Center User's Guide*
- *Dell OpenManage Server Administrator User's Guide*
- *Dell OpenManage With VMware ESX/ESXi Systems Management Guide*
- *Dell Remote Access Controller 5 User's Guide*
- *Dell Remote Access Controller/ Modular Chassis User's 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 OpenManage Network Manager User's Guide*