

installation and reference guide

HP OpenView SMART Plug-In for HP Storage  
Essentials

Administrator's Reference for  
HP OpenView Operations on Windows

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HP OpenView SMART Plug-In for HP Storage Essentials Administrator's Reference for HP OpenView Operations on Windows

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# Contents

- About this guide . . . . . 7
  - Intended audience . . . . . 7
  - Related documentation . . . . . 7
  - Typographical conventions and symbols . . . . . 8
  - HP technical support . . . . . 9
  - HP-authorized reseller . . . . . 9
  
- 1 HP Storage Essentials . . . . . 11
  - Overview . . . . . 12
  - Key features and benefits of HP Storage Essentials . . . . . 12
  
- 2 HP OpenView SMART Plug-In for HP Storage Essentials (Storage Essentials SPI) . . . . . 13
  - Overview . . . . . 14
  - Features and functionality . . . . . 14
  
- 3 Installing Storage Essentials SPI . . . . . 15
  - Installation prerequisites . . . . . 16
    - Hardware requirements . . . . . 16
    - Software requirements . . . . . 16
      - Prerequisites . . . . . 16
      - Other Software requirements . . . . . 17
  - Installing Storage Essentials SPI . . . . . 19
  - Verifying installation . . . . . 21
    - File locations . . . . . 22
  
- 4 Configuring Storage Essentials SPI . . . . . 23
  - Installing OVO agent . . . . . 24
  - Obtaining HP Systems Insight Manager CMS credentials . . . . . 24
  - Assigning nodes to node group . . . . . 25
    - Assigning AppStorManager node to the node group . . . . . 25
    - Assigning CIM Extension Unix node to the node group . . . . . 27
    - Assigning CIM Extension Windows node to the node group . . . . . 29
    - Deploying Instrumentation to CIM Extension Windows nodes . . . . . 31
  
- 5 Using Storage Essentials SPI . . . . . 33
  - Using Storage Essentials SPI node folders . . . . . 34
  - Using Storage Essentials SPI tools . . . . . 35
  - Using Storage Essentials SPI policies . . . . . 37
  - Using Storage Essentials SPI messages . . . . . 38
  - Using Storage Essentials SPI service map . . . . . 39
    - Viewing services . . . . . 41
  - Using Storage Essentials SPI user roles . . . . . 41
  - Re-configuring HP SIM CMS credentials for Storage Essentials SPI . . . . . 42
  
- 6 Uninstalling Storage Essentials SPI . . . . . 45

Uninstalling Storage Essentials SPI Policies from the OVO managed nodes . . . . .	46
De-assigning nodes from the node group . . . . .	48
De-assigning AppStorManager node from the node group . . . . .	48
De-assigning CIM Extension Unix node from the node group . . . . .	50
De-assigning CIM Extension Windows node from the node group . . . . .	52
Uninstalling Storage Essentials SPI from the OVO management server . . . . .	54
Uninstalling Storage Essentials SPI components from the OVO GUI . . . . .	55
Removing Storage Essentials SPI user roles . . . . .	56
<b>7 Troubleshooting . . . . .</b>	<b>57</b>
Before you start . . . . .	58
Service monitoring events not arriving on the OVO management server message browser console . . . . .	59
HP Storage Essentials services not visible in the OVO console . . . . .	60
Storage Essentials service discovery may fail for more than one Storage Essentials CMS . . . . .	61
You get a message "Errors occurred during distribution of the monitors..." on OVO console when you deploy HP Storage Essentials instrumentation . . . . .	64
<b>Glossary . . . . .</b>	<b>65</b>
<b>Index . . . . .</b>	<b>67</b>

# Figures

1 SPI Installation window . . . . .	20
2 Edit Parameters window . . . . .	26
3 Tool Status window . . . . .	27
4 Edit Parameters window . . . . .	28
5 Tool Status window . . . . .	29
6 Edit Parameters window . . . . .	30
7 Tool Status window . . . . .	31
8 Deploy Instrumentation Window . . . . .	32
9 Storage Essentials SPI node folders . . . . .	34
10 Storage Essentials SPI tools folder . . . . .	35
11 Storage Essentials policy group . . . . .	37
12 Storage Essentials SPI messages in the message browser . . . . .	39
13 Storage Essentials service when AppStorMgr has a status of not running . . . . .	40
14 Storage Essentials service when CIM Extension has a status of not running . . . . .	41
15 User Roles window . . . . .	42
16 Deploy Instrumentation window . . . . .	43
17 Uninstall policies on... window . . . . .	47
18 Uninstall policies on... window . . . . .	47
19 Uninstall policies on... window . . . . .	47
20 Edit Parameters window . . . . .	49
21 Tool Status window . . . . .	50
22 Edit Parameters window . . . . .	51
23 Tool Status window . . . . .	52
24 Edit Parameters window. . . . .	53
25 Tool Status window . . . . .	54
26 SPI Uninstallation window . . . . .	55
27 User Roles window . . . . .	56
28 Uninstall policies on... window . . . . .	61
29 Configure Services window . . . . .	62
30 Deploy policies on... window . . . . .	64
31 Deploy policies on... window . . . . .	64

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# Tables

1 Document conventions . . . . .	8
2 Disk space requirements . . . . .	16
3 Storage Essentials Central Management Server (CMS) supported versions . . . . .	17
4 OVO management server supported versions . . . . .	17
5 OVO elements . . . . .	21
6 File locations on the OVO management server . . . . .	22
7 File locations for the OVO managed node . . . . .	22
8 Association of tools folder to nodes folder . . . . .	34
9 Storage Essentials SPI applications and their descriptions . . . . .	36
10 Default Storage Essentials SPI policies . . . . .	38
11 Storage Essentials SPI service description . . . . .	40
12 Service monitoring events not arriving on the OVO management server message browser console . . . . .	59
13 HP Storage Essentials services not visible in the OVO console . . . . .	60

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# About this guide

This guide discusses the following:

- HP Storage Essentials
- Installing the product
- Uninstalling the product
- Troubleshooting

## Intended audience

This guide is intended for:

- Network Engineers
- Administrators
- Any one who wants to monitor or manage Storage Essentials installation using OpenView Operations for Windows

## Related documentation

In addition to this guide, the following documents are available for this product:

- *HP Storage Essentials 5.0 installation guide*
- *HP Storage Essentials 5.0 user guide*
- *HP Storage Essentials 5.0 application guide*
- *HP Storage Essentials 5.0 CLI guide*
- *HP Storage Essentials 5.0 for file servers guide*
- *HP Systems Insight Manager installation guide*
- *HP OpenView SMART Plug-In for HP Storage Essentials release notes*

These and other HP documents are available at the HP web site: <http://welcome.hp.com/country/us/en/support.html>

# Typographical conventions and symbols

Table 1 lists the conventions used in this document

**Table 1 Document conventions**

Convention	Element
Medium blue text: <a href="#">Related documentation</a>	Cross-reference links and e-mail addresses
Medium blue, underlined text ( <a href="http://www.hp.com">http://www.hp.com</a> )	Web site addresses
<b>Bold font</b>	<ul style="list-style-type: none"><li>• Key names</li><li>• Text typed into a GUI element, such as into a box</li><li>• GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes</li></ul>
<i>Italic font</i>	Text emphasis
Monospace font	<ul style="list-style-type: none"><li>• File and directory names</li><li>• System output</li><li>• Code</li><li>• Text typed at the command line</li></ul>
<i>Monospace, italic font</i>	<ul style="list-style-type: none"><li>• Code variables</li><li>• Command-line variables</li></ul>
<b>Monospace, bold font</b>	Emphasis of file and directory names, system output, code, and text typed at the command line

---

 **CAUTION:**

Indicates that failure to follow directions can result in damage to equipment or data.

---

 **IMPORTANT:**

Provides clarifying information or specific instructions.

---

 **NOTE:**

Provides additional information.

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## HP technical support

Telephone numbers for worldwide technical support are listed on the HP support web site:  
<http://www.hp.com/support/>

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP recommends that customers sign up online using Subscriber's choice web site:  
<http://www.hp.com/go/e-updates>

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newer versions of drivers, and firmware documentation updates, as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

## HP-authorized reseller

For the name of your nearest HP-authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, visit the HP web site: <http://www.hp.com> and click **Contact HP** to find locations and telephone numbers.



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# 1 HP Storage Essentials

This chapter discusses the following:

- [Overview](#)
- [Key features and benefits of HP Storage Essentials](#)

## Overview

HP Storage Essentials (HP SE) is a family of standards-built Storage Area Network (SAN) management and Storage Resource Management (SRM) solutions. It enables you to visualize, monitor, report on, provision, and manage your heterogeneous storage environment.

The HP Storage Essentials suite delivers integrated heterogeneous functionality for network (DAS, SAN, NAS) management, storage resource management, provisioning, backup reporting, and application infrastructure monitoring. The suite consists of HP Storage Essentials Enterprise Edition and features a portfolio of value added plug-ins. The architecture and interfaces are built on industry standards, allowing for quick deployment and investment protection.

Storage Essentials runs on a central server as Storage Essentials central management application (AppStorManager service). It relies on CIM Extensions, which acts as an agent to provide information about hosts and applications. A CIM Extension is an agent program that gathers information about a host and its applications, and forwards this information to the Storage Essentials central management application.

## Key features and benefits of HP Storage Essentials

Following are the features and benefits of HP Storage Essentials:

- **End-to-end visibility of business applications**  
Provides an interface to monitor business applications, including their associated infrastructure and interdependencies.
- **Web-based global management console**  
Manages heterogeneous storage environments through a web-based user interface.
- **Reporting**  
Offers flexible, in-depth report generation in both predefined and user defined formats. It can also export data to other management applications.
- **Standards-based architecture**  
Protects user flexibility and investments with a standards-based interface for managing heterogeneous storage environments.
- **Storage server, network and subsystem provisioning**  
Reduces manual processes and risk of downtime because of free-space outages with multi-level storage provisioning.
- **Integrated asset management and carriageable**  
Centralizes all aspects of storage inventory for maximum asset utilization. Improves accountability and budgeting with cost accounting-based carriageable on user defined utilization characteristics.
- **Integrated storage management**  
Lowers cost of acquiring and managing a heterogeneous storage environment using multiple disparate point solutions.

For more information on features of HP Storage Essentials, see the website at: <http://www.managementsoftware.hp.com/>

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# 2 HP OpenView SMART Plug-In for HP Storage Essentials (Storage Essentials SPI)

This chapter discusses the following:

- [Overview](#)
- [Features and functionality](#)

## Overview

HP OpenView Operations SMART Plug-In for HP Storage Essentials (Storage Essentials SPI) integrates HP Storage Essentials (HP SE) with HP OpenView Operations for Windows (OVOW). The Storage Essentials SPI extends OVO's management scope to include systems managed by HP Storage Essentials installed in an environment consisting of one or more OVO servers and one or more OVO managed nodes. The Storage Essentials SPI can be used to monitor HP SE services.

The Storage Essentials SPI along with the HP OpenView Operations – Integration for HP Systems Insight Manager (HP SIM Integration) integrates HP Storage Essentials with HP OpenView Operations by:

- Discovering Storage Essentials Services.
- Forwarding storage events from HP SIM Integration to OVO.

---

 **NOTE:**

HP SIM Integration must be installed before installing the Storage Essentials SPI. For more information on installation prerequisites, see [Installation prerequisites](#).

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- Monitoring and controlling the services and daemons of HP Storage Essentials.

The HP SIM Integration, together with the Storage Essentials SPI, allows the storage network to be monitored and managed from the OpenView Operations management server console. The Storage Essentials SPI allows OVO administrators to troubleshoot problems in the storage network before they become serious enough to affect applications, and ultimately the end-users. Storage events are stored in the HP Systems Insight Manager's database. OVO intelligent agents are configured on the HP Systems Insight Manager, HP Storage Essentials CMS, and managed servers, which are managed nodes in the OVO management domain.

The OVO agent monitors the availability of the Storage Essentials processes at periodic intervals and forwards appropriate events to the administrator if the processes are not running. Storage Essentials SPI also has the ability to discover the Storage Essentials related services. This enables administrators to perform root-cause analysis of the inherent Storage Essentials services.

## Features and functionality

Following are the key features of Storage Essentials SPI:

- Monitors the Storage Essentials central management application, the AppStorManager process on Windows node.
- Monitors the Storage Essentials CIM Extension process, on UNIX managed nodes.
- Offers tools to start, stop, and view status of Storage Essentials AppStorManager service.
- Offers tools to start, stop, and view status of Storage Essentials CIM Extension process on UNIX managed nodes.
- Offers tools to view status of Storage Essentials CIM Extension process on Windows managed nodes.
- Discovers HP Storage Essentials services.

---

# 3 Installing Storage Essentials SPI

This chapter discusses the following:

- Installation prerequisites
- Installing Storage Essentials SPI
- Verifying installation
- File locations

# Installation prerequisites

This section lists the prerequisites for the installation of the Storage Essentials SPI. To avoid problems during the installation of the Storage Essentials SPI software, it is mandatory that you read this section, and other documents recommended in this section before you start the installation process.

## Hardware requirements

For a detailed list of hardware requirements, see the following documents:

- For OVO management server, see *HP OpenView Operations for Windows installation guide*.
- For OVO managed node, see *HP OpenView Operations for Windows installation guide*.

Table 2 lists the disk space requirements for each operating system.

**Table 2 Disk space requirements**

Machine	Operating System	Installation	Runtime Files	Total
OVO management server (includes documentation)	Microsoft Windows 2000 Microsoft Windows 2003 (32-bit)	3 MB	1 MB	4 MB
OVO managed node	Microsoft Windows 2000 Microsoft Windows 2003 (32-bit)	1 MB	1 MB	2 MB
	HP-UX 11.00, 11.11, 11.23 IA and PA			
	Solaris 8, 9,10			
	RedHat Linux Advanced Server 3.0 (32-bit) SuSE Linux Enterprise Server 9 (32-bit)			
	AIX 5.1, 5.2 and 5.3			
	Tru64 5.1B			

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 **NOTE:**

No additional memory (RAM) is required either on the OVO management server or on the managed nodes.

---

## Software requirements

This section lists the software requirements for the installation of Storage Essentials SPI.

### Prerequisites

Following are the software requirements for installing the Storage Essentials SPI:

- HP OpenView Operations for Windows 7.5
- HP Systems Insight Manager SIM 5.0 SP3 or later
- HP Storage Essentials 5.0 or later
- HP SIM Integration 01.10

For more information on installing HP SIM Integration, see *HP OpenView Operations - Integration for HP Systems Insight Manager installation and reference guide*.

## Other Software requirements

Table 3 lists the versions of Storage Essentials Central Management Server (CMS) that Storage Essentials SPI supports.

**Table 3 Storage Essentials Central Management Server (CMS) supported versions**

Operating System	Storage Essentials CMS Version
Microsoft Windows 2000	5.0 and 5.00.01
Microsoft Windows 2003 (32-bit)	5.00.01

Following are the operating systems supported by Storage Essentials SPI for Storage Essentials CIM Extension:

- Microsoft Windows 2000
- Microsoft Windows 2003 (32-bit)
- HP-UX 11.00
- HP-UX 11.11
- HP-UX 11.23 IA
- HP-UX 11.23 PA
- Tru64 5.1B
- Solaris 8
- Solaris 9
- Solaris 10
- AIX 5L 5.1
- AIX 5L 5.2
- AIX 5L 5.3
- RedHat Linux Advanced Server 3.0 (32-bit)
- SuSE Linux Enterprise Server 9 (32-bit)

Table 4 lists the versions of OVO Management Server that Storage Essentials SPI supports.

**Table 4 OVO management server supported versions**

Operating System	OVO Version
Microsoft Windows 2000	A.07.50
Microsoft Windows 2003 (32-bit)	

Following are the operating systems supported by Storage Essentials SPI for the OVO agent:

- Microsoft Windows 2000
- Microsoft Windows 2003 (32-bit)
- HP-UX 11.00
- HP-UX 11.11
- HP-UX 11.23 IA
- HP-UX 11.23 PA
- Tru64 5.1B
- Solaris 8
- Solaris 9
- Solaris 10
- AIX 5L 5.1
- AIX 5L 5.2
- AIX 5L 5.3
- RedHat Linux Advanced Server 3.0 (32-bit)
- SuSE Linux Enterprise Server 9 (32-bit)

# Installing Storage Essentials SPI

You can install Storage Essentials SPI from the *HP OpenView New and Upgraded Smart Plug-ins installer CD Volume 1*. The Installer executable verifies whether OVO is installed. It also installs the package, and uploads the configuration on OVO.

To install the Storage Essentials SPI software bundle on the OVO management server, complete the following steps:

1. Ensure that the OVO management server system where you want to install the HP Storage Essentials SPI meets installation prerequisites. For more information, see [Installation prerequisites](#).
2. Login to the OVO management server as a user with Administrator privileges.
3. Insert the *HP OpenView New and Upgraded Smart Plug-ins installer CD Volume 1* into the CD drive. The installation wizard appears.
4. Select **SPI for HP Storage Essentials** in the Product Selection window, and click **Next**.

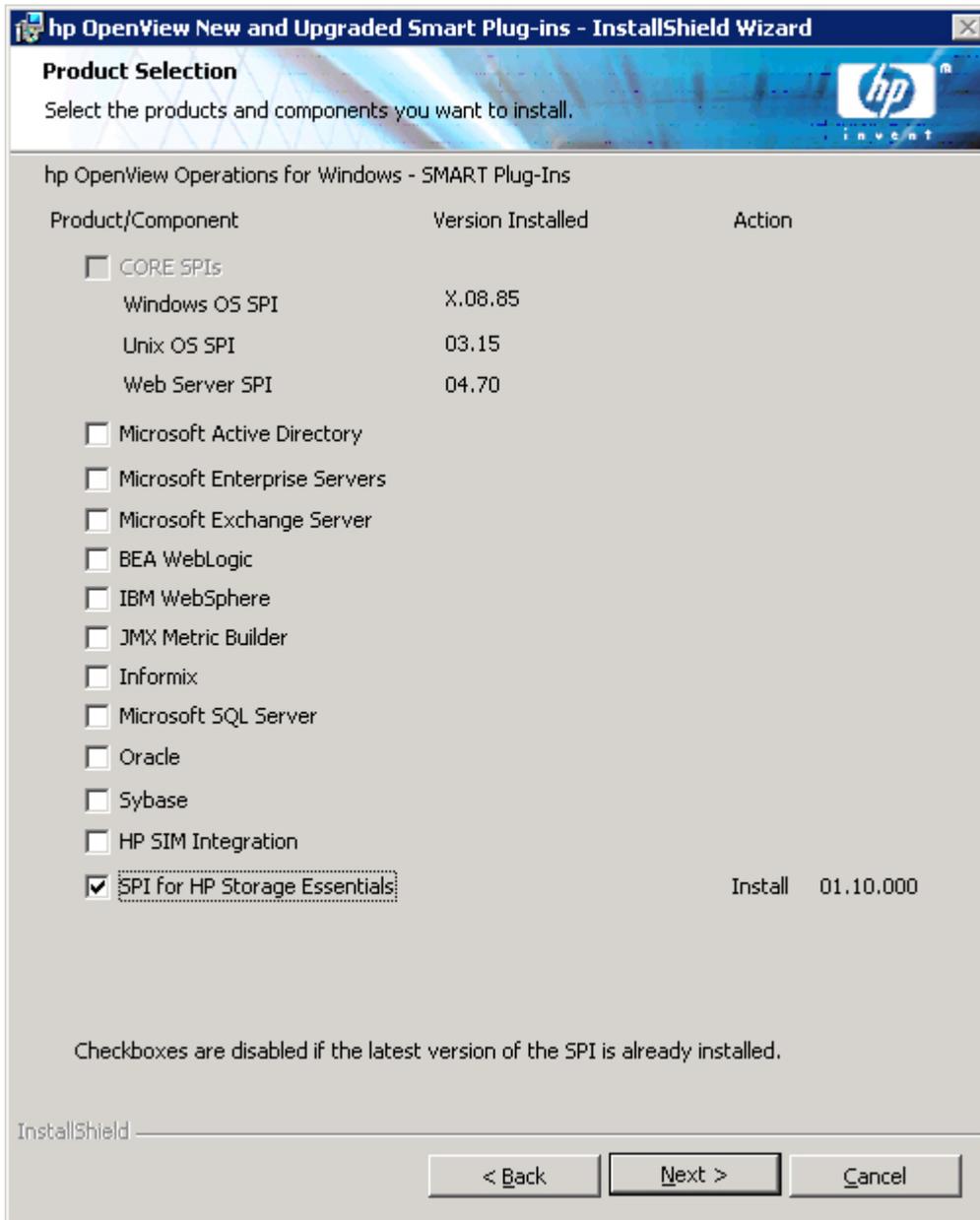


## NOTE:

Selecting **SPI for HP Storage Essentials** in the **Product Selection** window also installs **HP SIM Integration**.

---

[Figure 1](#) displays the SPI Installation window.



**Figure 1 SPI Installation window**

5. Follow the instructions as they appear in the installation wizard. The wizard displays the status of the installation.
6. Click **Finish** to exit from the installation wizard.  
For more information on installing HP OpenView New and Upgraded Smart Plug-ins, see the *New and Upgraded Smart Plug-ins CD for OpenView Operations installation/upgrade guide*.

## Verifying installation

To verify whether the installation of the Storage Essentials SPI on the OVO management server is successful, open the OVO console and check whether the elements listed in [Table 5](#) are present.

**Table 5 OVO elements**

OVO Console	Element
Nodes	SE AppStorMgr-Win SE CIM Extension-Win SE CIM Extension-Unix
Tools	HP Storage Essentials
Policy Management	HP Storage Essentials
User Roles	HP Storage Essentials SPI Admin

If the elements listed in [Table 5](#) are not present in the OVO console, it indicates that the Storage Essentials SPI is not installed properly. You must uninstall and re-install the Storage Essentials SPI to resolve this issue.

For information on uninstalling Storage Essentials SPI, see [Uninstalling Storage Essentials SPI](#).

For information on re-installing Storage Essentials SPI, see [Installing Storage Essentials SPI](#).

## File locations

The installation process copies the necessary files to the OVO management server.

Table 6 lists the directories that are created during the installation process of the Storage Essentials SPI on the OVO management server.

**Table 6 File locations on the OVO management server**

File Type	Description
OVO integration	%OvInstallDir%install\HPSESPI %OvInstallDir%Data\shared\SPI-Share\HPSESPI %OvInstallDir%Data\shared\Instrumentaion\Supported Operating Systems\HP Storage Essentials
Documentation	%OvInstallDir%install\HPSESPI\doc
Moffiles	%OvInstallDir%NLS\1033\Moffiles

Table 7 lists the directories for Storage Essentials SPI components that are used on deployment of the policies to the OVOW managed node(s).

**Table 7 File locations for the OVO managed node**

Operating System	Installed Location
HP-UX, Solaris, Redhat Linux, SuSE Linux and Tru64	/var/opt/OV/bin/instrumentation
Microsoft Windows	%OvAgentDir%\bin\instrumentation
AIX	/var/lpp/OV/OpC/instrumentation

The Storage Essentials SPI commands and instrumentation scripts are copied into these paths when the HP Storage Essentials instrumentation is deployed to the managed nodes.

---

# 4 Configuring Storage Essentials SPI

This chapter discusses the following:

- [Installing OVO agent](#)
- [Obtaining HP Systems Insight Manager CMS Credentials](#)
- [Assigning nodes to node group](#)

## Installing OVO agent

Before installing the OVO agent, ensure that the system on which you want to install the OVO agent meets the installation prerequisites. For more information, see [Installation prerequisites](#).

You can install the OVO agent by various methods on a managed node. For more information about the various installation methods, see *HP OpenView Operations for Windows installation guide*.

## Obtaining HP Systems Insight Manager CMS credentials

In order to activate the service discovery functionality provided with Storage Essentials SPI, you must obtain the HP SIM credentials with administrative privileges before adding nodes to the Storage Essentials node groups.

---

### NOTE:

Enter the same credentials that is used to login to HP Systems Insight Manager. The HP SIM credentials used must have the role Domain\_Admin in Storage Essentials CMS in order for the Storage Essentials SPI to function correctly. HP SIM credentials are stored in an encrypted format on the OVO nodes.

---

To obtain the HP SIM credentials, complete the following steps:

1. Login to the OVO management server and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > AppStorManager-Win** and right-click **Get HP SIM Credentials**.
3. Select **All Tasks > Launch Tool**. The command prompt window displays the following message:  
Enter the HP Systems Insight Manager DOMAIN\username:  
Enter the Domain\username and press **Enter**.
4. The following message appears:  
Enter the HP Systems Insight Manager password:  
At this prompt, enter the corresponding HP Systems Insight Manager password and press **Enter**.

---

### CAUTION:

Service Discovery does not function correctly if the values for the user name and password are incorrect. If you do not know the user name and password, contact your system administrator.

---

5. Confirm the password by re-entering the password at the prompt:  
Re-enter password:  
After re-entering the correct password, the following message is displayed:  
Done creating hpsimcms.conf file.  
Press any key to continue . . .
6. Press **Enter**, the command prompt window closes.

## Assigning nodes to node group

You must add the HP Storage Essentials management server and the nodes running the CIM Extensions to the nodes group folder.

---

 **NOTE:**

The Storage Essentials SPI node groups are associated with respective policy groups. When the nodes are added to the node groups, policies relevant to that particular node and instrumentation are automatically deployed.

---

 **CAUTION:**

The automatic policy deployment requires that the OVO agent be present on the managed nodes. If the OVO agent is not present on the Windows nodes, the management server deploys the agent automatically. For UNIX nodes, the agent must be installed manually. You can install the OVO agent by various methods on a managed node. For more information, see [Installing OVO agent](#).

---

Assigning the nodes to the node group involves the following:

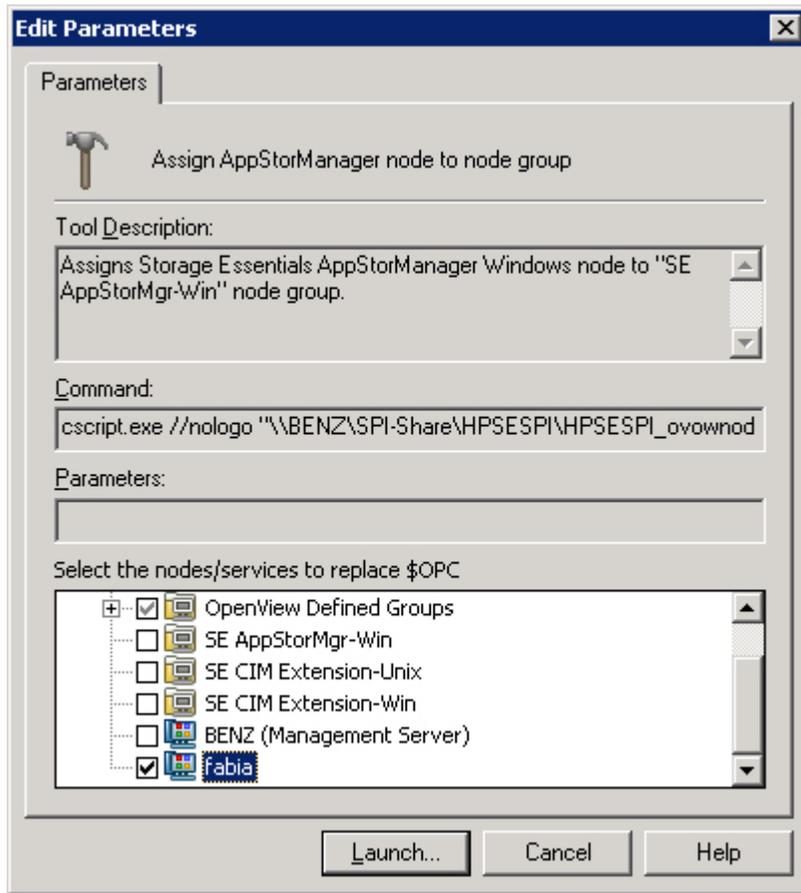
- [Assigning AppStorManager node to the node group](#)
- [Assigning CIM Extension Unix node to the node group](#)
- [Assigning CIM Extension Windows node to the node group](#)

## Assigning AppStorManager node to the node group

To assign the Windows node on which the Storage Essentials AppStorManager service is running to the node group, complete the following steps:

1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > AppStorManager-Win**, and right-click **Assign AppStorManager node to node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

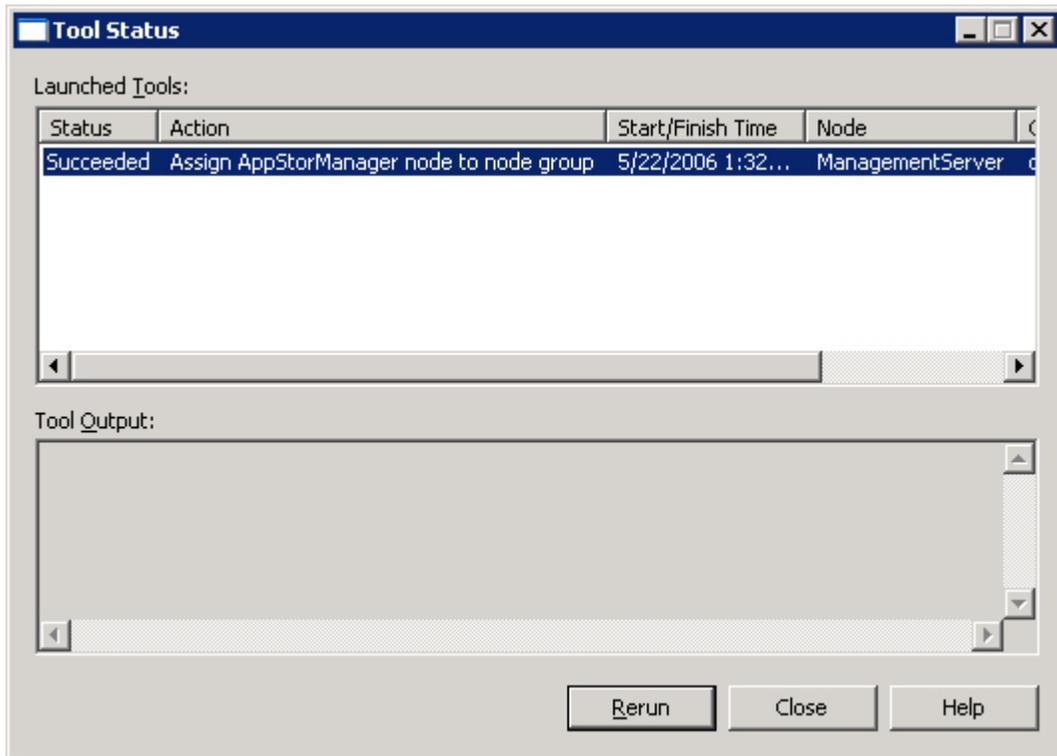
[Figure 2](#) shows the Edit Parameters window.



**Figure 2 Edit Parameters window**

4. Select the Windows node on which the Storage Essentials AppStorManager service is running in the nodes tree in **Select the nodes/services to replace \$OPC** window pane.
5. Click **Launch...** . The Tool status window opens.

Figure 3 shows the Tool Status window.



**Figure 3 Tool Status window**

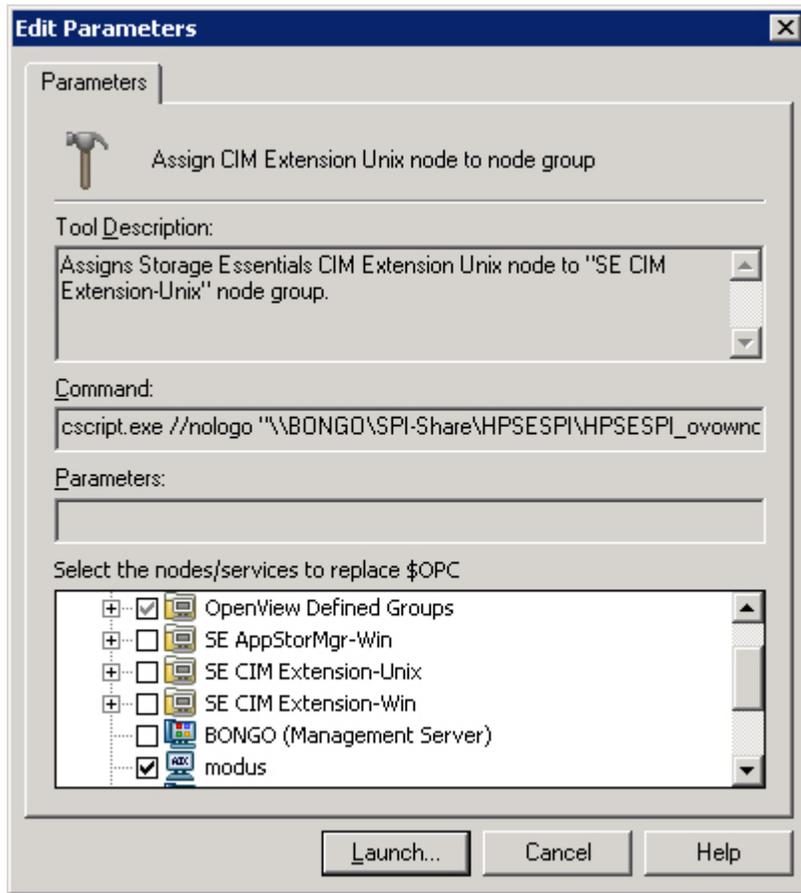
You have now successfully assigned the Windows node on which the Storage Essentials AppStorManager service is running, to the SE AppStorMgr-Win node group.

## Assigning CIM Extension Unix node to the node group

To assign the Unix node on which the Storage Essentials CIM Extension process is running to the node group, complete the following steps:

1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > CIM Extension-Unix**, and right-click **Assign CIM Extension Unix node to node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

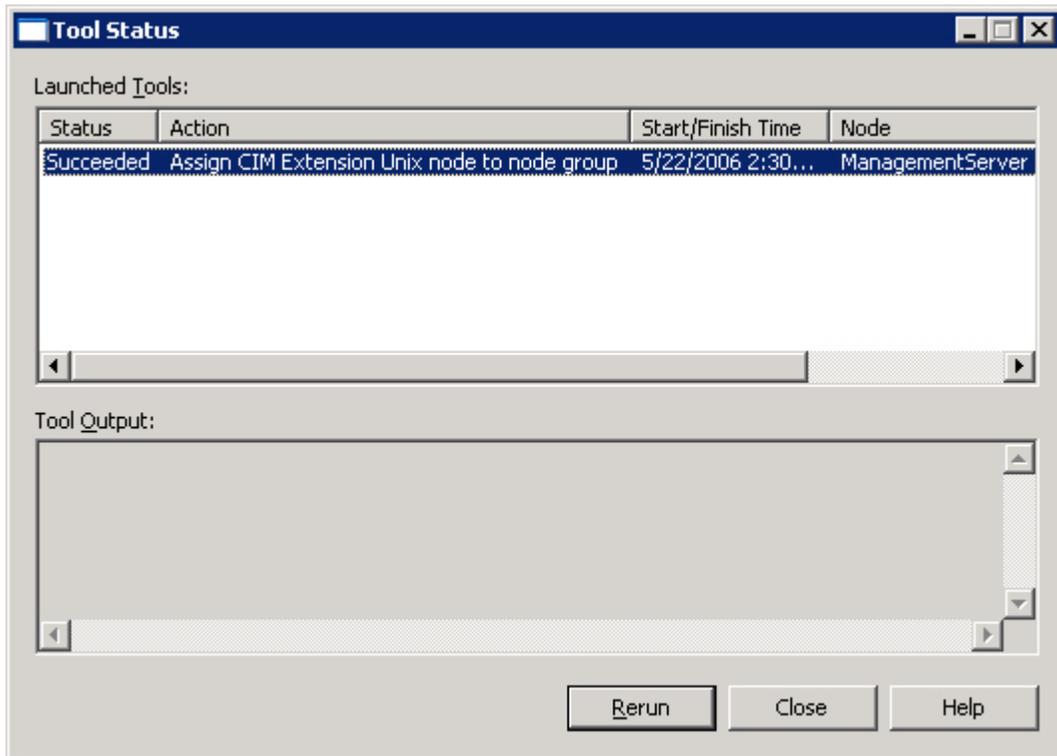
Figure 4 shows the Edit Parameters window.



**Figure 4 Edit Parameters window**

4. Select the Unix node on which the Storage Essentials CIM Extension process is running in the nodes tree in **Select the nodes/services to replace \$OPC** window pane.
5. Click **Launch...** . The Tool Status window opens.

[Figure 5](#) shows the Tool Status window.



**Figure 5 Tool Status window**

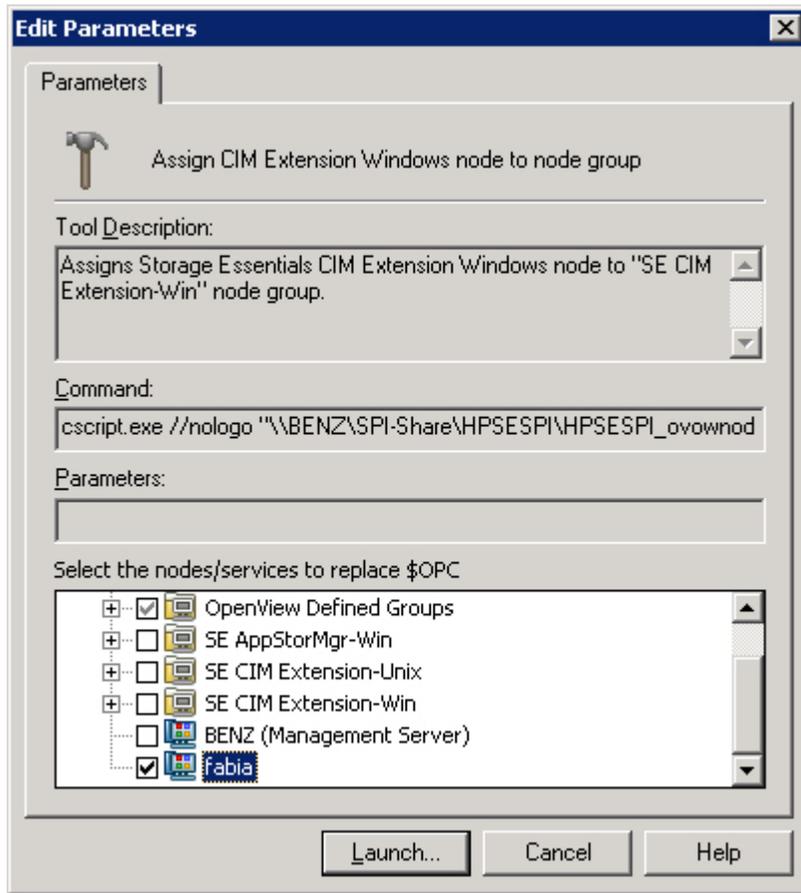
You have now successfully assigned the Unix node on which the Storage Essentials CIM Extension process is running, to the SE CIM Extension-Unix node group.

## Assigning CIM Extension Windows node to the node group

To assign the Windows node on which the Storage Essentials CIM Extension service is running to the node group, complete the following steps:

1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > CIM Extension-Win**, and right-click **Assign CIM Extension Windows node to node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

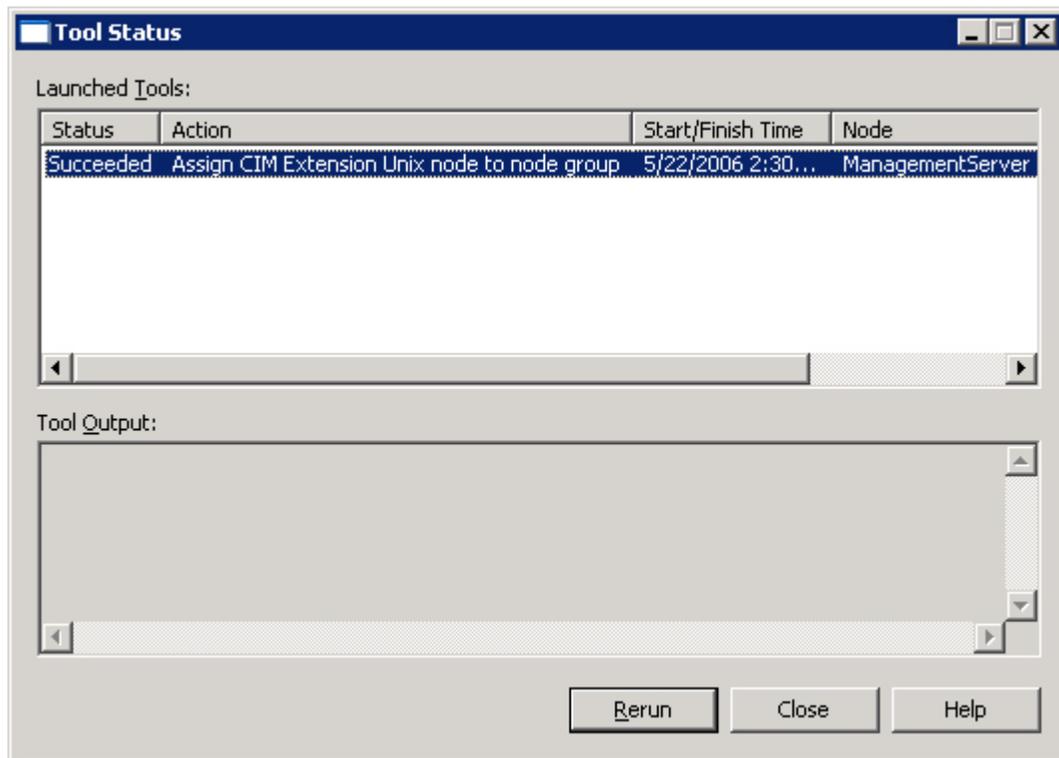
Figure 6 shows the Edit Parameters window.



**Figure 6 Edit Parameters window**

4. Select the Windows node on which the Storage Essentials CIM Extension process is running in the nodes tree in **Select the nodes/services to replace \$OPC** window pane.
5. Click **Launch....** The Tools Status window opens.

[Figure 7](#) shows the Tool Status window.



**Figure 7 Tool Status window**

You have now successfully assigned the Windows node on which the Storage Essentials CIM Extension service is running, to the SE CIM Extension-Win node group.

## Deploying Instrumentation to CIM Extension Windows nodes

After you have successfully assigned the Windows node on which the Storage Essentials CIM Extension service is running to the SE CIM Extension-Win node group, Storage Essentials SPI Instrumentation have to be deployed to the node.

To deploy instrumentation on the Windows node on which the Storage Essentials CIM Extension service is running, complete the following steps:

1. Login to the OVO management server, and start the OVO Console GUI.

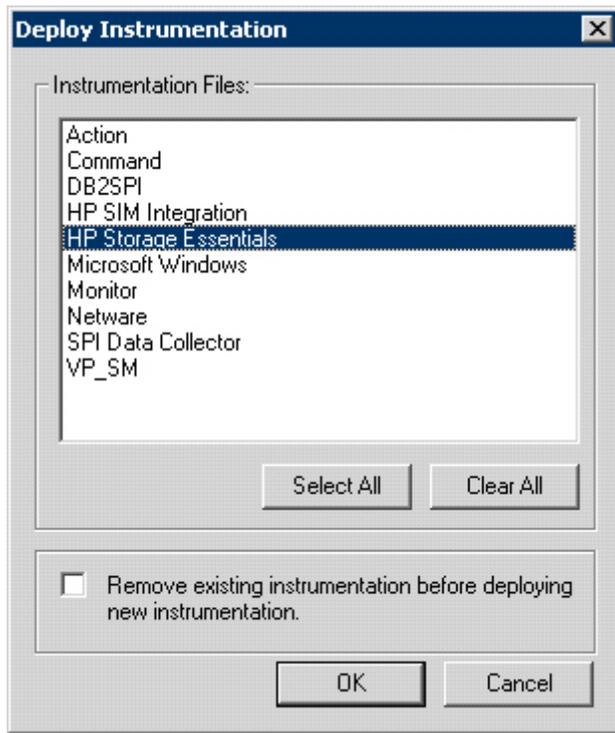
---

 **NOTE:**

Ensure that the nodes are added to the node folders before deploying instrumentation to the nodes. To add nodes to the node folders, see [Assigning CIM Extension Windows node to the node group](#).

---

2. Right-click **SE CIM Extension-Win** node folder in the nodes tree.
3. Select **All Tasks > Deploy instrumentation**. The Deploy Instrumentation window opens. [Figure 8](#) shows the Deploy Instrumentation window.



**Figure 8 Deploy Instrumentation Window**

4. Select **HP Storage Essentials**.
5. Click **OK**.

---

# 5 Using Storage Essentials SPI

This chapter discusses the following:

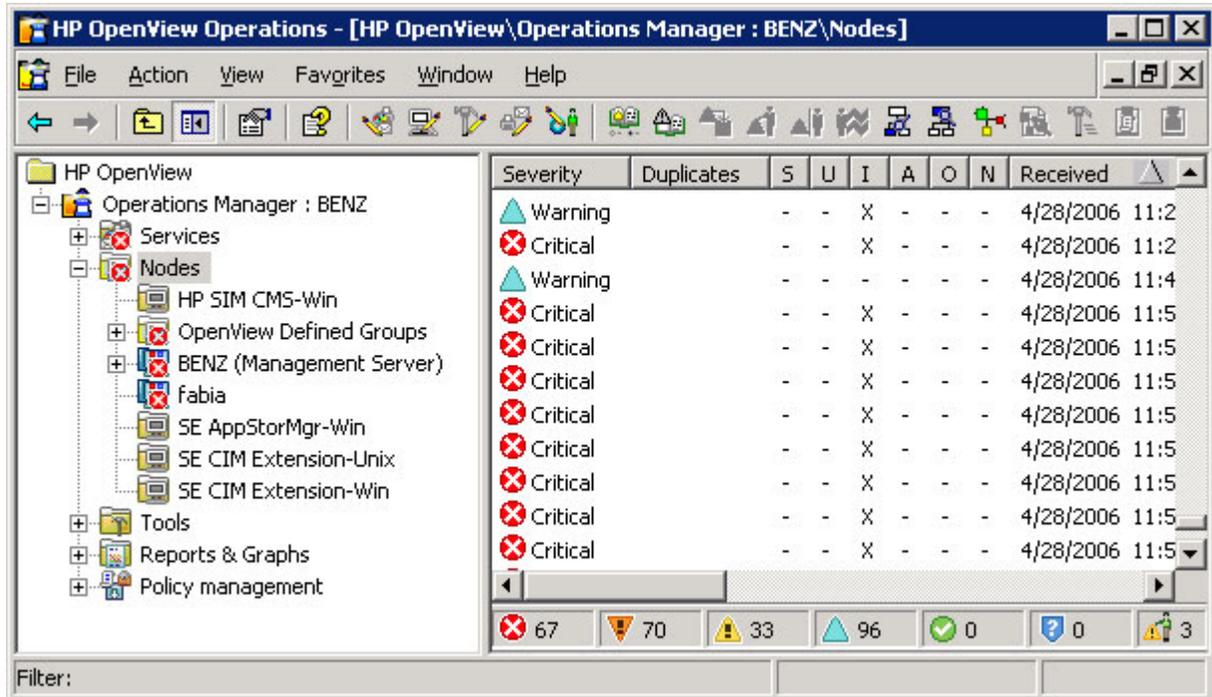
- Using Storage Essentials SPI node folders
- Using Storage Essentials SPI tools
- Using Storage Essentials SPI policies
- Using Storage Essentials SPI messages
- Using Storage Essentials SPI service map
- Re-configuring HP SIM CMS credentials for Storage Essentials SPI

# Using Storage Essentials SPI node folders

Installing Storage Essentials SPI creates the following nodes folders:

- SE AppStorMgr-Win
- SE CIM Extension-Win
- SE CIM Extension-Unix

Figure 9 shows the Storage Essentials SPI node folders



**Figure 9 Storage Essentials SPI node folders**

For more information on adding nodes to node groups, see [Assigning nodes to node group](#).

Table 8 lists the association between the nodes folder and the relevant tools folders.

**Table 8 Association of tools folder to nodes folder**

Nodes folder	Tools folder
SE AppStorMgr-Win	AppStorManager-Win
SE CIM Extension-Win	CIM Extension-Win
SE CIM Extension-Unix	CIM Extension-Unix

# Using Storage Essentials SPI tools

Installing Storage Essentials SPI creates the following tools folders:

- AppStorManager-Win
- CIM Extension-Win
- CIM Extension-Unix

These tool folders contain a number of tools that help the OVO administrator to manage Storage Essentials. These tools are grouped under HP Storage Essentials folder.

Figure 10 shows the Storage Essentials SPI tools folder.

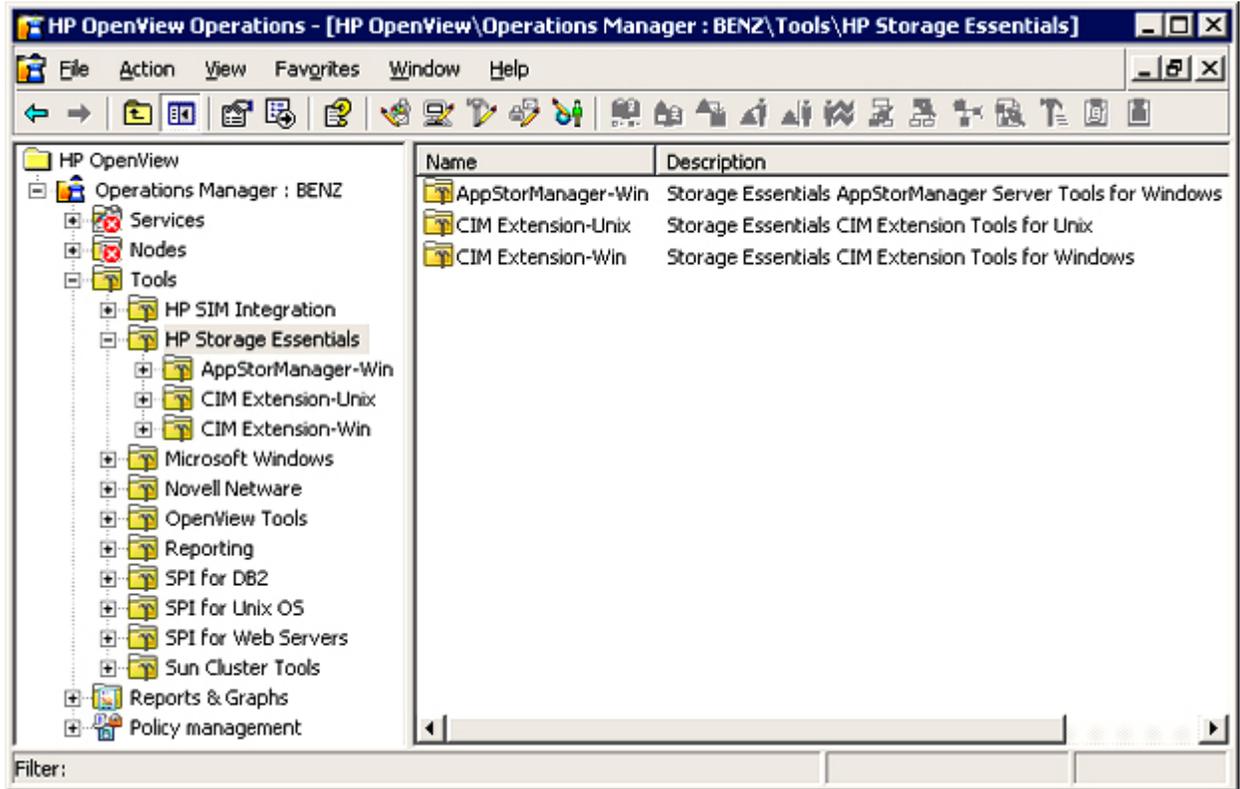


Figure 10 Storage Essentials SPI tools folder

Table 9 describes the function of the applications created by the Storage Essentials SPI in the tools folder.

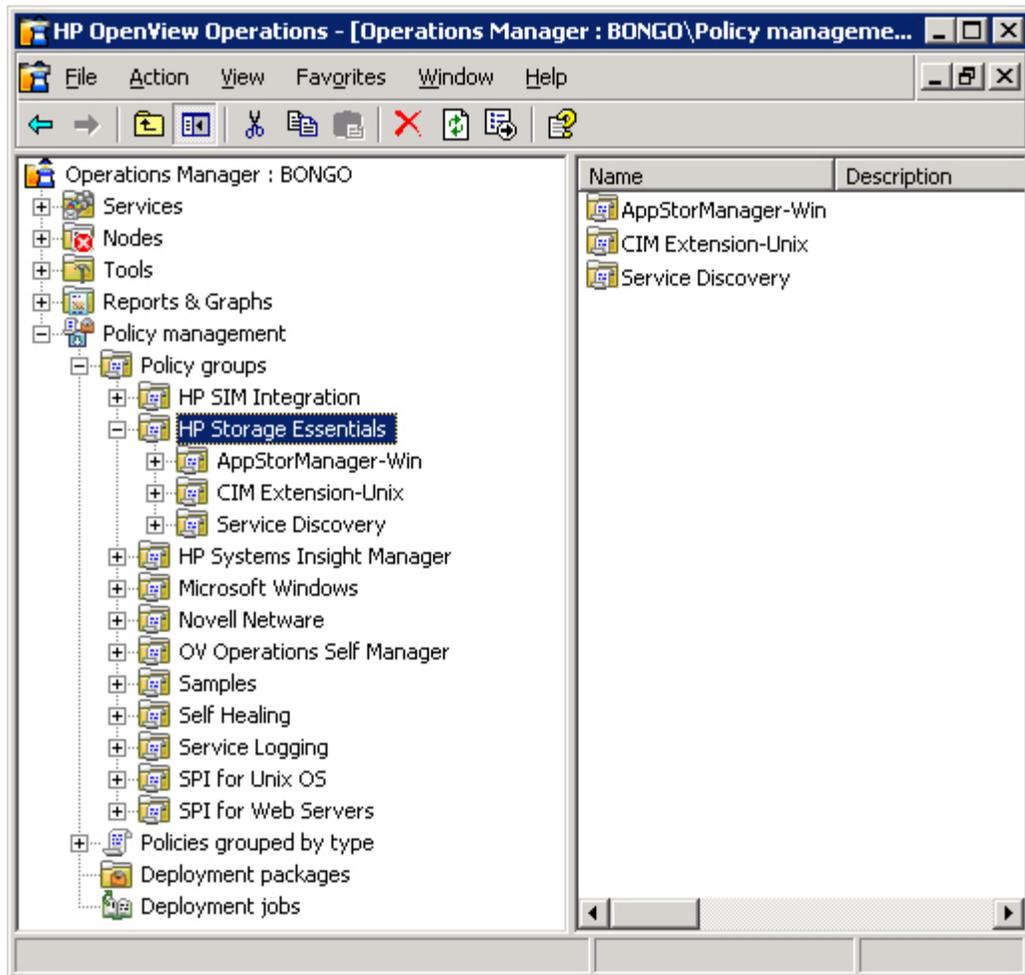
**Table 9 Storage Essentials SPI applications and their descriptions**

HP Storage Essentials Tools Group	Tools Name	Description
AppStorManager-Win	AppStorManager Start	Starts the Storage Essentials AppStorManager Service on Windows node.
	AppStorManager Stop	Stops the Storage Essentials AppStorManager Service on Windows node.
	AppStorManager Status Reports the Storage Essentials	Reports the AppStorManager Service status on Windows node.
	Get HP SIM Credentials	Gets username and password of HP Systems Insight Manager for Storage Essentials SPI.
	Assign AppStorManager node to node group	Assigns Storage Essentials AppStorManager Windows node to SE AppStorMgr-Win node group.
	De-assign AppStorManager node from node group	De-assigns Storage Essentials AppStorManager Windows node from SE AppStorMgr-Win node group.
CIM Extension-Unix	CIM Extension Start	Starts the Storage Essentials CIM Extension process on Unix node.
	CIM Extension Stop	Stops the Storage Essentials CIM Extension process on Unix node.
	CIM Extension Status	Reports the Storage Essentials AppStorManager Service status on Unix node.
	Assign CIM Extension Windows node to node group	Assigns Storage Essentials CIM Extension Windows node to SE CIM Extension-Unix node group.
	De-assign CIM Extension Windows node from node group	De-assigns Storage Essentials CIM Extension Unix node from SE CIM Extension-Unix node group.
CIM Extension-Win	CIM Extension Status	Reports the Storage Essentials AppStorManager Service status on Windows node.
	Assign CIM Extension Windows node to node group	Assigns Storage Essentials CIM Extension Windows node to SE CIM Extension-Win node group.
	De-assign CIM Extension Windows node from node group	De-assigns Storage Essentials CIM Extension Windows node from SE CIM Extension-Win node group.

## Using Storage Essentials SPI policies

The policies provided with the Storage Essentials SPI are grouped under the Storage Essentials policy group.

Figure 11 shows the Storage Essentials policy group.



**Figure 11 Storage Essentials policy group**

Storage Essentials SPI deals with the messages of Storage Essentials CMS and Storage Essentials managed hosts. Messages generated by the Storage Essentials SPI policies pass through a filtration process, and are prioritized and assigned an OVO severity level as defined in the policies. All messages generated by the Storage Essentials SPI policies by default belong to the Storage Essentials SPI's HPSESPI-Storage\_Essentials message group. Additional monitor policies verify the status of the Storage Essentials software through the AppStorManager service running on the Storage Essentials management server. In addition, it verifies the Storage Essentials CIM Extension software service run on the Storage Essentials hosts, and generates messages to indicate any change in status.

Storage Essentials SPI supplies a policy *Service Discovery*, that is used for Service Discovery. Deployment of this policy on the Storage Essentials management server enables the Storage Essentials SPI to discover the Storage Essentials Service views supported by the Storage Essentials.

Table 10 lists the default policies provided with the Storage Essentials SPI.

**Table 10 Default Storage Essentials SPI policies**

Policy Group	Policy Type	Policy Name	Description
AppStorManager-Win	Measurement Threshold	AppStorManager	Monitors the AppStorManager service and sends a message to the event browser, if the service is not running.
CIM Extension-Unix	Measurement Threshold	CIM_Extension-Unix	Monitors the process CIM Extension on UNIX Storage Essentials hosts and sends a message to the event browser, if not running.
Service Discovery	Service Auto-Discovery	Storage_Essentials_Hosts_Discovery	Discovers the Storage Essentials central management server (CMS) services and the hosts managed by the management server.

## Using Storage Essentials SPI messages

Events generated by the Storage Essentials SPI are grouped under the Storage Essentials SPI's `HPSESPI-Storage_Essentials` message group. The messages generated by the Storage Essentials SPI templates appear in the Message Browser window and contain information that is vital for understanding the problems being reported.

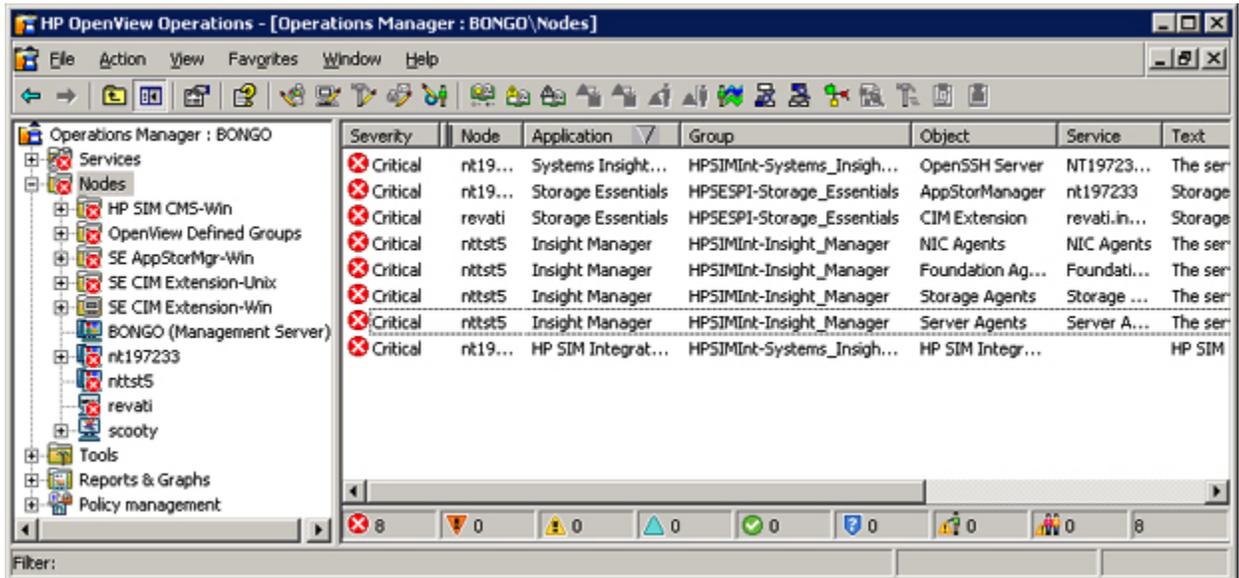
Figure 12 shows the Message Browser window with a selection of messages generated by the Storage Essentials SPI.



---

**NOTE:**

In Figure 12, there are messages for other applications apart from the messages for Storage Essentials SPI.



**Figure 12 Storage Essentials SPI messages in the message browser**

The message headline describes the scope of the problem. In the Storage Essentials SPI context, this information can be categorized into the following:

- **Node** - Name of the Storage Essentials management server or CIM Extension.
- **Application** - Category of the message is Storage Essentials.
- **Text** - A single line description of the event.
- **Object** - Source of the event is AppStorManager or CIM Extension.

## Using Storage Essentials SPI service map

Storage Essentials SPI provides the administrator with the additional perspective of Service Views.

For more information about Service Views, see [Viewing services](#).

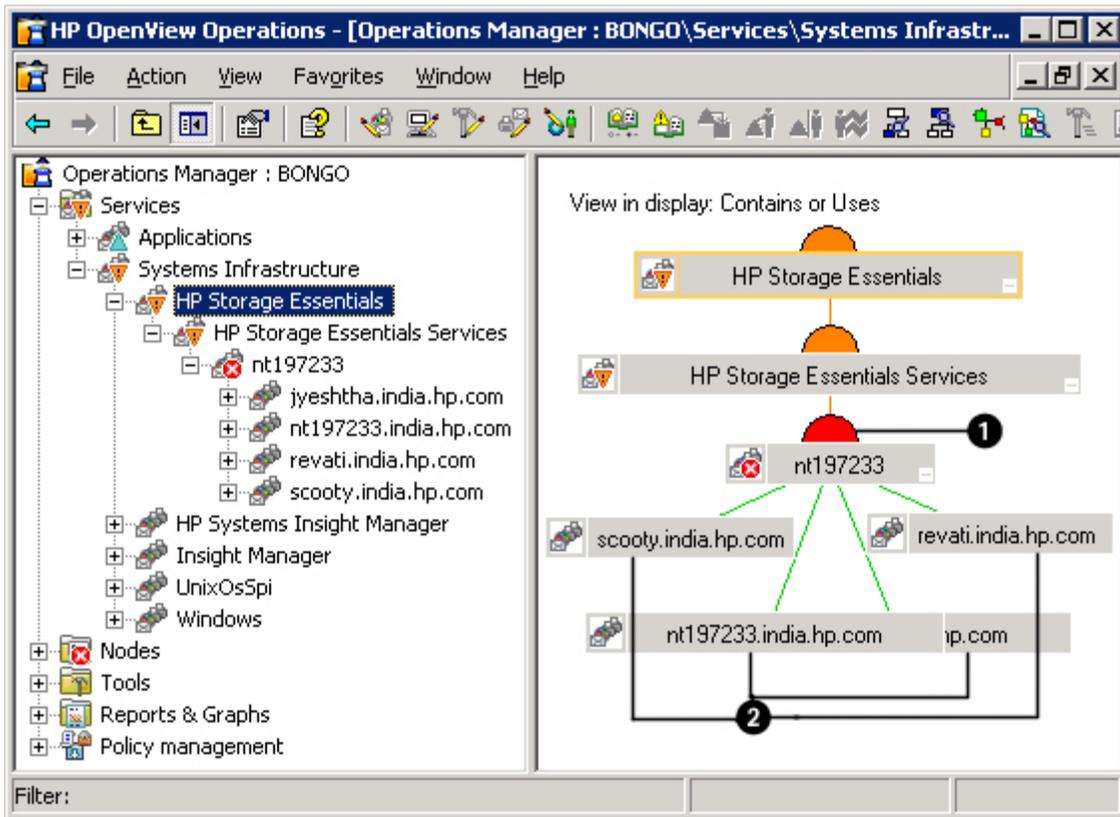
Storage Essentials SPI provides the following service view:

- Storage Essentials services

The Storage Essentials SPI discovers the services automatically and uses the discovered data to generate service maps that can be viewed by the administrator from the OVO console.

As shown in [Figure 13](#), the third node represents the Storage Essentials CMS node - the node running the AppStorManager service. The Storage Essentials managed hosts are discovered by querying the Storage Essentials CMS for its managed hosts. Hence, some of the nodes represented in this tree may not be OVO managed nodes. The user can decide whether these nodes must be configured as OVO managed nodes or not. The user can also decide whether the Storage Essentials policies must be installed or not. If the nodes in this tree are also OVO managed nodes with the Storage Essentials policies deployed, the service map node status changes based on the status of the CIM Extension on the node.

[Figure 13](#) shows the services discovered by the Storage Essentials SPI where AppStorMgr has a status of not running.



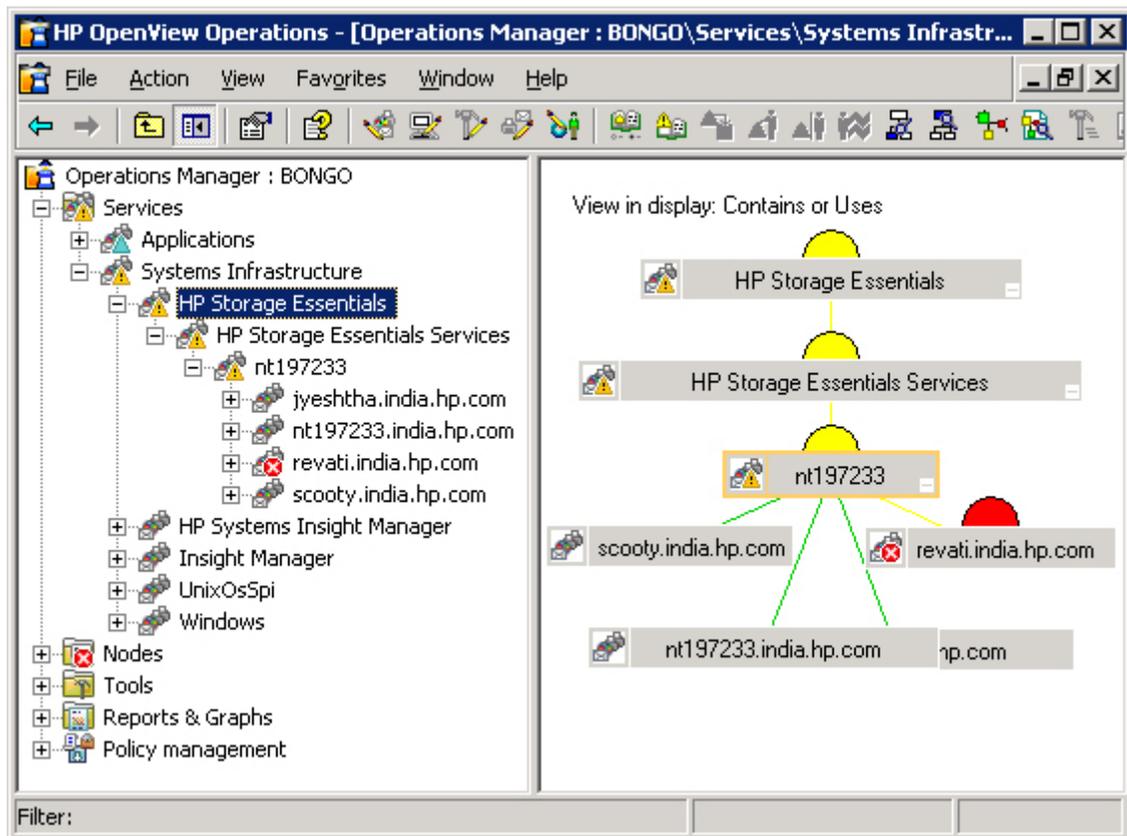
**Figure 13 Storage Essentials service when AppStorMgr has a status of not running**

Table 11 lists the Storage Essentials SPI service description.

**Table 11 Storage Essentials SPI service description**

Item	Description
1	Storage Essentials CMS node
2	Nodes that have the CIM Extensions installed/running

Figure 14 shows the services discovered by the Storage Essentials SPI where CIM Extension is not running.



**Figure 14 Storage Essentials service when CIM Extension has a status of not running**

The service discovered by the Storage Essentials SPI allows root-cause analysis of problems in the most crucial elements of the Storage Essentials node in the storage network being managed by Storage Essentials. Propagation rules for the objects in the Storage Essentials service trees are defined as Unchanged by default. This means that a parent service does not change the status of a child object. For example, attaching a priority to it. Such a scenario is feasible only if a parent service considered the status of one child service to be more important than the status of another child service. Calculation rules for the Storage Essentials service trees are set to Most Critical by default. Hence, if a parent service has more than one child service, it assumes the status equal to the highest severity of its child services.

## Viewing services

The service maps are created a few minutes after Storage Essentials CMS is added to AppStorMgr-Win node group. For information on adding Storage Essentials CMS to the AppStorMgr-Win node group, see [Obtaining HP Systems Insight Manager CMS Credentials](#) and [Assigning nodes to node group](#).

To view the discovered services, click **Services** on the OVO Management console and select the appropriate service.

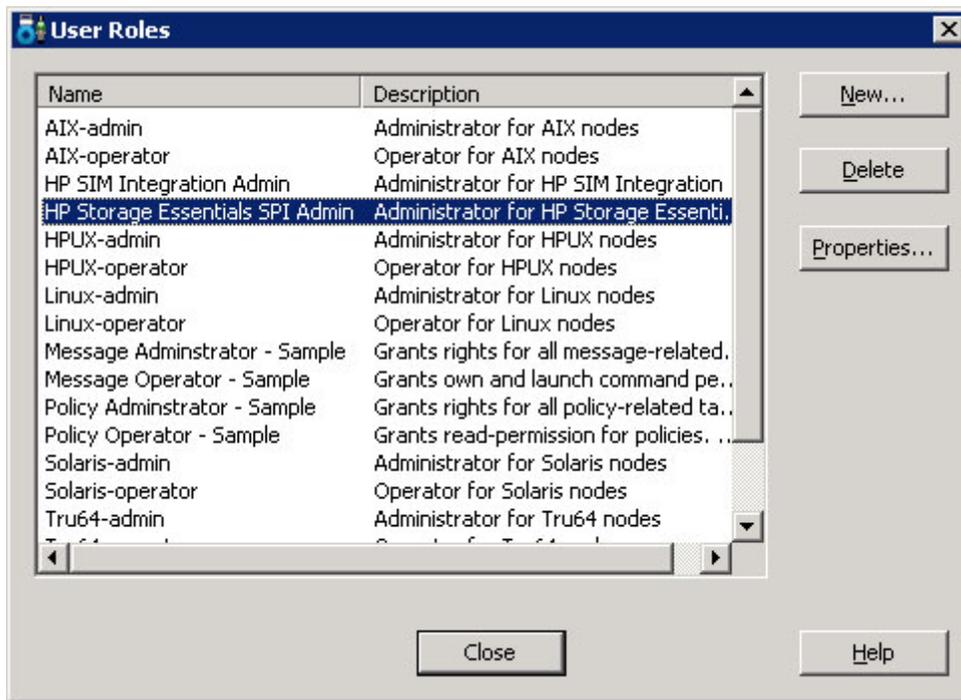
### NOTE:

By default, the services are discovered by OVO once every day at 2:30 am. The administrator can change the service discovery period by modifying the service discovery policy. The changed discovery period comes into effect only after the policies are redeployed on the Storage Essentials CMS.

## Using Storage Essentials SPI user roles

The installation of the Storage Essentials SPI software adds a new user role called HP Storage Essentials SPI Admin to OVO.

Figure 15 shows the User Roles window.



**Figure 15 User Roles window**

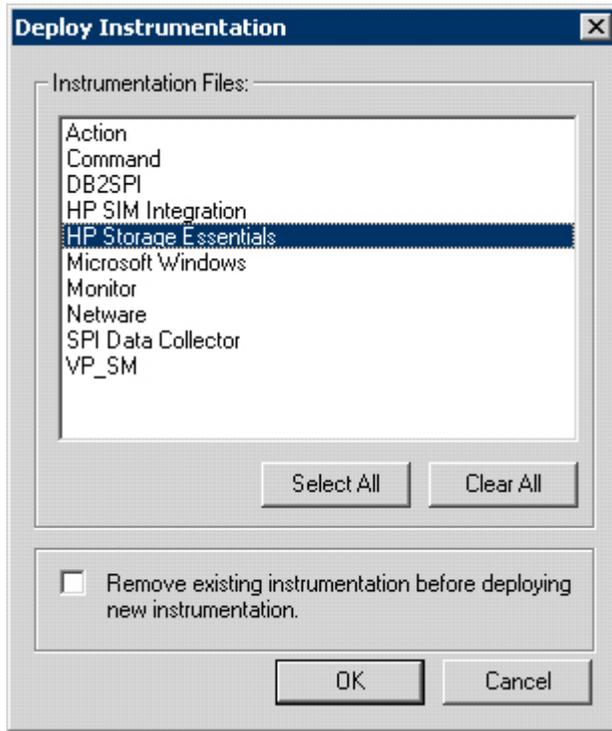
The OVO administrator utilizes user roles to simplify the process of assigning responsibilities to OVO users. The users associated with the role HP Storage Essentials SPI would have all the Storage Essentials SPI tools, policies and `HPSESPI-Storage_Essentials` message groups assigned to them and would be able to manage and control the Storage Essential CMS and CIM Extension nodes.

## Re-configuring HP SIM CMS credentials for Storage Essentials SPI

To re-configure HP SIM CMS credentials for Storage Essentials SPI, complete the following steps:

1. Enter the new HP Systems Insight Manager CMS Credentials.  
For more information, See [Obtaining HP Systems Insight Manager CMS Credentials](#).
2. Deploy instrumentation to the Storage Essentials CMS node.
  - To deploy the instrumentation on the Storage Essentials node, right-click on the Storage Essentials CMS node, select **All Tasks** and select **Deploy Instrumentation**. The Deploy Instrumentation window opens.

Figure 16 shows the Deploy Instrumentation window.



**Figure 16 Deploy Instrumentation window**

- 3.** Select **HP Storage Essentials**.
- 4.** Click **OK**.

The credentials are used for Storage Essentials service discovery.



---

# 6 Uninstalling Storage Essentials SPI

This chapter discusses the following:

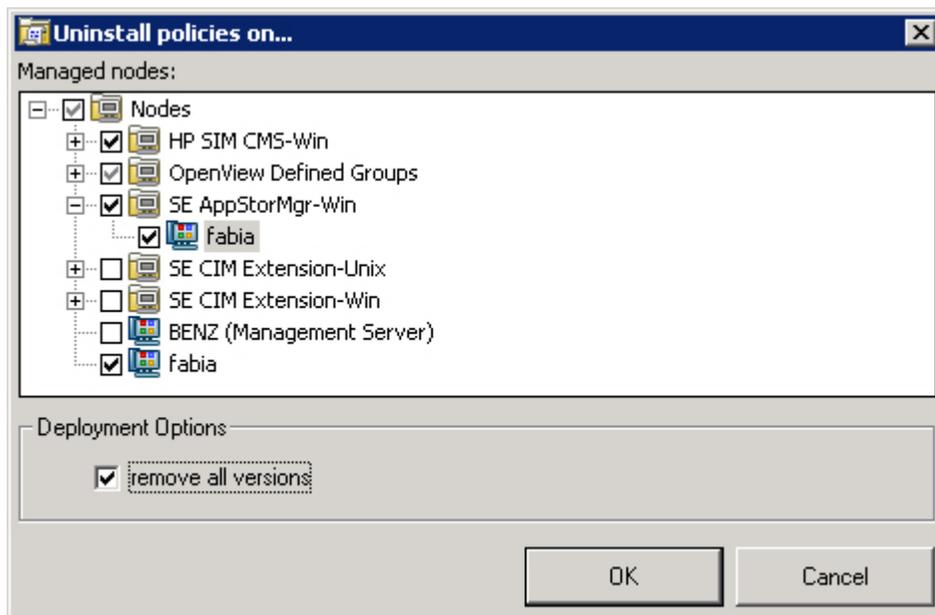
- Uninstalling Storage Essentials SPI Policies from the OVO managed nodes
- De-assigning nodes from the node group
- Uninstalling Storage Essentials SPI from the OVO management server
- Uninstalling Storage Essentials SPI components from the OVO GUI

## Uninstalling Storage Essentials SPI Policies from the OVO managed nodes

To uninstall the Storage Essentials SPI Policies from the OVO managed nodes, complete the following steps:

1. Start the OVO console GUI.
2. Select **Policy Groups > HP Storage Essentials** in the Policy Management folder.
3. Right click on the policy group **AppStorManager-Win**, and select **All tasks > Uninstall from...**
4. In the **Uninstall policies on...** window, select the node group **SE AppStorMgr-Win** from which the policy has to be removed.

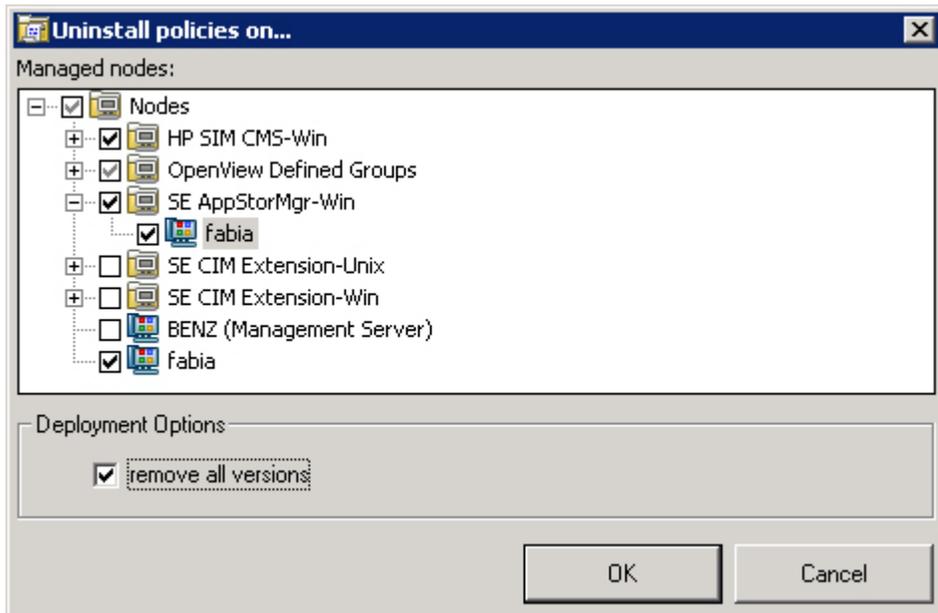
Figure 17 shows Uninstall policies on... window.



**Figure 17 Uninstall policies on... window**

5. Select the **remove all versions** in the Deployment Options at the bottom of the **Uninstall policies on...** window.
6. Click **OK**.
7. Right click on the policy group **Service Discovery**, and select **All tasks > Uninstall from...**
8. In the **Uninstall policies on...** window, select the node group **SE AppStorMgr-Win** from which the policy has to be removed.

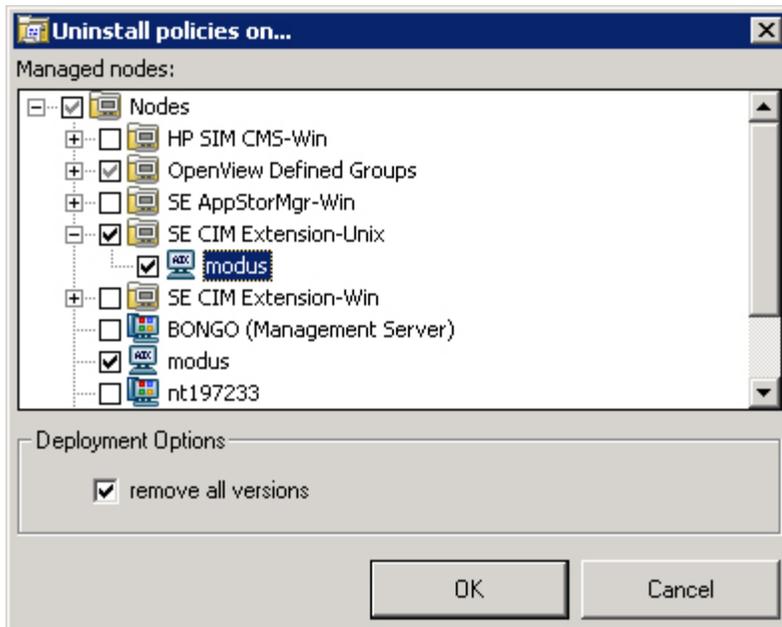
Figure 17 shows Uninstall policies on... window.



**Figure 18 Uninstall policies on... window**

9. Click **OK**.
10. Right click on the policy group **CIM Extension-Unix**, and select **All tasks > Uninstall from...**
11. In the **Uninstall policies on...** window, select the node group **SE CIM Extension-Unix** from which the policy has to be removed.
12. Select the **remove all versions** in the Deployment Options at the bottom of the **Uninstall policies on...** window.

Figure 19 shows the Uninstall policies on... window.



**Figure 19 Uninstall policies on... window**

13. Click **OK**.

**NOTE:**

To verify whether the Storage Essentials SPI policies are removed, on the OVO console expand the nodes group folder, right-click a node (HP SE CMS), and select **View > Policy Inventory**.

The Storage Essentials SPI nodes folders are removed automatically while uninstalling the product from the OVO management server. For more details, see [Uninstalling Storage Essentials SPI from the OVO management server](#).

## De-assigning nodes from the node group

De-assigning a node from the node group involves the following:

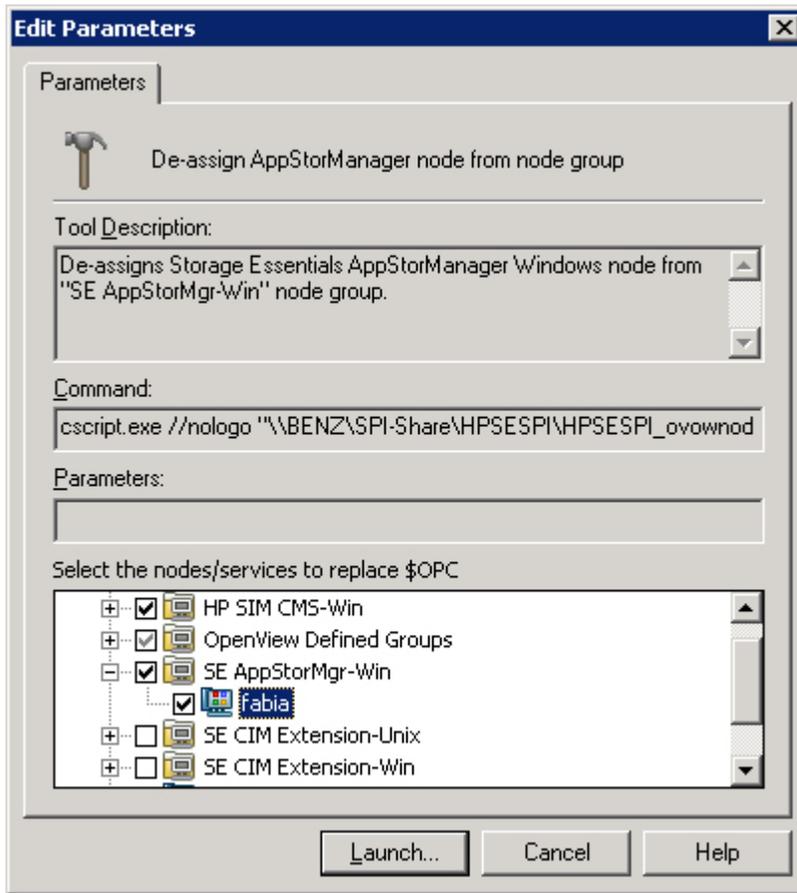
- [De-assigning AppStorManager node from the node group](#)
- [De-assigning CIM Extension Windows node from the node group](#)
- [De-assigning CIM Extension Unix node from the node group](#)

## De-assigning AppStorManager node from the node group

To de-assign the Windows node on which the Storage Essentials AppStorManager service running from the `SE AppStorMgr-Win` node group, complete the following steps:

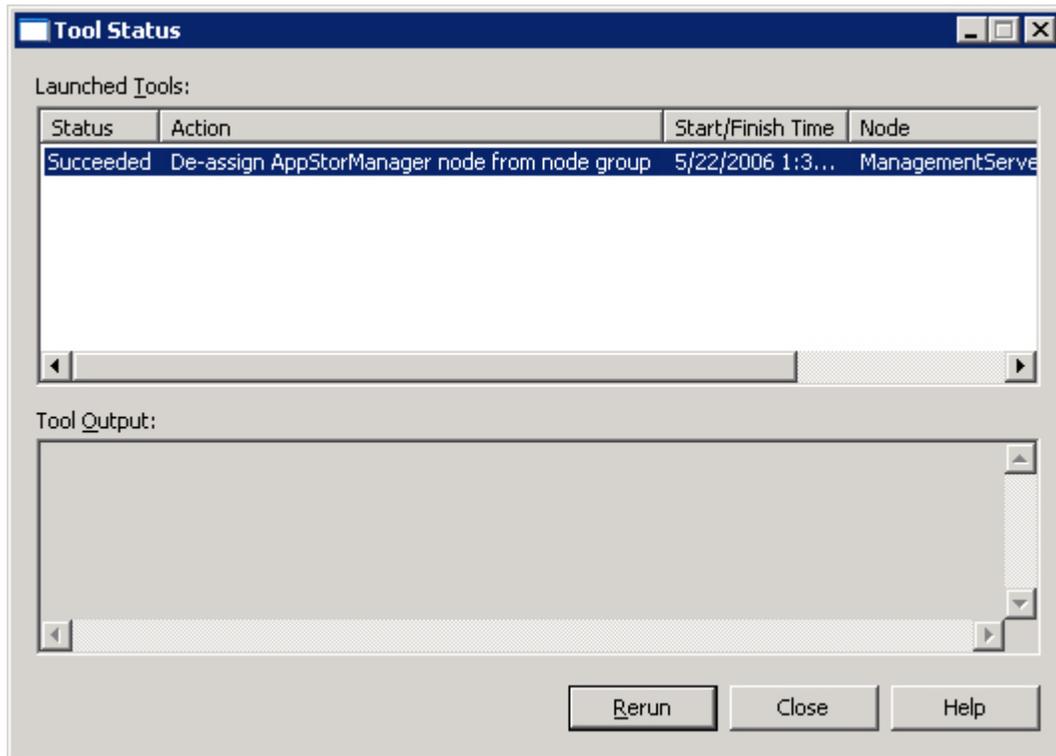
1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > AppStorManager-Win**, and right-click **De-assign AppStorManager node from node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

[Figure 20](#) shows the Edit Parameters window.



**Figure 20 Edit Parameters window**

4. Select the node in SE AppStorMgr-Win in the **Select the nodes/services to replace \$OPC** window pane.
5. Click **Launch....** The Tool Status window opens.  
[Figure 21](#) shows the Tool Status window



**Figure 21 Tool Status window**

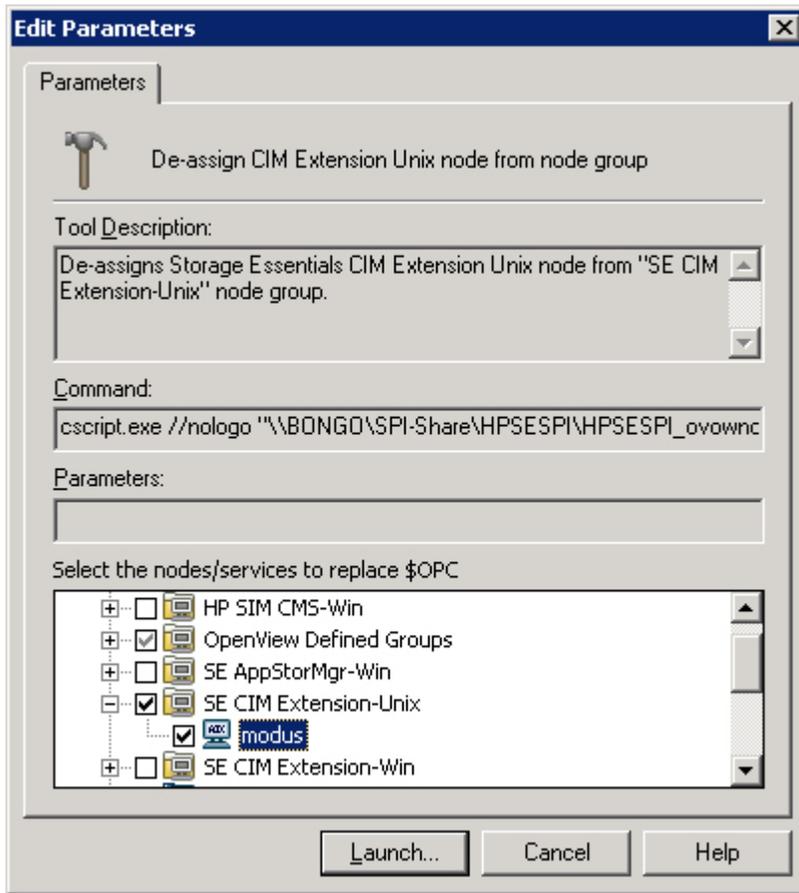
You have now successfully de-assigned the Windows node on which the Storage Essentials AppStorManager service running from the SE AppStorMgr-Win node group.

## De-assigning CIM Extension Unix node from the node group

To de-assign the Unix node on which the Storage Essentials CIM Extension process is running from the SE CIM Extension-Unix node group, complete the following steps:

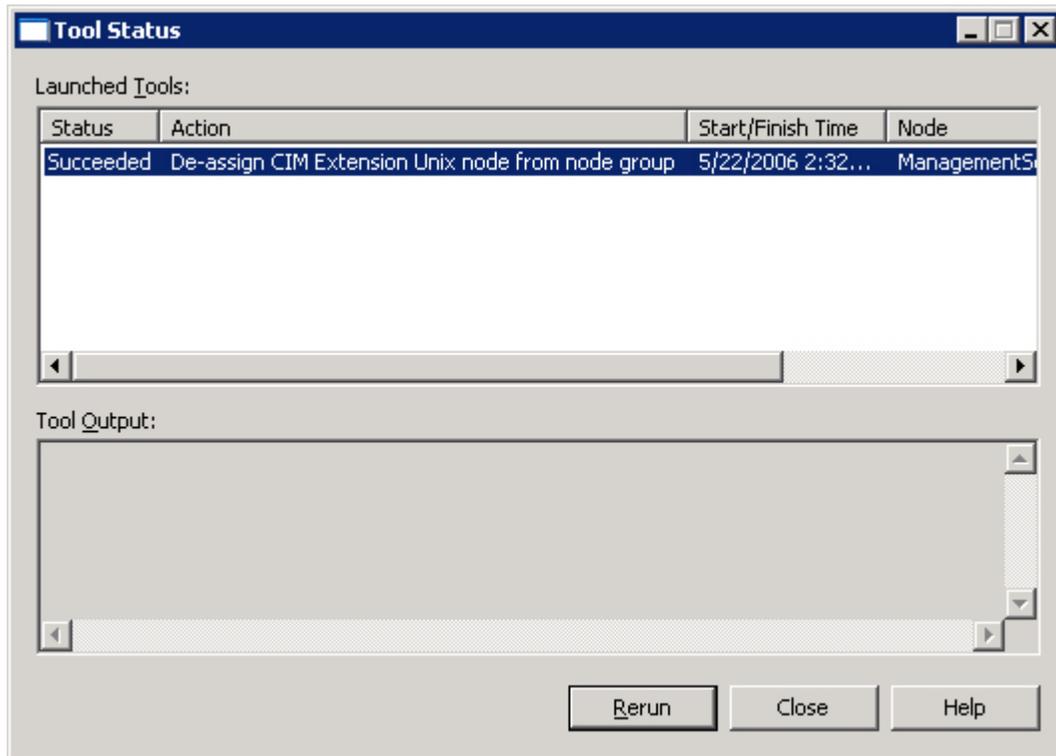
1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > CIM Extension-Unix**, and right-click **De-assign CIM Extension Unix node from node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

Figure 22 shows the Edit Parameters window.



**Figure 22 Edit Parameters window**

4. Select the node in SE CIM Extension-Unix folder in the **Select the nodes/services to replace \$OPC** window pane.
5. Click **Launch....** The Tool Status window opens.  
[Figure 23](#) shows the Tool Status window.



**Figure 23 Tool Status window**

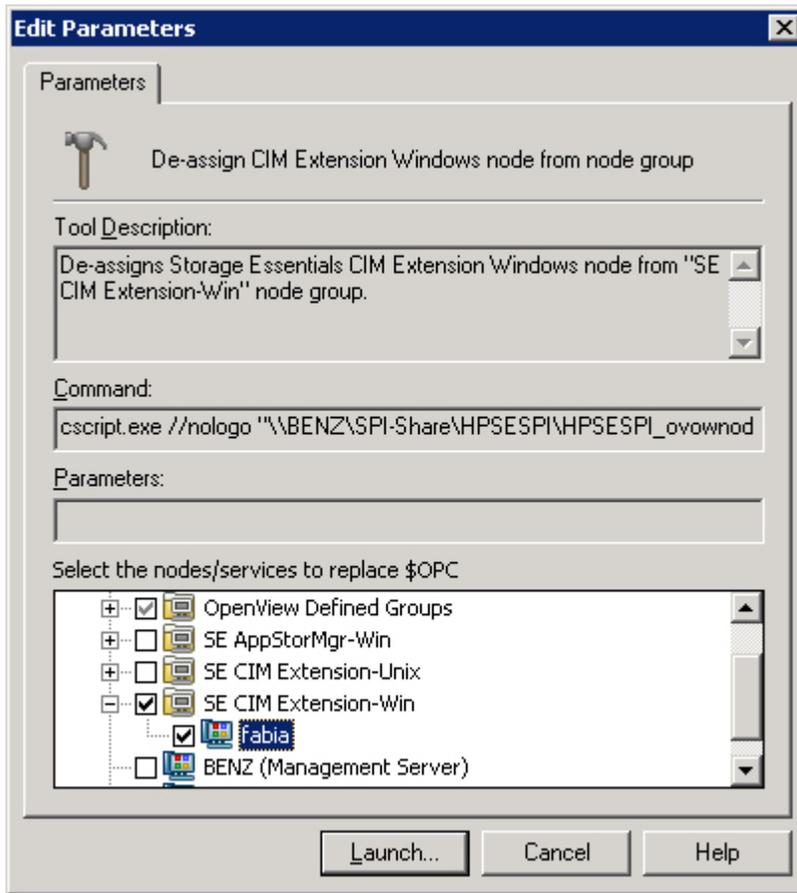
You have now successfully de-assigned the Unix node on which the Storage Essentials CIM Extension process running from the SE CIM Extension-Unix node group.

## De-assigning CIM Extension Windows node from the node group

To de-assign the Windows node on which the Storage Essentials CIM Extension service running from the SE CIM Extension-Win node group, complete the following steps:

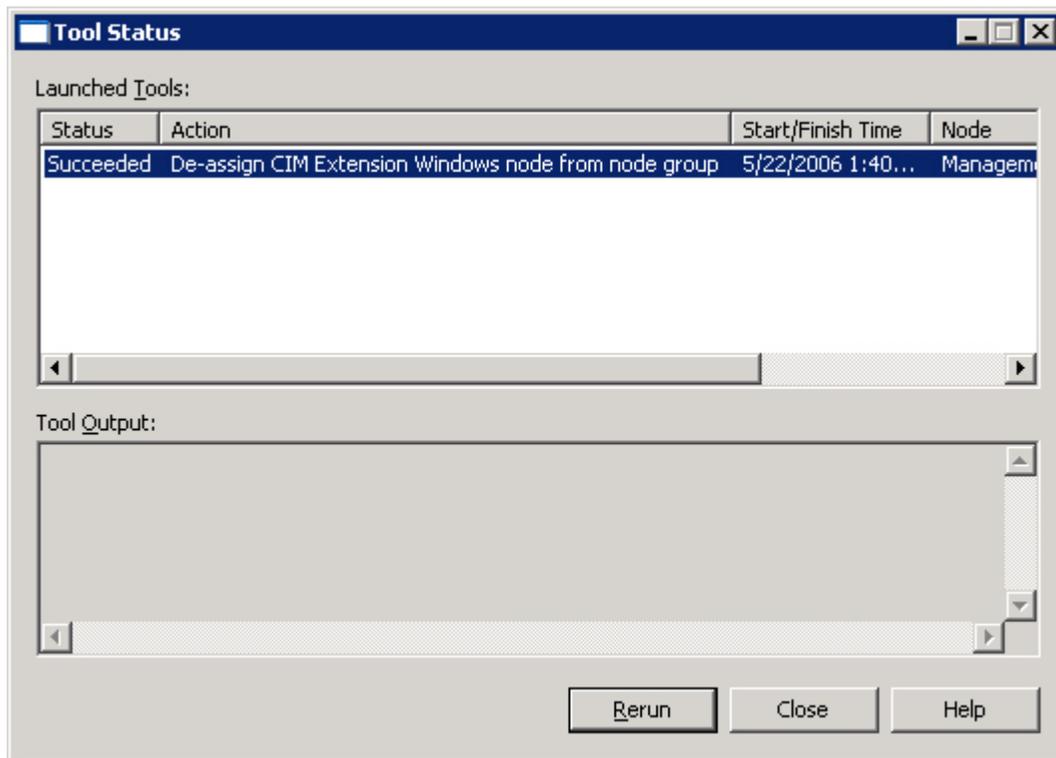
1. Login to the OVO management server, and start the OVO Console GUI.
2. Select **Tools > HP Storage Essentials > CIM Extension-Win**, and right-click **De-assign CIM Extension Windows node from node group**.
3. Select **All Tasks > Launch Tool**. The Edit Parameters window opens.

Figure 24 shows the Edit Parameters window.



**Figure 24 Edit Parameters window.**

4. Select the node in the SE CIM Extension-Win in the **Select the nodes/services to replace \$OPC** window pane.
  5. Click **Launch....** The Tool Status window opens.
- [Figure 25](#) The Tool Status window opens.



**Figure 25 Tool Status window**

You have now successfully de-assigned the Windows node on which the Storage Essentials CIM Extension service running from the SE CIM Extension-Win node group.

## Uninstalling Storage Essentials SPI from the OVO management server

To uninstall the Storage Essentials SPI components from the OVO management server, complete the following steps:

**NOTE:**

Ensure that OVO managed nodes are not present under Storage Essentials SPI node groups. They must be moved out of their respective groups before uninstalling Storage Essentials SPI. For information on removing the OVO managed nodes, see [De-assigning nodes from the node group](#).

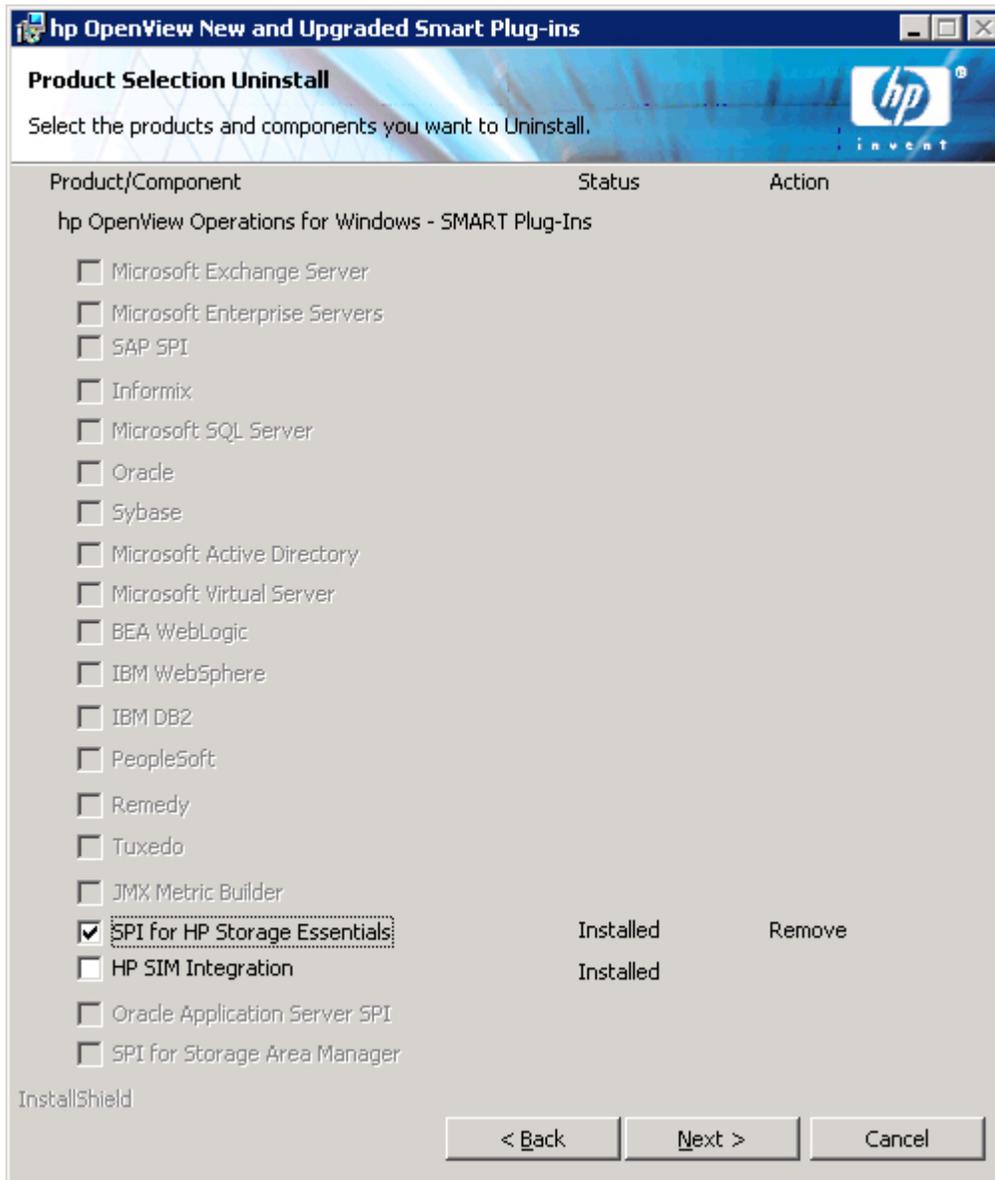
Ensure that you uninstall the Storage Essentials SPI policies from the OVO managed nodes before uninstalling Storage Essentials SPI from the OVO management server. For more information on uninstalling Storage Essentials SPI policies, see [Uninstalling Storage Essentials SPI Policies from the OVO managed nodes](#).

1. Insert the *HP OpenView New and Upgraded Smart Plug-ins, Volume 1* CD in the CD-ROM drive.
2. Select **Remove products** to proceed to the product selection dialog box.
3. In the **Product Selection Uninstall** window, select **SPI for HP Storage Essentials** and click **Next**.

**NOTE:**

Selecting **HP SIM Integration** in the **Product Selection Uninstall** window also uninstalls **SPI for HP Storage Essentials**.

Figure 26 displays the SPI Uninstallation window.



**Figure 26 SPI Uninstallation window**

4. Select **Remove**.
5. Click **Finish** to complete the uninstallation procedure and exit the wizard.

This removes all the configuration files and executables of Storage Essentials SPI from the OVO server. The Storage Essentials SPI node groups, policies, and tools are also removed from the OVO GUI.

For more information on uninstalling HP OpenView New and Upgraded Smart Plug-ins, refer to the New and Upgraded *Smart Plug-ins CD for OpenView Operations install/upgrade guide*.

## Uninstalling Storage Essentials SPI components from the OVO GUI

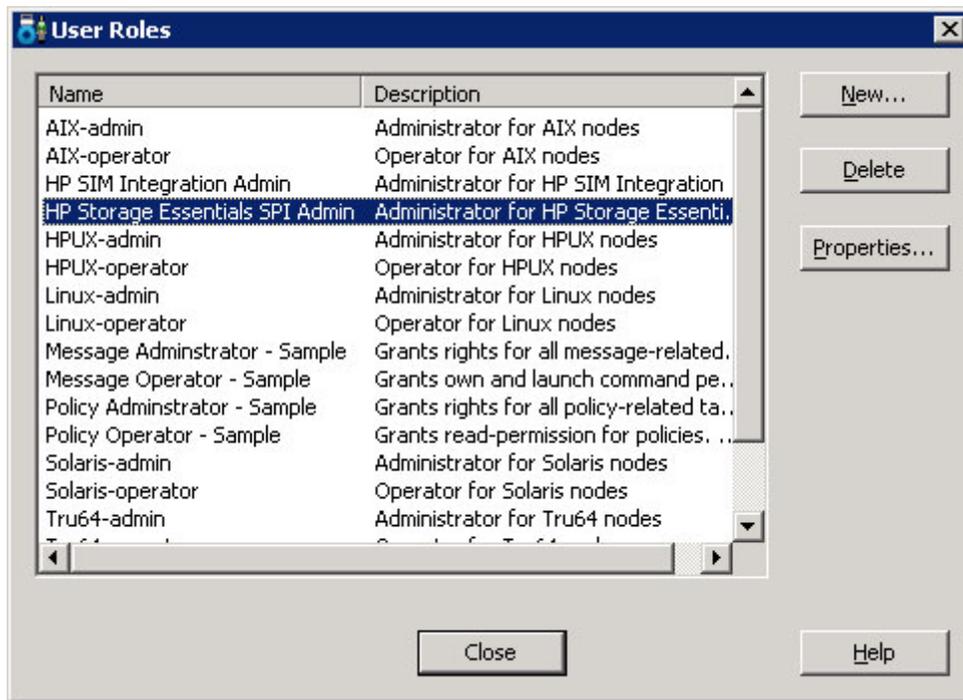
Most of the components of the Storage Essentials SPI in the OVO GUI are automatically removed during the uninstallation of the product. However, Storage Essentials SPI Admin user role must be removed manually.

## Removing Storage Essentials SPI user roles

To remove the Storage Essentials SPI user roles, complete the following steps:

1. Start the OVO console GUI and click the **User Roles Configuration Editor** button located on the top menu bar of the main OVO GUI. The User Roles window opens.

Figure 27 shows the User Roles window.



**Figure 27** User Roles window

2. Select **HP Storage Essentials SPI Admin** and click **Delete**.

You have now successfully removed the Storage Essentials SPI user roles.

---

# 7 Troubleshooting

This chapter discusses the following:

- Before you start
- Service monitoring events not arriving on the OVO management server message browser console
- HP Storage Essentials services not visible in the OVO console
- Storage Essentials service discovery may fail for more than one Storage Essentials CMS
- You get a message "Errors occurred during distribution of the monitors..."

## Before you start

Before investigating the problem, you must perform the following basic checks to ensure that the Storage Essentials SPI environment is installed and configured correctly:

- Ensure that the Storage Essentials SPI is installed properly. For more information on installing Storage Essentials SPI, see [Installing Storage Essentials SPI](#).
- Ensure that the Storage Essentials SPI is configured properly. For more information on configuring Storage Essentials SPI, see [Configuring Storage Essentials SPI](#).

The above steps ensure that you have installed and configured the Storage Essentials SPI in the recommended manner, and that the messages seen in the OVO Events Browser are:

- Intercepted by the Storage Essentials SPI policies.
- Appearing in the OVO message browser in the form you expect.

If the preliminary check does not resolve the problems, go through the list of common problems and their solutions described in the following section.

# Service monitoring events not arriving on the OVO management server message browser console

Table 12 provides troubleshooting information for service monitoring events that do not arrive on the OVO management server message browser console.

**Table 12 Service monitoring events not arriving on the OVO management server message browser console**

Symptom	Solution
<p>No Storage Essentials service monitoring events arriving on the OVO management server.</p>	<ul style="list-style-type: none"> <li>• Ensure that the connection between the OVO management server and the Storage Essentials CMS and the CIM Extension nodes is up and running.</li> <li>• Send a test message from OVO console, and ensure that it is received in the OVO Events Browser. You can send a test message using the test tools available in the HP OpenView Operations console.</li> <li>• Verify whether the OVO agent has been correctly installed and configured on the management server, and the OVO agent processes (and in particular the control agent) are running.</li> <li>• Ensure that the correct HP SIM Credentials are entered when configuring the Storage Essentials CMS node before adding the node to the SE AppStorMgr-Win node group. For more information, see <a href="#">Obtaining HP Systems Insight Manager CMS Credentials</a>.</li> <li>• Ensure that Storage Essentials CMS and CIM Extension nodes are added to the appropriate node groups. For more information, see <a href="#">Assigning nodes to node group</a>.</li> <li>• Ensure that the Storage Essentials SPI policies have been correctly deployed to the Storage Essentials CMS and CIM Extension nodes. To check whether the policies are correctly deployed on the OVO console expand the Nodes folder, right-click a node, and select <b>View &gt; Policy Inventory</b>. Right-click on the node, Select <b>View &gt; Policy Inventory</b>, and ensure that the relevant Storage Essentials SPI policies are present.</li> <li>• If CIM Extension monitoring has failed on UNIX node, check if the HPSESPI-CIM_Extension-Unix policy is enabled. If disabled, enable it or redeploy the policy to the node. This situation can arise when the policy has been deployed to the node before installation of CIM Extension and the policy is automatically disabled.</li> </ul>

# HP Storage Essentials services not visible in the OVO console

Table 13 provides troubleshooting information for HP Storage Essentials services that are not visible in the OVO console.

**Table 13 HP Storage Essentials services not visible in the OVO console**

Symptom	Solution
<p>HP Storage Essentials services are not visible in the OVO console.</p>	<ul style="list-style-type: none"> <li>• Ensure that the connection between the OVO management server and the Storage Essentials CMS nodes is up and running.</li> <li>• Send a test message from OVO console and ensure that it is received in the OVO Events Browser. You can send a test message using the test tools available in the HP OpenView Operations console.</li> <li>• Verify whether the OVO agent has been correctly installed and configured on the management server, and the OVO agent processes (and in particular the control agent) are running.</li> <li>• Ensure that the correct HP SIM Credentials are entered when configuring the Storage Essentials CMS node before adding the node to the SE AppStorMgr-Win node group. For more information, see <a href="#">Obtaining HP Systems Insight Manager CMS Credentials</a>.</li> <li>• Ensure that the correct HP SIM Credentials are entered before adding the node to the SE AppStorMgr-Win node group, and also ensure that the nodes are added using the <b>Tools &gt; HP Storage Essentials &gt; AppStoManager-Win &gt; Assign AppStorManager node to node group</b> tool. This ensures that the proper credentials are copied to the Storage Essentials CMS node along with other instrumentation.</li> <li>• If there are multiple Storage Essentials CMS nodes with different credentials, the <code>Get SIM CMS Credentials</code> tool must be launched for one node at a time and that node must be added to the SE AppStorMgr-Win node group before entering the credentials for the next node.</li> <li>• Ensure that the Service Discovery policies present at <b>Policy Management &gt; Policy Groups &gt; HP Storage Essentials &gt; Service Discovery</b> are deployed on the Storage Essentials CMS node. To check whether the policies are correctly deployed, right-click on the node, Select <b>View &gt; Policy Inventory</b>, and ensure that the Service Discovery policies are present.</li> </ul>

# Storage Essentials service discovery may fail for more than one Storage Essentials CMS

## Symptom:

Storage Essentials service discovery may fail for more than one Storage Essentials CMS.

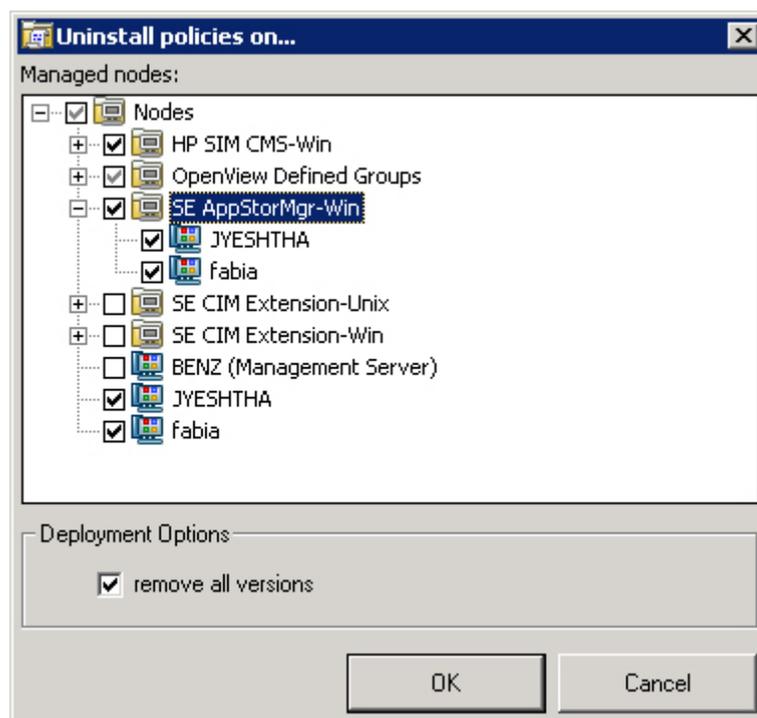
For example, the Storage Essentials services are successfully discovered for one Storage Essentials CMS with CIM Extension nodes and fails to discover the CIM Extension nodes for the other Storage Essentials CMS.

## Cause/Solution:

To resolve this issue, complete the following steps:

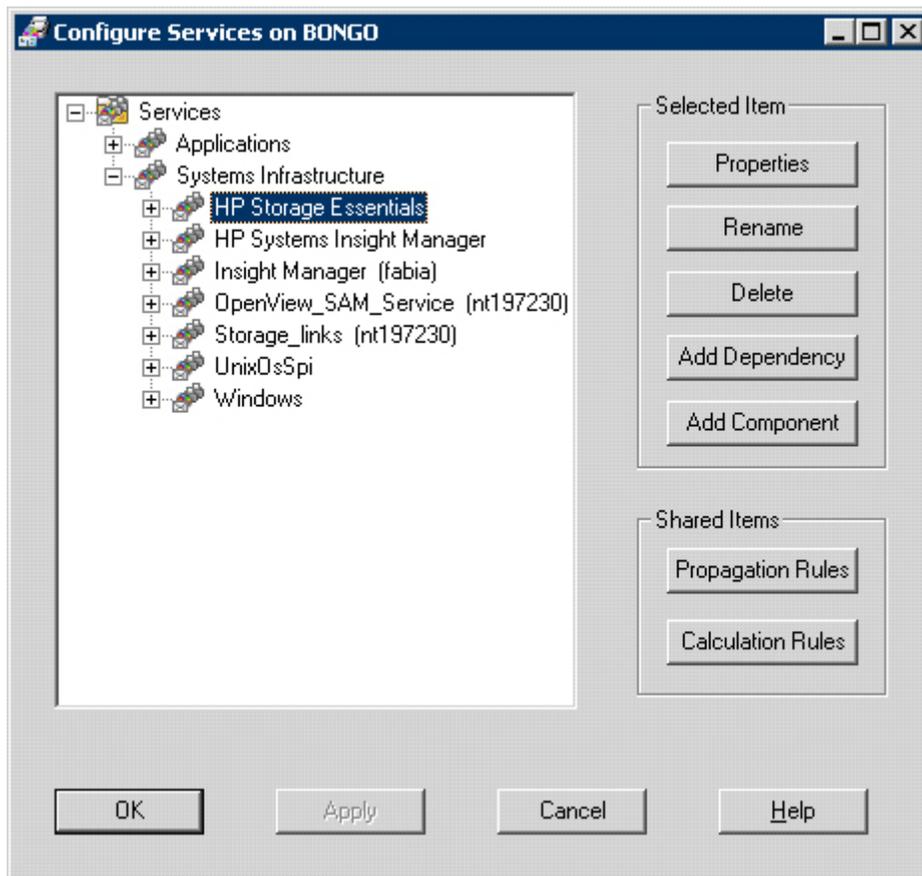
1. On the OVO console, select **Policy Groups > HP Storage Essentials > Service Discovery** in the Policy Management folder.
2. Right click **Service Discovery** policy group, and select **All tasks > Uninstall from...**
3. In the **Uninstall policies on...** window, select **SE AppStorMgr-Win** node folder from which the policy has to be removed.

Figure 28 shows Uninstall policies on... window.



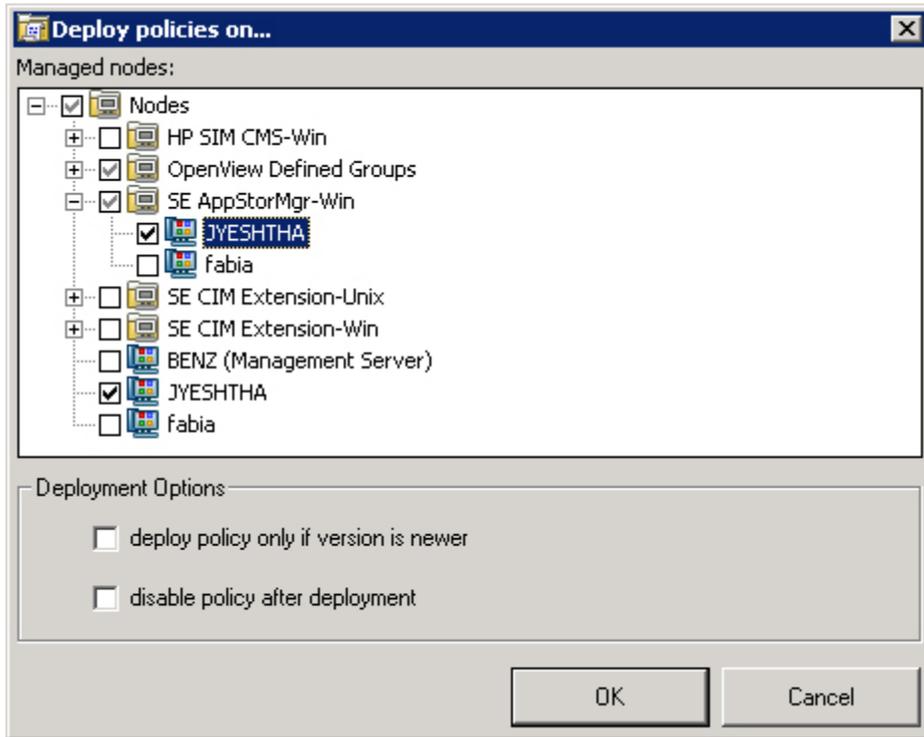
**Figure 28 Uninstall policies on... window**

4. Select **remove all versions** in the **Deployment Options** at the bottom of the **Uninstall policies on...** window.
5. Click **OK**.
6. Right-click **Services** and select **Configure > Services...** The Configure Services window opens. Figure 29 shows Configure Services window.



**Figure 29 Configure Services window**

7. Select **HP Storage Essentials** in the **Systems Infrastructure** service tree.
8. Click **Delete**.
9. Click **OK**.
10. Select **Policy Groups > HP Storage Essentials > Service Discovery** in the Policy Management folder.
11. Right-click **Service Discovery** policy group, and select **All Tasks > Deploy on...** The Deploy policies on... window opens.  
 Figure 30 shows the Deploy Policies on... window.



**Figure 30 Deploy policies on... window**

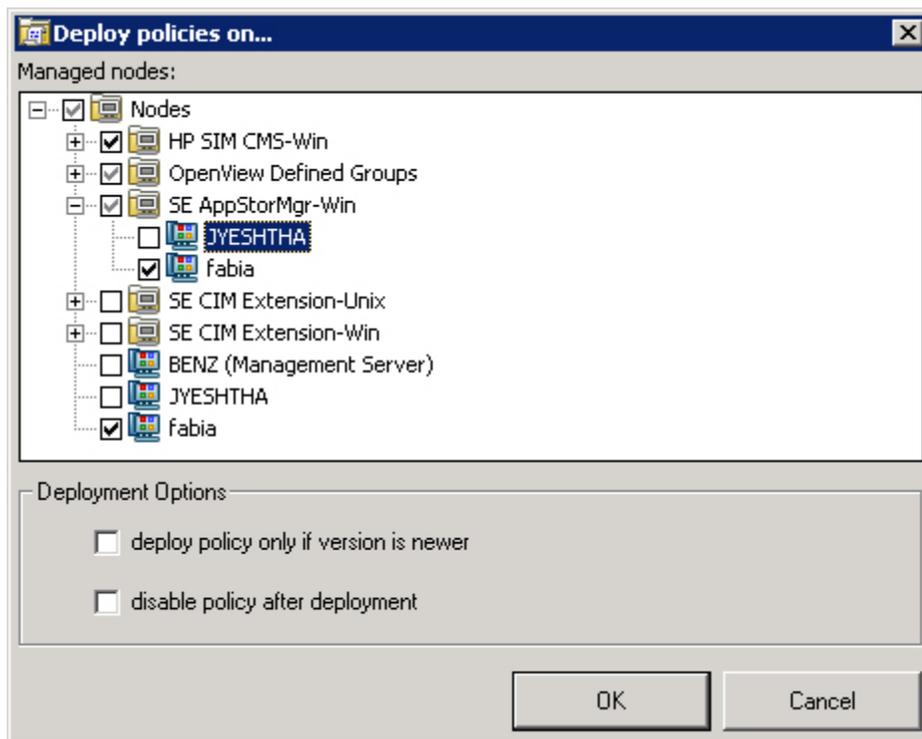
12. In the **Deploy policies on...** window, select one Storage Essentials CMS node whose CIM Extension nodes discovery failed, in the `SE AppStorMgr-Win` node folder.
13. Click **OK**.



**NOTE:**

Wait for the discovery of Storage Essentials services to complete and update the OVO service map, showing the successfully discovered Storage Essentials services.

14. Select **Policy Groups > HP Storage Essentials > Service Discovery** in the Policy Management folder.
15. Right-click **Service Discovery** policy group, and select **All Tasks > Deploy on...**. The Deploy policies on... window opens.  
 Figure 30 shows the Deploy Policies on... window.



**Figure 31 Deploy policies on... window**

16. In the **Deploy policies on...** window, select the other Storage Essentials CMS node in the SE AppStorMgr-Win node folder.
17. Click **OK**.

You get a message "Errors occurred during distribution of the monitors..." on OVO console when you deploy HP Storage Essentials instrumentation

**Symptom:**

When HP Storage Essentials instrumentation is deployed/redeployed, messages like this appear:

```
Errors occurred during distribution of the monitors. Solve the problems and distribute the monitors again. (OpC30-1030)
Error during transfer dir: Cannot move running binary from
\Program Files\HP OpenView\Installed Packages\{790c06b4-844e-11d2-972b-080009ef8c2a}\bin\instrumentation\LogConf.prp to
C:\DOCUME~1\HPITOA~1.000\LOCALS~1\Temp\old45 (Errorcode: 32).
(OpC30-1066) Error during transfer dir: Cannot move binary from
\Program Files\HP OpenView\Installed Packages\{790c06b4-844e-11d2-972b-080009ef8c2a}\tmp\OpC\bin\instrumentation\LogConf.prp to
\Program Files\HP OpenView\Installed Packages\{790c06b4-844e-11d2-972b-080009ef8c2a}\bin\instrumentation\LogConf.prp. (OpC30-1067)
```

**Cause/Solution:**

If the HP SIM Integration Event Listener is configured on the OVO managed node, ensure that the HP SIM Integration event listener is not running before deploying/re-deploying **HP Storage Essentials** instrumentation to that node. Use **HP SIM Integration > HP Systems Insight Manager tool Stop Event Listener** to stop the HP SIM Integration event listener on HP SIM CMS node or run the following command on the OVO managed node from the command prompt `opcagt -id 31 -stop`.

---

# Glossary

- Common Information Model (CIM)** The Common Information Model is a common data model of an implementation-neutral schema for describing overall management information in a network/enterprise environment. CIM comprises a specification and a schema. The specification defines the details for integration with other management models such as Simple Network Management Protocol's (SNMP's), Management Information Base (MIBs) or the Distributed Management Task Force's (DMTF's) Maker Interchange Formats (MIFs) and the schema provides the actual model descriptions.
- Central Management Server (CMS)** The central management server (CMS) runs the HP Storage Essentials AppStorManager service and initiates all management operations within the management domain.



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# Index

## A

Adding nodes, [25](#)  
AppStorManager service, [12](#)

## B

Before troubleshooting, [58](#)  
Benefits of Storage Essentials, [12](#)

## C

CIM Extension, [12](#)  
Configuration, [23](#)

## D

Disk Space,

## F

Features of Storage Essentials, [12](#)

## H

Hardware requirements, [16](#)

## I

Installation prerequisites, [16](#)  
Installing OVO agent, [24](#)

Installing SPI, [19](#)

## O

Obtain CMS credentials, [24](#)

## S

Software requirements, [16, 17](#)  
Storage Essentials, [12](#)  
Storage Essentials SPI, [13, 14](#)  
Storage Essentials SPI applications,

## T

Troubleshooting, [57](#)

## U

Using messages, [38](#)  
Using node folders, [34](#)  
Using policies, [37](#)  
Using services, [39](#)  
Using SPI, [33](#)  
Using tools, [35](#)

## V

Viewing services, [41](#)