Installation and Reference Guide

HP OpenView Operations Smart Plug-in for HP Storage Essentials

Administrator's Reference for HP OpenView Operations for Unix



Part number: First edition: December 2006



Legal and notice information

© Copyright 2006 Hewlett-Packard Development Company, L.P.

Hewlett-Packard Company makes no warranty of any kind with regard to this material, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

This document contains proprietary information, which is protected by copyright. No part of this document may be photocopied, reproduced, or translated into another language without the prior written consent of Hewlett-Packard. The information contained in this document is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information is provided "as is" without warranty of any kind and is subject to change without notice. The warranties for Hewlett-Packard Company products are set forth in the express limited warranty statements for such products. Nothing herein should be construed as constituting an additional warranty.

Microsoft and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Java™ is a US trademark of Sun Microsystems, Inc.

Linux is a U.S. registered trademark of Linus Torvalds.

Contents

A	bout this guide Intended audience Intended audience Intended audience Related documentation Intended audience Typographical conventions and symbols Intended audience HP technical support Intended audience HP-authorized reseller Intended audience	7 7 8 8 9
1	HP Storage Essentials	11 11 11
2	HP OpenView Operations Smart Plug-in for HP Storage Essentials Overview	13 13 13
3	Installing Storage Essentials SPI Prerequisites Hardware Requirements Software Requirements Installing Storage Essentials SPI Verifying installation Installed File Locations	15 16 16 16 18 20 21
4	Configuring Storage Essentials SPI Configuration Installing OVO Agents Assigning HP Storage Essentials User Responsibilities Adding Nodes to the HP Storage Essentials Node Groups Adding Node to the HP Storage Essentials CIM Extn Node Group Adding Node to the HP Storage Essentials CMS Node Group Deploying Commands on the HP SE CMS or CIM Extension Nodes Deploying Templates on the HP Storage Essentials Nodes Configuring the OVO Agent for a Non-root User Providing Access to Storage Essentials SPI Applications Obtaining HP Storage Essentials CMS credentials	23 24 24 27 28 29 30 31 32 32 34
5	Using Storage Essentials SPI Node Groups Using Storage Essentials SPI Applications Using HPSESPI Utils Application Group Using Storage Essentials SPI Template Groups Using Storage Essentials SPI Message Groups Using Storage Essentials SPI Message Groups Using Storage Essentials SPI Service View Applying the Storage Essentials SPI services to Non-default Users Viewing Services Re-configuring HP SIM CMS Credentials for Storage Essentials SPI	37 38 39 42 43 45 45 47 47 48

Removing Storage Essentials SPI Templates from the OVO Managed Nodes Removing Storage Essentials SPI Templates from the OVO Managed Nodes Removing Nodes from Storage Essentials SPI Node Groups Removing Storage Essentials SPI Node Groups Removing Storage Essentials SPI Templates from the OVO Management Server Node Removing Storage Essentials SPI Templates from the OVO Management Server Node Removing Storage Essentials SPI from the OVO Management Server Removing Storage Essentials SPI from the OVO Management Server	49 50 51 51 51 52
7 Troubleshooting Before you start	53 53 53 53 54 54 54 55
A Applications	57
B Templates	61
C Service Discovery File Locations	63
C Service Discovery File Locations	63 65

Figures

1 SD Install - Software Selection	. 19
2 OVO User Bank	. 25
3 Modify User	. 26
4 Assigning Profile	. 27
5 Node added to the HP SE CIM Extension-Unix node group	. 28
6 Node added to the HP SE CMS-Win node aroup	. 29
7 Installing commands on select node	. 30
8 Templates selected in the Install / Update Software and Configuration window	31
9 HPSESPI Utils Application Group	. 33
10 Define Configuration window	. 00 34
11 OVO Node Group Bank window	. 0 1 ເຊ
12 Storage Escoptials SPI Application Groups	. 30
12 Apps Starthangager Univ Application Groups	. 37
	. 40
	. 41
15 HPSESPI Utils Application Group	. 42
16 HP Storage Essentials Template Groups	. 44
17 Storage Essentials SPI messages in the Message Browser	. 45
18 HP Storage Essentials service when AppStorManager service has a status of not running	. 46
19 HP Storage Essentials service when CIM Extension service has a status of not running	. 47
20 Install / Update OVO Software and Configuration	. 50
21 Define configuration window	. 51
22 Install / Update OVO Software and Configuration window	52

Tables

1 Document conventions			. 8
2 Disk space requirements			16
3 OVO Management Server Versions			17
4 HP Systems Insight Manager CMS Versions			17
5 HP Storage Essentials CMS Versions			17
6 CIM Extension and OVO Agent Versions			18
7 Storage Essentials SPI Product Bundle and Filesets			20
8 Storage Essentials SPI Elements on the OVO Management Server			21
9 Assignment of Template groups to Node groups			21
10 File Locations on the OVO Management Server			22
11 File Locations for the OVO Managed DCE Nodes			22
12 File Locations for the OVO Managed HTTPS Nodes			22
13 Association of Node groups to Application groups			38
14 Applications in the AppStorManager Application Group			58
15 Applications in the CIM Extension Application Group			58
16 Applications in the HPSESPI Utils Application Group			59
17 Storage Essentials SPI Templates			61
18 Storage Essentials Message Groups			45
19 Storage Essentials SPI service description for AppStorManager Service not running			46
20 Applications in the AppStorManager Application Groups			58
21 Applications in the CIM Extension Application Groups			58
22 Applications in the HPSESPI Utils Application Group			59
23 Storage Essentials SPI Templates			61
24 Service Discovery File Location on the OVO Management Server			63
25 Service Discovery File Location on the OVO Managed Nodes for HTTPS Agents			64
26 Service Discovery File Location on the OVO Managed Nodes for DCE Agents .			64

About this guide

This guide discusses the following topics:

- HP Storage Essentials
- Installing the product
- Using the Storage Essentials SPI for OVOU
- Uninstalling the product
- Troubleshooting

Intended audience

This guide is intended for the following types of users:

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

Related documentation

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

- HP Storage Essentials Installation Guide
- HP Storage Essentials User Guide
- HP Storage Essentials Application Guide
- HP Storage Essentials CLI Guide
- HP Storage Essentials for File Servers Guide
- HP Storage Essentials Integration Guide
- HP Systems Insight Manager Installation and User Guide
- HP OpenView Operations Smart Plug-in for HP Storage Essentials Release Notes
- HP OpenView Operations Administrator's Reference Guide
- HP OpenView Operations Installation Guide
- HP OpenView OVO DCE Agent Concepts and Configuration Guide
- HP OpenView HTTPS Agent Concepts and Configuration Guide

These and other HP documents are available at the HP website:

http://welcome.hp.com/country/us/en/support.html

You can also access OpenView related documents from the following website:

http://ovweb.external.hp.com/lpe/doc_serv/

Typographical conventions and symbols

Table 1 lists the conventions used in this document

Table 1 Document conventions

Convention	Element
Medium blue text: Related documentation	Cross-reference links and e-mail addresses
Medium blue, underlined text (<u>http://www.hp.com</u>)	Web site addresses
Bold font	 Key names Text typed into a GUI element, such as into a box GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes
Italic font	Text emphasis
Monospace font	 File and directory names System output Code Text typed at the command line
Monospace, italic font	Code variablesCommand-line variables
Monospace, bold font	Emphasis of file and directory names, system output, code, and text typed at the command line

\triangle 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.

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 website: <u>http://www.hp.com/go/e-updates</u>

- 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: <u>http://www.hp.com</u> and click **Contact HP** to find locations and telephone numbers.

1 HP Storage Essentials

This chapter discusses the following topics:

- Overview
- Key features and benefits of HP Storage Essentials

Overview

HP Storage Essentials (SE) Enterprise Suite integrates with HP Systems Insight Manager to provide advanced server and storage management capabilities. HP SE features a base management console and an expanding portfolio of value-add plug-ins. It is a family of open, standards-built SAN management and storage resource management (SRM) solutions that enable you to visualize, monitor, report on, provision, and manage your heterogeneous storage environment with unprecedented simplicity and speed. SE is accessed through HP SIM menu items labeled **Storage Essentials**.

Key features and benefits of HP Storage Essentials

Following are the features and benefits of HP Storage Essentials:

Visualization

Automatically discovers and maps the storage network (DAS, SAN, NAS) and backup topology by pictorially displaying the objects, path, and zones between the application and LUN on which the corresponding data resides.

Zoning and Provisioning

Enables end-to-end zoning and provisioning tasks at the host, switch, and disk subsystem layers. Provides a common interface for a multi-vendor storage environment.

Utilization management

Monitors availability and utilization at host, switch, and array. Graphical trending and forecasting. Soft Quota management allows proactive monitoring of consumption levels, and file system management provides file-level scanning, analysis, reporting, and policy-based management capabilities.

Performance Management

Monitors performance from application objects down to storage subsystems. Monitors application, host, HBA, switch, and disk subsystems. Enables quick detections of "bottleneck" causing performance problems.

Chargeback

Supports user-settable chargeback values, depreciation formulae, asset-based and storage-based chargeback models, business unit groupings, and reports enable administrators to associate costs with the quality and quantity of storage utilized by different business units.

NAS Management

Analyzes impact of configuration changes and file sharing activities.

Backup management

Offers a single view of backup activities. Identifies unprotected applications, servers and files. Enables root cause analysis of backup failure. Increases utilization of backup resources.

Standard based architecture

Solution designed on the Storage Management Initiative Specification (SMI-S), the storage industry standard for heterogeneous storage network management based on the Common Information Model (CIM) and Web-Based Enterprise Management (WBEM). Enables support for multi-vendor storage infrastructures and ensures that investments in are protected.

Customizable Reports

Generates extensive set of out-of-the-box reports satisfy requirements related to capacity management and planning, performance management, asset management, and chargeback. Reports can be customized and can be scheduled for automatic e-mail distribution. Supports a wide variety of reporting formats, including HTML, XML, Microsoft Excel, and PDF.

For more information on HP Storage Essentials and other HP management products, see the following HP website:

http://www.hp.com/go/storageessentials

2 HP OpenView Operations Smart Plug-in for HP Storage Essentials

This chapter discusses the following topics:

- 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 Unix (OVOU). The OVO management scope for Storage Essentials SPI includes systems managed by HP Storage Essentials installed in an environment comprising an OVO management server and one or more OVO managed nodes. The Storage Essentials SPI is used to monitor HP Storage Essentials 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 forwarding storage events through the HP SIM Integration to OVO. 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 enables 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 CMS, the HP Storage Essentials CMS, and managed servers, which are the managed nodes in the OVO management domain.

Features and Functionality

Following are the features and benefits of HP Storage Essentials:

Service Discovery

Discovers the HP Storage Essentials central management service and HP SE managed hosts CIM Extension services.

Service/Process Monitoring

Monitors the availability of Storage Essentials central management application, the AppStorManager process and Storage Essentials CIM Extension process. As a result, any service alerts can then be communicated to the OVO Service Navigator and the OVO Message Browser. This enables administrators to perform root-cause analysis of the inherent Storage Essentials services.

Template groups

The Storage Essentials SPI template groups contain templates for monitoring the Storage Essentials AppStorManager process and Storage Essentials CIM Extension process.

Application groups

The Storage Essentials SPI application group contains applications to start, stop, and view status of Storage Essentials AppStorManager process and Storage Essentials CIM Extension process.

Self-Healing Services (SHS)

The Storage Essentials SPI is also integrated with HP OpenView Self-Healing Services to provide improved troubleshooting and streamlined problem analysis and incident reporting, by collecting data and system information relevant to the fault at the time that the fault occurs. SHS has the capability to gather troubleshooting data and save it in a compressed file.

For more information, see the Self-Healing Services website at:

http://managementsoftware.hp.com/service/selfheal

3 Installing Storage Essentials SPI

This chapter discusses the following topics:

- Prerequisites
- Installing Storage Essentials SPI
- Verifying installation
- Installed File Locations

Prerequisites

This section lists the prerequisites for installing the Storage Essentials SPI.

Hardware Requirements

It is mandatory to read this section and documents listed under Hardware requirements before you start the installation. For a detailed list of hardware requirements, see the following documents:

- For OVO management server, see HP OpenView Operations for Unix installation guide.
- For OVO 7.x managed node, see HP OpenView Operations for UNIX Administrator's Reference Volume II.
- For OVO 8.x HTTPS managed nodes, see HP OpenView Operations HTTPS Agent Concepts and Configuration Guide.
- For OVO 8.x DCE managed nodes, see HP OpenView Operations OVO DCE Agent Concepts and Configuration Guide.

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

Table 2 Disk space requirements

System	Operating System	Installa- tion	Run- time Files	Total
OVO management server (includes documentation)	HP-UX 11.00, 11.11, 11.23 PA, and 11.23 IA Solaris 8, 9, and 10	4 MB	1 MB	5 MB
OVO managed node	HP-UX 11.00, 11.11, 11.23 IA, and PA	1 MB	1 MB	2 MB
	Solaris 8, 9,10			
	RedHat Linux Advanced Server 3.0 (32–bit) RedHat Linux Advanced Server 4.0			
	(32-bit and 64-bit)			
	SuSE Linux Enterprise Server 8 (32-bit)			
	SuSE Linux Enterprise Server 9 (32-bit and 64-bit)			
	AIX 5.1, 5.2 and 5.3			
	Tru64 5.1B			
	Microsoft Windows 2000 Microsoft Windows 2003 (32-bit)	1 MB	1 MB	2 MB

NOTE:

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

Software Requirements

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

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

• HP OpenView Operations for HP-UX or Solaris, Version A.07.2x or A.08.2x

- HP Systems Insight Manager 5.0 with Service Pack 5
- HP Storage Essentials 5.1.0 or 5.1.1 (Linux)
- HP SIM Integration, Version 01.20.000
 For more information on installing HP SIM Integration, see HP OpenView Operations Integration for HP Systems Insight Manager Administrator's Reference for HP OpenView Operations for Unix.
- Service Discovery Component for HP OpenView SPIs, Version A.02.10
- HP OpenView Smart Plug-in Self-Healing Information Collector, Version A.02.20.000

NOTE:

HP OpenView Operations (OVO) management server must be installed before you install the Storage Essentials SPI. However, it is not necessary to stop the OVO sessions before installing the Storage Essentials SPI.

Table 3 lists OVO Management Server versions supported by Storage Essentials SPI.

OVO Management Server	Operating System	Agent Types
OVOU A.07.2x	HP-UX 11.00	DCE
	HP-UX 11.11	
	Solaris 8	
	Solaris 9	
	Solaris 10	
OVOU A.08.2x	HP-UX 11.11	HTTPS
	HP-UX 11.23 IA/PA	DCE
	Solaris 9	
	Solaris 10	

Table 3 OVO Management Server Versions

Table 4 lists HP Systems Insight Manager CMS versions supported by Storage Essentials SPI.

Table 4 HP Systems Insight Manager CMS Versions

HP Systems Insight Manager CMS	Operating System
HPSIM 5.0 with SP5	• Windows 2000
	 RedHat Linux AS 4 (32-bit)
	SuSE Linux ES 9 (32-bit)

Table 5 lists HP Storage Essentials CMS versions supported by Storage Essentials SPI.

Table 5 HP Storage Essentials CMS Versions

HP Storage Essentials	Operating System
• HP SE 5.1.0	Windows 2000Windows 2003
• HP SE 5.1.1	RedHat Linux EL 4.0SuSE Linux ES 9

Table 6 lists CIM Extension and OVO Agents supported by Storage Essentials SPI.

Agent	Operating System
CIM Extension	• Windows 2000
OVO Agent	 Windows 2003 (32-bit)
0	• HP-UX 11.00
	• HP-UX 11.11
	• HP-UX 11.23 PA
	• HP-UX 11.23 IA
	Solaris 8
	Solaris 9
	• Solaris 10
	 RedHat Linux EL 3.0 (32-bit)
	 RedHat Linux EL 4.0 (32-bit)
	 RedHat Linux EL 4.0 (64-bit)
	 SuSE Linux ES 9 (32-bit)
	 SuSE Linux ES 9 (64-bit)
	• AIX 5L 5.1
	• AIX 5L 5.2
	• AIX 5L 5.3

Table 6 CIM Extension and OVO Agent Versions

Installing Storage Essentials SPI

Before installing Storage Essentials SPI on the OVO management server, ensure that the OVO server meets the installation prerequisites. For more information, see Prerequisites.

Following are the methods you can use to install the Storage Essentials SPI software bundle on the OVO management server:

- Using swinstall command.
- Using swinstall GUI on HP-UX.

Using the swinstall Command

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

- 1. Log on to the OVO management server as a root user.
- 2. Mount the DVD. For more information, see the HP OpenView Smart Plug-ins DVD Installation Guide.
- Enter the following command to install the Storage Essentials SPI: On HP-UX:

```
/usr/sbin/swinstall -s <mount point>/OV_DEPOT/11.0HPUX.sdtape HPSESPI
On Solaris:
/usr/sbin/swinstall -s <mount point>/OV DEPOT/Solaris.sdtape HPSESPI
```

NOTE:

The swinstall command installs the Storage Essentials SPI software bundle from the depot and performs the basic configuration. The software bundle contains the Storage Essentials SPI, configuration files, and the documentation files.

4. Check the /var/adm/sw/swagent.log log file for any error.

Using swinstall GUI on HP-UX

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

- 1. Log on to the OVO management server as a **root** user.
- Mount the DVD by using the software depot file <mount_point>/OV_DEPOT/11.0 HP-UX. For more information, see the HP OpenView Smart Plug-ins DVD.
- 3. Ensure that the **DISPLAY** environment variable is set to the appropriate node name.
- Enter the following command to install the Storage Essentials SPI, and select the Storage Essentials SPI bundle

```
/usr/sbin/swinstall -s <mount point>/OV_DEPOT/11.0HPUX.sdtape
```

The SD Install - Software Selection window displays.

Figure 1 shows SD Install - Software Selection window.

<u>F</u> ile <u>V</u> ie Source: ky Target: k	w Detions Actions ron:/DVD_MNT/11.0H	PUX.	sdtape	Help
op (Bundl	es and Products)			1 of 45 selecte
Marked?	Name		Revision	Information
	HPOVLIC	->	4,32,000	HPOVLIC
	HPOVSAMSPI	->	03.20.30	hp OpenView storage area manager SPI
	HPOvico	->	3.01.000	HP OpenView Interconnect Component
	HPSESPI	->	01,20,000	HP OpenView SPI for HP Storage Essentials
	HPSIMInt	\rightarrow	01.20.000	HP OpenView Operations Integration for HP
	OASSPI	->	04.20.00	HP OpenView Smart Plug-In for OracleAppli
	SPI-EXCHANGE-OVO	->	A.10.00	HP OpenView SMART Plug-In for Microsoft E
	SPI-OSUX-OVO	->	A.03.50	HP OpenView SPI for Unix Operating System
	SPI-PSoft	->	02.60	HP OV Smart Plug-in for PeopleSoft
	SPI-Remedy	->	02.80.04	HP OpenView Smart Plug-In for Remedy Acti
1				N

Figure 1 SD Install - Software Selection

- 5. From the SD Install Software Selection window, select the HPSESPI bundle.
- 6. From the Actions menu, select **Install**. The analysis part of the installation starts, which checks whether the system meets the installation prerequisites.
- Click Logfile in the Install Analysis window to check for errors in the analysis phase of the installation.

You can also check the /var/adm/sw/swagent.log log file and correct any errors that appear.

NOTE:

If the analysis phase fails, follow the recommendations discussed in the log file /var/adm/sw/swagent.log and re-execute the analysis.

8. After you complete the installation analysis without errors, click **OK** in the **Install Analysis** window to install the selected software after the analysis phase is completed without error.

The message <code>Status=Complete</code> is displayed when the analysis phase is completed successfully.

9. Click Logfile in the Install Analysis window to verify that the installation phase is completed without errors. You can also check the /var/adm/sw/swagent.log log file and correct any errors that appear.

NOTE:

If the installation execution fails, follow the recommendations discussed in the following log file and reinstall Storage Essentials SPI:

/var/adm/sw/swagent.log

10. Click Done in the Install window, to complete the installation of the software.

NOTE:

For more information about installing HP OpenView Smart Plug-ins, see the HP OpenView Smart Plug-ins DVD Installation Guide.

Verifying installation

To verify whether the installation of the Storage Essentials SPI is completed successfully on the OVO management server, perform the following steps:

1. On the command line, execute the following command:

/usr/sbin/swinstall HPSESPI

The command returns:

HPSESPI01.20.000HP OpenView SPI for HP Storage EssentialsHPSESPI.HPSESPI-CONF01.20.000HP OpenView SPI for HP Storage Essentials ConfigurationHPSESPI.HPSESPI-DOCS01.20.000HP OpenView SPI for HP Storage Essentials Documentation

Table 7 provides description of the Storage Essentials SPI product bundle and filesets.

Table 7 Storage Essentials SPI Product Bundle and Filesets

SD Product	SD Filesets	Description
HPSESPI		Contains necessary files to run the Storage Essentials SPI for HP-UX and Solaris (configuration, executables, and scripts)
	HPSESPI-CONF	Contains OVO GUI configuration executables, templates, monitor and application scripts for Storage Essentials SPI
	HPSESPI-DOCS	Contains Storage Essentials SPI documentation

2. In the OVO GUI, open appropriate windows and check whether the elements listed in Table 8 are present.

Table 8 lists the Storage Essentials SPI Elements on the OVO Management Server.

Table 8 Storage Essentials SPI Elements on the OVO Management Server

Window	Element
Node Groups	HP SE CMS-Win
	HP SE CMS-Unix
	HP SE CIM Extn-Win
	HP SE CIM Extn-Unix
Application Group	HP Storage Essentials
Message Source Templates	HP Storage Essentials
Message Group	HPSESPI-Storage_Essentials
User	hpsespi_op
User Profile	HP Storage Essentials SPI Admin

 On the OVO management server, check the assignment of template groups to the Storage Essentials SPI node groups.

Table 9 lists the assignment of template groups to the node groups.

Table 9 Assignment of Template groups to Node groups

Node Groups	Template Groups
HP SE CIM Extn-Unix	HP SE CIM Extn-Unix
HP SE CIM Extn-Win	HP SE CIM Extn-Win
HP SE CMS-Unix	HP SE CMS-Unix
HP SE CMS-Win	HP SE CMS-Win

4. Check the following log files for more information on installation problems:

/var/adm/sw/swagent.log
/var/adm/sw/swinstall.log

NOTE:

If any of the elements listed in Table 7 are not present, you must reinstall Storage Essentials SPI.

If any of the assignments listed in Table 8 are not present, you must manually assign the node groups to the template groups from Action > Agents > Assign Templates.

Installed File Locations

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

Table 10 lists the files and directories that are created during the installation process of Storage Essentials SPI on the OVO management server.

Table 10 File Locations on the OVO Management Server

Component	Location
Binaries	/opt/OV/lbin/HPSESPI
OVO Server Configuration	/var/opt/OV/share/tmp/OpC_appl/HPSESPI
Icon Files for Applications	/etc/opt/OV/share/bitmaps/C/software
Service Discovery Configuration File for Unix	/var/opt/OV/conf/SPISvcDisc/HPSESPI-Unix_DiscConf.sh
Service Discovery Configuration File for Windows	/var/opt/OV/conf/SPISvcDisc/HPSESPI-Win_DiscConf.sh
Application Icon Registration File	/etc/opt/OV/share/symbols/C/Software/Software_HPSESPI
Documentation Files	/opt/OV/doc/C/HPSESPI

Table 11 lists the directories for Storage Essentials SPI components that are deployed to the DCE managed nodes.

Table 11 File Locations for the OVO Managed DCE Nodes

Operating System	Installed Location
HP-UX, Solaris, Linux, Tru-64	/var/opt/OV/bin/OpC/cmds
Microsoft Windows	\usr\OV\bin\OpC\cmds
AIX	/var/lpp/OV/OpC/cmds

Table 12 lists the directories for Storage Essentials SPI components that are deployed to the HTTPS managed nodes.

Table 12 File Locations for the OVO Managed HTTPS Nodes

Operating System	Installed Location
HP-UX, Solaris, Linux, AIX	/var/opt/OV/bin/instrumentation
Microsoft Windows	%OvInstallDir%\data\bin\instrumentation
Tru-64	/usr/var/opt/OV/bin/instrumentation

NOTE:

The Storage Essentials SPI commands scripts are copied in to these paths when the HP Storage Essentials commands are deployed to the managed nodes.

4 Configuring Storage Essentials SPI

This chapter discusses the following topics:

- Starting Storage Essentials SPI Configuration
- Installing OVO Agents
- Assigning HP Storage Essentials User Responsibilities
- Adding Nodes to the HP Storage Essentials Node Groups
- Deploying Commands on the HP SE CMS/CIM Extn Agent Nodes
- Deploying Templates on the HP Storage Essentials Nodes
- Configuring the OVO Agent for a Non-root User
- Obtaining HP Storage Essentials CMS credentials
- Setting Up Service Discovery

Starting Storage Essentials SPI Configuration

The configuration of the Storage Essentials SPI involves the following steps:

- Installing OVO agents on all nodes.
- Assigning Storage Essentials SPI Admin User Profiles
- Adding Nodes to Storage Essentials SPI Node Groups
- Deploying Commands
- Deploying Templates
- Configuring the OVO Agent for a Non-root User
- Obtaining HP Storage Essentials CMS credentials
- Setting Up Service Discovery

Installing OVO Agents

Before configuring Storage Essentials SPI you must ensure that the OVO agent is installed on the Storage Essentials nodes. For more information about the various installation methods, see *HP OpenView Operations for Unix installation guide*.

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 Prerequisites.

You can install the OVO agent by using the following methods on an OVO managed node:

- Standard installation
- Manual installation

For more information about installation methods, see guides listed in the Hardware Requirements section.

Assigning HP Storage Essentials User Responsibilities

With HP OpenView Operations, user responsibilities can be assigned by means of user profiles, or by individually assigning responsibilities by modifying the user definition. The installation of Storage Essentials SPI adds the user profile **HP Storage Essentials SPI Admin** in the User Profile Bank and adds the user **hpsespi_op** to the User Bank.

To work with the Storage Essentials SPI, you must either log on as the **hpsespi_op** user, or assign the **HP Storage Essentials SPI Admin** profile to the user you are logged in as, or modify your user to give authorization for the Storage Essentials SPI applications and assign responsibilities for the Storage Essentials SPI message groups.

The OVO administrator can use the user roles to simplify the process of assigning responsibilities to OVO users. The users associated with the role **HP Storage Essentials SPI Admin** can access all the Storage Essentials SPI tools, templates and **HPSESPI-Storage_Essentials** message groups assigned to them. They can also manage and control the Storage Essentials CMS and CIM Extension nodes.

The HP Storage Essentials SPI Admin user template authorizes a user for the following functions:

- Message browsing of the HPSESPI-Storage_Essentials message group.
- Execution rights to any application in the **HP Storage Essentials** application group.

To assign the profile to an OVO user, complete the following steps:

1. Open OVO User Bank and OVO User Profile Bank.

Figure 2 shows the OVO User Bank window.



Figure 2 OVO User Bank

 Right-click user, and select Modify... The Modify User window displays. Figure 3 shows Modify User window.

Modify User: opc_adm		
Name	Label	
Jopc_adm	jopc_adm	
Password	Real Name	
[******	0V0 Administrator	
Description		
0V0 Administrator		
 ♦ Template Administrator ♦ Operator 		
Capabilities		
Ferform/Stop Act ons	🗏 Own/Disown Messages	
Modify Message Attributes	[Un−)Acknowledge Messages	
Configuration		
Node Hierarchy		
NodeBank	Get Map Selection	
Responsibilities Applications Profiles		
Use Configuration of Selec	ted User	
OK Cancel	Help	

Figure 3 Modify User

- 3. Click **Profiles...** The Profiles of User window displays.
- 4. Drag and drop the HP Storage Essentials SPI Admin from OVO User Profile Bank to the Profiles of User window.

Figure 4 shows the Profiles of User window.

Modify User: hpsespi_op	
Name hpsesp1_op	Label hpsespi_op
Password [******	Real Name HPSESPI_operator
Description HPSESPI Operator	
 Template Administrator Operator 	
Capabilities Perform/Stop Actions Modify Message Attributes Configuration Node Hierarchy NodeBank Responsibilities A	Map Actions Edit View Window Help Map Actions Edit View Window Help Map Actions Edit View Window Help Actions Actions Map Actions Help Actions Actions Actions Actions Help Actions
Use Configuration of Sele OK Cancel	opc_adm [Read-Write] out] [Connection Labels Off]

Figure 4 Assigning Profile

5. Click OK in the Modify User window.

PNOTE:

For more information on assigning user responsibilities, see HP OpenView Operations for Unix Concepts Guide.

Adding Nodes to the HP Storage Essentials Node Groups

Storage Essentials SPI automatically creates following node groups with appropriate template groups already assigned:

- HP SE CMS-Win
- HP SE CMS-Unix
- HP SE CIM Extn-Win
- HP SE CIM Extn-Unix

NOTE:

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

Adding Node to the HP Storage Essentials CIM Extn Node Group

To add a managed node to the HP Storage Essentials CIM Extn node group, complete the following steps:

- 1. Open the OVO Node Bank and the Node Group Bank windows.
- 2. Drag a node from the Node Bank window, and drop it in the HP SE CIM Extn-Win or HP SE CIM Extn-Unix (depending on your node's operating system) Node Group window. You can also open the desired CIM Extension node group, drag nodes from the Node Bank, and drop them in to the desired CIM Extension Node Group window.
 Since 5 shown node added to the HP SE CIM Extension are group.

Figure 5 shows node added to the HP SE CIM Extn-Unix node group.

Node Group: HP SE CIM Extn-Unix	
<u>Map Actions Edit View Window</u>	Help
Solaris dpsun1	
opc_adm [Read-Write] o-Layout] [Connecti	on Labels Off]

Figure 5 Node added to the HP SE CIM Extension-Unix node group

Adding Node to the HP Storage Essentials CMS Node Group

To add a managed node to the HP Storage Essentials CMS node group, complete the following steps:

- 1. Open the OVO Node Bank and the Node Group Bank windows.
- Drag a node from the Node Bank window, and drop it in the HP SE CMS-Win or HP SE CMS-Unix (depending on your node's operating system) Node Group window.
 You can also open the desired HP SE CMS node group, drag nodes from the Node Bank, and drop them in to the desired HP SE CMS Node Group window.
 Figure 6 shows the HP SE CMS-Win Node Group window.



Figure 6 Node added to the HP SE CMS-Win node group

Deploying Commands on the HP SE CMS or CIM Extension Nodes

To deploy commands on each HP SE CMS or CIM Extension node, complete the following steps:

- 1. Select the appropriate node from the Node Bank.
- Select Actions > Agents > Install / Update SW & Config. The Install / Update OVO Software and Configuration window displays.
 Size 7 above the lettell (Update OVO Software and Configuration window)

Figure 7 shows the Install / Update OVO Software and Configuration window

😑 🛛 🖉 Install / Upda	te OVO Software and Configuration
Components	Target Nodes
🔲 Agent Software	All Nodes
💷 Templates	
Actions	didicas.rose.hp.cor Get Map Selections
Monitors	
🗑 Commands	
	Delete
Ontions	Additional Node:
Force Update	Add
OK Cancel	Help

Figure 7 Installing commands on select node

- 3. In the Install / Update OVO Software and Configuration window, select **Commands** components.
- 4. Click Ok.

Upon completion of commands deployment, the following message displays in the Message Browser for each managed (HP SE CMS and CIM Extensions) node:

```
The following configuration information was successfully distributed: Commands
```

NOTE:

For the above message to be displayed in the active message browser:

- Node must be assigned to the appropriate Storage Essentials SPI node group
- User must have privileges for the OpC message group

Storage Essentials SPI commands are now deployed on the selected managed node.

Deploying Templates on the HP Storage Essentials Nodes

Before deploying the template, ensure that the node is added to the appropriate HP Storage Essentials node group.

To deploy templates on the managed nodes, complete the following steps:

- 1. Select the node from the OVO Node Bank.
- Select Actions > Agents > Install / Update SW & Config. The Install / Update VPO Software and Configuration window displays.

Figure 8 shows templates selected in the Install / Update Software and Configuration window.

🔀 Install / Update OVO Software and Configuration		
Components	Target Nodes	
🗆 Agent Software	♦ All Nodes	
Templates	♦ Nodes in list	
□ Actions	dwarika, Selections	
☐ Monitors		
Commands	Delete	
Outland	Additional Node:	
Force Update	Add	
OK Cancel	He	elp

Figure 8 Templates selected in the Install / Update Software and Configuration window

- From the Install / Update Software and Configuration window, select Templates.
- 4. Select Force Update to ensure that the modifications are distributed.
- 5. Click OK to distribute the templates to the OVO managed node.

Upon completion of templates deployment, the following message displays in the Message Browser for each managed (HP SE CMS and CIM Extensions) node:

```
The following configuration information was successfully distributed: Templates.
```

NOTE:

For the above message to be displayed in the active message browser:

- Node must be assigned to the appropriate Storage Essentials SPI node group
- User must have privileges for the OpC message group

Configuring the OVO Agent for a Non-root User

PNOTE:

For information on configuring the OVO Agent to run as an alternative user, see the *HP OpenView Operations HTTPS Agent Concepts and Configuration Guide*.

To configure non-root agents for Storage Essentials SPI, complete the following steps:

- 1. Log in to the managed node as a root user, and open a terminal window.
- 2. Open the following instrumentation directory for HTTPS node:

cd /var/opt/OV/bin/instrumentation

 Enter the following at the command prompt: ./HPSESPI_perl HPSESPI_root.pl. This command generates the HPSESPI.su file. The following message displays on successful execution of the command: The script has completed successfully.

Prote:

Storage Essentials SPI does not support non-root OVO agent on AIX and Tru64 CIM Extension nodes.

Providing Access to Storage Essentials SPI Applications

To provide access to the Storage Essentials SPI applications, complete the following steps:

- 1. Log on to the managed node as a **root** user, and open a terminal window.
- 2. Open the following file: /etc/HPSESPI.su
- 3. Edit the file by uncommenting lines or by adding the following:

```
root:$CIMExtnPath/APPQcime/tools/start
root:$CIMExtnPath/APPQcime/tools/stop
root:$CIMExtnPath/APPQcime/tools/status
root:/etc/init.d/appstormanager start
root:/etc/init.d/appstormanager stop
```

NOTE:

On HP-UX and Linux, the \$CIMExtnPath is /opt

On Solaris, enter the following command to get the value for \$CIMExtnPath:

/usr/bin/pkginfo -r APPQcime

This enables non-root users to start or stop Storage Essentials services.

Obtaining HP Storage Essentials CMS Credentials

To activate the functionality provided with the Storage Essentials SPI, you must first enter the HP SIM credentials for each HP SE CMS. This step is mandatory for service discovery of the Storage Essentials service hierarchy.

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

 From the OVO Application Bank window, double-click HP Storage Essentials > HPSESPI Utils. The HPSESPI Utils Application Group window displays.
 Figure 9 shows the HPSESPI Utils Application Group window.



Figure 9 HPSESPI Utils Application Group

- 2. Drag the HP SE CMS node from the Node Bank, and drop it in the Get HP SIM Credentials application.
- The Terminal window opens and the following message displays if you are on an HP SE CMS Windows node:

Enter the HP Systems Insight Manager DOMAIN\username:

The following message displays if you are on an HP SE CMS Unix node:

Enter the HP Systems Insight Manager username:

4. At the prompt, enter the HP Systems Insight Manager user name for HP SE CMS on this node, and press **Enter**.

The following message displays:

Enter the HP Systems Insight Manager password:

 At the prompt, enter the corresponding HP Systems Insight Manager password and press Enter. The following message displays:

Re-enter password:

6. Re-enter the password to confirm.

The application attempts to verify the user name and password. On success, you are prompted to Press return to exit.

If the credentials entered are not accepted by Storage Essentials, the following message is displayed:

```
Failed to validate the HP SIM CMS credentials. Possible causes could be:
```

1. HP SIM CMS is not installed

HP SIM CMS service is not running
 HP SIM CMS credentials incorrect

Press return to exit.

7. Press Enter to close the terminal window.

\triangle CAUTION:

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

NOTE:

Use the same credentials that you use 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.

Setting Up Service Discovery

To deploy HP Storage Essentials Service Discovery templates, complete the following steps:

- 1. Select the OVO management server node in Node Bank window.
- Select Actions > Agents > Assign Templates..... The Define Configuration window displays showing templates assigned to this node.
- 3. Click Add. The Add Configuration window displays.
- 4. Click Open Template Window... The Message Source Templates window displays.
- Select HP Storage Essentials > HPSESPI Service Discovery template from the Message Source Templates window.
- Go back to the Add Configuration window.
- Click Get Template Selections. The Group HPSESPI Service Discovery displays in the Templates pane.
- 8. Click OK, in the Add Configuration window.

Figure 10 shows HPSESPI Service Discovery template group assigned to OVO server in the Define Configuration window.

Define Configuration			
Node/Group	Template	1:	
dpsun1.india.hp.com	Group	HPSESPI Service Dis	Add
NG HP SE CIM Extn-Unix NG HP SE CIM Extn-Win	Group Group Group	D Management Server D HP SE CIM Extn-Unix D HP SE CIM Extn-Win D HP SE CMS-Unix D HP SE CMS-Win	Remove selected
NG HP SE CMS-Unix NG HP SE CMS-Win	Group Group		Remove nodes/groups
NG HP SIM CMS-Unix NG HP SIM CMS-Win NG HP SIM CMS-Win NG IM Agents-Win NG IM Agents-Win	Group Group Group Group Group	HP SIM Event Forward HP SIM Service Monit HP SIM Service Monit IM Agents-Win Insight Manager 7	Remove templates
 sort by nodes/groups sort by templates 			
OK Cancel			Help

Figure 10 Define Configuration window

- 9. Click **OK** in the Define Configuration window.
- 10. Select Action > Agents > Install / Update OVO Software and Configuration.

- 11. From the Install/Update VPO Software and Configuration window, select Templates.
- **12.** Select **Force Update** to ensure that the modifications are distributed.
- 13. Click OK to distribute the templates to the OVO server.
- 14. Open the message browser for the node, and wait for the following message:

```
The following configuration information was successfully distributed: Templates.
```

NOTE:

The above message is displayed on the message browser because you have the privileges for the OpC message group. If you cannot view this message, modify the responsibilities assigned to OVO user to include the OpC message group.

You can initiate the discovery process manually on the HP SE CMS node, by executing **Service Discovery** - **Unix** or **Service Discovery** - **Win** from **HPSESPI Utils** Application Group on the SE CMS node.

5 Using Storage Essentials SPI

This chapter discusses the following topics:

- Using Storage Essentials SPI Node Groups
- Using Storage Essentials SPI Applications
- Using Storage Essentials SPI Template Groups
- Using Storage Essentials SPI messages
- Using Storage Essentials SPI Service View
- Re-configuring HP SIM CMS Credentials for Storage Essentials SPI

Using Storage Essentials SPI Node Groups

Installing Storage Essentials SPI creates the following node groups:

- HP SE CIM Extn-Unix
- HP SE CIM Extn-Win
- HP SE CMS-Unix
- HP SE CMS-Win

Figure 11 shows the Storage Essentials SPI node groups in the OVO Node Group Bank window.



Figure 11 OVO Node Group Bank window

The node groups provide a logical grouping of managed nodes.

Table 13 lists the node groups and the corresponding application groups.

Table 13 Association of Node groups to Application groups

Node groups	Application groups
HP SE CMS-Unix	AppStorManager-Unix
HP SE CMS-Win	AppStorManager-Win
HP SE CIM Extn-Unix	CIM Extension-Unix
HP SE CIM Extn-Win	CIM Extension-Win

Using Storage Essentials SPI Applications

Storage Essentials SPI adds the top-level application group **HP Storage Essentials** in the OVO Application bank window. The following applications are available in the HP Storage Essentials application group:

- AppStorManager-Unix
- AppStorManager-Win
- CIM Extension-Unix
- CIM Extension-Win
- HPSESPI Utils

NOTE:

Executing the Storage Essentials SPI applications on HP OVO Java console by selecting a node on service view is not supported. For executing the Storage Essentials SPI applications on HP OVO Java console, select node in the Nodes pane on OVO Java console and right click **Start** > **HP Storage Essentials**.

HP OVO Java console on Windows requires X-windows emulator software to be installed on the PC for the Storage Essentials SPI applications to function properly.

To access the Storage Essentials SPI application groups, complete the following step:

Double-click **HP Storage Essentials**. The Storage Essentials SPI Application Group window appears. Figure 12 shows the Storage Essentials SPI Application Groups window.



Figure 12 Storage Essentials SPI Application Groups

Using AppStorManager Application Group

The **AppStorManager-Unix** or **AppStorManager-Win** (depending on your node's operating system) application group includes applications for HP Storage Essentials AppStorManager that are executed on HP SE central management server nodes (Unix or Windows).

Figure 13 shows AppStorManager-Unix application group window.

Application Group: AppStorManager-Unix	
Map Actions Edit View Window	Help
App StorManager-Unix Start	
opc_adm [Read-Write]	[Auto-Layout] [Connection Labels Off]

Figure 13 AppStorManager-Unix Application Group

AppStorManager application group includes applications that monitor the HP Storage Essentials AppStorManager services on selected Unix or Windows nodes.

Table 14 describes the applications in the AppStorManager application group.

Application Group	Application Name	Description
AppStorManager-Unix	AppStorManager-Unix Start	Starts HP Storage Essentials AppStorManager service on the selected Unix nodes.
	AppStorManager-Unix Status	Gets the status of HP Storage Essentials AppStorManager Service on the selected Unix nodes.
	AppStorManager-Unix Stop	Stops HP Storage Essentials AppStorManager Service on the selected Unix nodes.
AppStorManager-Win	AppStorManager-Win Start	Starts HP Storage Essentials AppStorManager service on the selected Windows nodes.
	AppStorManager-Win Status	Gets the status of HP Storage Essentials AppStorManager Service on the selected Windows nodes.
	AppStorManager-Win Stop	Stops HP Storage Essentials AppStorManager Service on the selected Windows nodes.

Table 14 Applications in the AppStorManager Application Group

Using CIM Extension Application Group

The **CIM Extension-Unix** or **CIM Extension-Win** (depending on your node's operating system) application group includes applications for HP Storage Essentials CIM Extension that are executed on the HP SE CIM Extension nodes (Unix or Windows).

Figure 14 shows CIM Extension application group window.

Application Group: CIM Extension-Unix	
Map Act <u>i</u> ons <u>E</u> dit <u>V</u> iew <u>W</u> indow	Help
CIM Extension-Unix Start	
opc_adm [Read-Write] [Auto-Layout]	[Connection Labels Off]

Figure 14 CIM Extension Application Group

The CIM Extension application group includes applications that monitor HP Storage Essentials CIM Extension services on selected Unix or Windows nodes.

Table 15 describes the applications in the CIM Extension application group.

Application Group	Application Name	Description
CIM Extension-Unix	CIM Extension-Unix Start	Starts HP Storage Essentials CIM Extension on the selected Unix nodes
	CIM Extension-Unix Status	Gets the status of the HP Storage Essentials CIM Extension on the selected Unix nodes
	CIM Extension-Unix Stop	Stops HP Storage Essentials CIM Extension on the selected Unix nodes
CIM Extension-Win	CIM Extension-Win Start	Starts the HP Storage Essentials CIM Extension on the selected Windows nodes
	CIM Extension-Win Status	Gets the status of HP Storage Essentials CIM Extension on the selected Windows nodes
	CIM Extension-Win Stop	Stops the HP Storage Essentials CIM Extension on the selected Windows nodes

Table	15	Applications	in	the	CIM	Extension	Application	Group
-------	----	---------------------	----	-----	-----	-----------	-------------	-------

Using HPSESPI Utils Application Group

The **HPSESPI Utils** application group includes applications for performing administrative tasks for Storage Essentials SPI.

Figure 15 shows HPSESPI Utils application group window.



Figure 15 HPSESPI Utils Application Group

Table 16 describes the applications in the HPSESPI Utils application group.

Application Group	Application Name	Description
HPSESPI Utils	Clean HPSESPI - Unix	Deletes Storage Essentials SPI files on the selected Unix managed nodes
	Clean HPSESPI - Win	Deletes Storage Essentials SPI files on the selected Windows managed nodes
	Get HP SIM Credentials	Gets the user name and password of HP SIM for Storage Essentials SPI.
	Self-Healing Info	Runs the Storage Essentials SPI Data collector on the managed nodes.
	Service Discovery - Unix	Performs HP Storage Essentials Service Discovery on the Unix managed nodes.
	Service Discovery - Win	Performs HP Storage Essentials Service Discovery on the Windows managed nodes.
	Tracing Off - Unix	Sets the Storage Essentials SPI tracing to OFF state on the Unix managed nodes.
	Tracing On - Unix	Sets the Storage Essentials SPI tracing to ON state on the Unix managed nodes.
	Version Verify	Verifies the version of Storage Essentials SPI files on the managed nodes.

Table 16 Applications in the HPSESPI Utils Application Group

Using Storage Essentials SPI Template Groups

Templates provided with the Storage Essentials SPI are grouped under the **HP Storage Essentials** templates group.

Figure 16 shows HP Storage Essentials Template Groups.



Figure 16 HP Storage Essentials Template Groups

Messages generated by the Storage Essentials SPI templates are assigned OVO severity level as defined in the templates. All messages generated by the Storage Essentials SPI templates, by default, belong to **HPSESPI-Storage_Essentials** message group.

Monitor templates monitor the status of the AppStorManager service running on the HP Storage Essentials CMS node and the Storage Essentials CIM Extension service running on the Storage Essentials managed nodes, and generates messages to indicate any change in status.

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

Table 17 lists the default templates provided with Storage Essentials SPI.

Table 17 Storage Essentials SPI Templates

Template Group	Template Name	Description	Template Type
HP SE CIM Extn-Unix	HPSESPI-CIM_Extension- Unix	Monitors HP Storage Essentials CIM Extension on Unix	Monitor
HP SE CIM Extn-Win	HPSESPI-CIM_Extension- Win	Monitors HP Storage Essentials CIM Extension on Windows	Monitor
HP SE CMS-Unix	HPSESPI-AppStorManager- Unix	Monitors HP Storage Essentials AppStorManager service on Unix	Monitor
HP SE CMS-Win	HPSESPI-AppStorManager- Win	Monitors HP Storage Essentials AppStorManager service on Windows	Monitor
HPSESPI Service Discovery	HPSESPI_ServiceDiscovery- Unix	HP Storage Essentials Service Discovery on Unix nodes	Scheduled
	HPSESPI_ServiceDiscovery- Win	HP Storage Essentials Service Discovery on Windows nodes	Scheduled

NOTE:

CIM extension can be either an extension to the Windows WMI service or a separate executable called AppStorWin32Agent service. The HPSESPI-CIM_Extension-Win monitor template monitors only the AppStorWin32Agent service, and HPSESPI-CIM_Extension-Win is disabled if this service is not present or only the extension to the WMI service is present on a Windows managed node.

Using Storage Essentials SPI Message Groups

OVO uses message groups to combine management information about similar or related managed objects under a chosen name, and provides status information on a group level. Messages are categorized into groups to simplify message management. All messages generated by Storage Essentials SPI are grouped in the **HPSESPI-Storage_Essentials** message group.

Table 18 describes the Storage Essentials SPI Message Groups.

Table 18 Storage Essentials Message Groups

Storage Essentials Message Group Name	Descriptions
HPSESPI-Storage_Essentials	Storage Essentials SPI messages for HP Storage Essentials

The messages generated by the Storage Essentials SPI templates are displayed in the OVO Message Browser window. These messages contain information that enable you to understand the reported problems.

Figure 17 shows the Message Browser window with messages generated by the Storage Essentials SPI.

	Autors		Jerdense		Messag	ie Brows			n tweed				
ev. Xus.	SUIACHE DO		HE B	Node	Acolic Store	ation Ms4G	roup Of	ect Mess StorMa HD S	age Text	sentalis	AppStorMan	agilir Se	wice is not running
				winter n	if storing	shirines		ENGI IN A	iur syn ca	amulus	415 ISO 13		
11					T SLOT 2	s nu me		LALON PP 3	101 999 1.1	SHIFTLIFT			
1	0 0	0		0 1		0	E	ive Messages		amit.11.13			₹ Autoscroll On

Figure 17 Storage Essentials SPI messages in the Message Browser

The message content indicates the scope of the problem. In the context of Storage Essentials SPI, this information is categorized into following:

- **Node** Name of the Storage Essentials central management server or CIM Extension node that generates the message.
- Application Storage Essentials
- MsgGroup HPSESPI-Storage_Essentials
- Object Source of the event is HP SE CMS node or CIM Extension node.
- Message Text A single line description of the event.

Using Storage Essentials SPI Service View

Storage Essentials SPI provides the administrator with the additional perspective of service views.

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.

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, status is only shown for CIM Extension nodes that have an OVO Agent installed and the Storage Essentials SPI configured.

You can decide whether these nodes must be configured as OVO managed nodes or not. You can also decide whether the Storage Essentials Templates must be installed or not. If the nodes in this tree are OVO managed nodes with the Storage Essentials Templates deployed, the service view node status changes based on the status of the CIM Extension on the node.

Figure 18 shows the services discovered by the Storage Essentials SPI when the AppStorManager service is not running.



Figure 18 HP Storage Essentials service when AppStorManager service has a status of not running

Table 19 lists the Storage Essentials SPI service description.

Table 19 Storage Essentials SPI service description for AppStorManager Service not running

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

Figure 19 shows the services discovered by the Storage Essentials SPI where CIM Extension is not running.



Figure 19 HP Storage Essentials service when CIM Extension service has a status of not running

The service discovered by the Storage Essentials SPI enables root-cause analysis of problems in crucial elements on the CIM Extension node in a Storage Essentials network managed storage network.

NOTE:

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. 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, the parent service assumes the status equal to the highest severity of its child services.

Applying the Storage Essentials SPI services to Non-default Users

The Storage Essentials SPI services are by default assigned to hpsespi_op and opc_adm users. To apply the Storage Essentials SPI services to an additional user, enter the following command in a command shell on the OVO server:

opcservice -assign <username> "HP Storage Essentials"

Viewing Services

The service views are created after Storage Essentials CMS is added to **AppStorManager-Unix** or **AppStorManager-Win** node group and service discovery is invoked. See Setting Up Service Discovery for instructions on invoking service discovery via application or templates.

For information on adding Storage Essentials CMS is added to the **AppStorManager-Unix** or **AppStorManager-Win** node group, see Adding Nodes to the HP Storage Essentials Node Groups.

You must manually deploy the templates on the OVO management server or run the appropriate **Service Discovery** application for the service view to generate services named HP Storage Essentials for the OpenView Service Navigator. Ensure that you perform the steps given in Obtaining HP Storage Essentials CMS credentials and Setting Up Service Discovery before performing the steps for viewing the discovered HP Storage Essentials service.

To view the discovered HP Storage Essentials service, complete the following steps:

Log on to the OVO Java Console.

For information on how to install the HP OVO Java Console, see HP OpenView VantagePoint Operations for UNIX Administrator's Reference Volume II.

- 2. Select Services > System Infrastructure on the left pane.
- Right-click System Infrastructure, and select Show Graph to view the HP Storage Essentials Service map.

The Service graph window displays all the available services.

NOTE:

By default, the Storage Essentials SPI services discovery templates are configured to run discovery every day at 4:30 a.m. for Windows nodes and 5.30 a.m. for Unix nodes. The administrator can change the service discovery period by modifying the service discovery template. The modified discovery period takes effect only after the templates are redeployed on the OVO management server node.

Re-configuring HP SIM CMS Credentials for Storage Essentials SPI

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

Enter the new HP Systems Insight Manager CMS Credentials.

For more information, see Obtaining HP Storage Essentials CMS credentials. The credentials are used for Storage Essentials service discovery.

6 Removing Storage Essentials SPI

This chapter discusses the following topics:

- Removing Storage Essentials SPI Templates from the OVO Managed Nodes
- Removing Storage Essentials SPI from Managed Nodes
- Removing Nodes from Storage Essentials SPI Node Groups
- Removing HP Storage Essentials SPI Templates from the OVO Management Server Node
- Removing Storage Essentials SPI from the OVO Management Server

Removing Storage Essentials SPI Templates from the OVO Managed Nodes

To remove the Storage Essentials SPI Templates from the OVO managed nodes, complete the following steps:

- 1. Start the OVO console GUI.
- 2. From the OVO Node Group Bank window, press the **Ctrl** key and select all the Storage Essentials SPI related node groups.
- 3. Select Actions > Agents > Assign Templates.... The Define Configuration window displays.
- 4. Select the HP Storage Essentials related Node Group, and click Remove Selected.
- 5. Click OK.
- 6. From the OVO Node Group Bank window, press the **Ctrl** key and select all the Storage Essentials SPI related node groups.
- Select Actions > Agents Install / Update SW & Config.... The Install / Update OVO Software and Configuration window displays.

Figure 20 shows the Install / Update OVO Software and Configuration window.



Figure 20 Install / Update OVO Software and Configuration

- 8. From the Components pane, select the **Templates** check box.
- 9. Select the Force Update check box to ensure that the modifications are distributed.
- 10. Click OK to remove Storage Essentials SPI templates from the OVO managed nodes.

After you remove the Storage Essentials SPI templates from the Storage Essentials related managed nodes, you can remove the Storage Essentials related managed nodes from the Node Bank window in the OVO management server if you no longer wish to manage these nodes from OVO.

NOTE:

The Storage Essentials SPI node groups folders are removed automatically while removing the Storage Essentials SPI from the OVO management server.

Removing Storage Essentials SPI from Managed Nodes

To remove Storage Essentials SPI components from the managed nodes, complete the following steps:

- 1. From the OVO Node Group Bank window, press the **Ctrl** key and select all the Storage Essentials SPI related Node Groups.
- 2. Open the HPSESPI Utils application group in Storage Essentials SPI application group.
- 3. Run Clean HPSESPI Unix or Clean HPSESPI Win to delete all Storage Essentials SPI files on selected Unix or Windows managed nodes.

Removing Nodes from Storage Essentials SPI Node Groups

To remove nodes from Storage Essentials SPI node groups, complete the following steps:

- 1. Open HP SE CMS-Win node group present in the Node Group Bank.
- 2. Select all the nodes.
- Right-click nodes and select Remove From This Group.
 Repeat steps 2 and 3 to remove nodes from HP SE CMS-Unix, HP SE CIM Extn-Win, and HP SE CIM Extn-Unix Node groups.

Removing Storage Essentials SPI Templates from the OVO Management Server Node

To remove the Storage Essentials SPI templates from the OVO management server node, complete the following steps:

- 1. Start the OVO console GUI.
- 2. Select Actions > Agents > Assign Templates.... The Define Configuration window displays.
- Select the Storage Essentials SPI template group HPSESPI Service Discovery associated with OVO management server node, as shown in the figure below.

Figure 21 shows the Define configuration window.

× Define Configuration			2
Node/Group	Templat	te	
dwarika india.hp.com	Group	HP SIM Event Acknowledging	Add
kdwarika,india.hp.com	Group	HPSESPI Service Discovery	
dwartka.indta.hp.com	Group	HPSIMInt Service Discovery	Remove selected
dwarika.india.hp.com	Group	Management Server	
NG HP SE CIM Extn-Unix	Group	HP SE CIM Extn-Unix	Remove nodes/groups
NG HP SE CIM Extn-Win	Group	HP SE CIM Extn-Win	
NG HP SE CMS-Unix	Group	HP SE CMS-Unix	Remove templates
NG HP SE CMS-Win	Group	HP SE CMS-Win	rentere companies
NG HP SIM CMS-Unix	Group	HP SIM Event Forwarding-Un	
NG HP SIM CMS-Unix	Group	HP SIM Service Monitoring-L	
NG HP SIM CMS-Win	Group	HP SIM Event Forwarding-Wir	
NG HP SIM CMS-Win	Group	HP SIM Service Monitoring-V	
NG IM Agents-Win	Group	IM Agents-Win	
NG IM Agents-Win	Group	Insight Manager 7	
S1:		T 51	
sort by nodes/groups			
♦ sort by templates			
OK Cancel			Help

Figure 21 Define configuration window

- 4. Click Remove Selected.
- 5. Click OK.
- 6. From the OVO Node Bank window, select the OVO management server node.

Select Actions > Agents Install / Update SW & Config.... The Install / Update OVO Software and Configuration window displays.

Figure 22 the Install / Update OVO Software and Configuration window.

🕱 Install / Update OVO Software and Configura	ation	
Components	Target Nodes	
🗆 Agent Software	♦ All Nodes	
Templates	Cet Map	
□ Actions	Selections	
☐ Monitors		
Commands	Delete	
	Additional Node:	
Options Force Update	Add	
OK Cancel	He	elp

Figure 22 Install / Update OVO Software and Configuration window

- 8. From the **Components** pane, select the **Templates** check box.
- 9. Select the Force Update check box to ensure that the modifications are distributed.
- **10.** Click **OK** to remove Storage Essentials SPI templates from the OVO management server node.

Removing Storage Essentials SPI from the OVO Management Server

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

- 1. Log on to the OVO management server as root and open a terminal window.
- 2. In the terminal window, enter the following command:

```
/usr/sbin/swremove HPSESPI
```

This removes all the Storage Essentials SPI components from the OVO management server.

Components of the Storage Essentials SPI in the OVO GUI are automatically removed during the removal of the Storage Essentials SPI.

For more information on removing HP OpenView Smart Plug-ins, see the HP OpenView Smart Plug-ins DVD Installation Guide.

PNOTE:

7 Troubleshooting

This chapter discusses the following topics:

- Before you start
- Using Troubleshooting Methods
- Troubleshooting

Before you start

Before investigating a problem, you must perform the following basic checks:

- 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.

These 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 Templates.
- 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 sections.

Using Troubleshooting Methods

Following are the troubleshooting methods:

• Troubleshooting information is available through the HP support site:

http://support.openview.hp.com/self_healing.jsp.

To access this information and the search capabilities available on the site, you must first download and configure the Self-Healing Services client software. A link is then automatically set up to the self-healing services web site, where your SPI problem is matched to similar SPI problems/solutions for increased troubleshooting effectiveness.

NOTE:

Refer to the Self-Healing Services section in the HP OpenView Smart Plug-ins DVD Installation Guide for information on download, configure, and use the software and its automatic link to the HP web site support service.

• Use the **Self-Healing Info** application. This application gathers SPI troubleshooting data and stores it in a file that you submit to HP support for assistance.

Troubleshooting

This section describes error messages that you might encounter while using Storage Essentials SPI.

Monitoring events not arriving on the OVO Management Server Message Browser

Symptom:

Storage Essentials service monitoring events not arriving on the OVO management server.

Action:

- 1. Ensure that the connection between the OVO management server, the HP Storage Essentials CMS, and the CIM Extension nodes is up and running.
- 2. 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.
- **3.** Ensure that Storage Essentials CMS and CIM Extension nodes are added to the appropriate node groups. For more information, see Adding Nodes to the HP Storage Essentials Node Groups.
- 4. Ensure that the Storage Essentials SPI templates have been correctly deployed to the Storage Essentials CMS and CIM Extension nodes.
- 5. If service monitoring fails on managed node, check if the Storage Essentials SPI monitor templates are disabled on this node. Enable it or redeploy the monitor template to the managed node. This situation can arise when the monitor templates has been deployed to the node before installation of HP SE CMS or CIM Extension and the monitor template is automatically disabled.

HP Storage Essentials Services not visible on the OVO Console

Symptom:

HP Storage Essentials services are not visible in the OVO console.

Action:

- Ensure that the connection between the OVO management server and the Storage Essentials CMS nodes is up and running.
- 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.
- Ensure that the correct HP SIM Credentials are entered when configuring the Storage Essentials CMS node before adding the node to the HP SE CMS-Win or HP SE CMS-Unix node group. For more information, see Obtaining HP Storage Essentials CMS credentials.
- If there are multiple Storage Essentials CMS nodes with different credentials, the Get HP SIM CMS Credentials application must be launched for one node at a time and that node must be added to the HP SE CMS-Win or HP SE CMS-Unix node group before entering the credentials for the next node.
- Ensure that the Service Discovery Templates at Message Source Templates > HP Storage Essentials > HPSESPI Service Discovery are deployed on the OVO management server node.
- After the Service Discovery application is executed, if the HPSESPI_hostmap.log file on the HP SE CMS node has the following exception:

```
java.lang.IllegalArgumentException: Connection cannot be null
at com.appiq.toolkit.common.impl.APIModelImpl.<init>(APIModelImpl.java:51)
at com.appiq.toolkit.common.impl.ManagerImpl.<init>(ManagerImpl.java:27)
at com.appiq.toolkit.topology.impl.TopologyManagerImpl.<init>(TopologyManagerImpl.java:36)
at com.appiq.toolkit.topology.TopologyFactory.getTopologyManager(TopologyFactory.java:39)
at HostTopoExtractor.createHostMap(HostTopoExtractor.java:159)
at HostTopoExtractor.main(HostTopoExtractor.java:274)
```

The above exception indicates that the HP SIM Credentials are missing. Run the **Get HP SIM Credentials** application and then run the Service Discovery application. For more information, see Obtaining HP Storage Essentials CMS credentials.

The HPSESPI hostmap.log file is present in the following directory:

HP SE CMS on Windows node : %OvInstallDir%/data/log (OVO HTTPS Agent) and %OvAgentDir%/log(OVO DCE agent) HP SE CMS on Linux node: /var/opt/OV/log directory

Perform/Stop Action option is disabled for messages from monitor templates of Storage Essentials SPI

Symptom:

The Operator Initiated Action on OVO message browser is disabled, preventing the execution of Remote Actions on DCE Nodes.

Action:

If Perform/Stop action is disabled for messages from DCE managed nodes, perform the following configuration steps:

- 1. Open the file /etc/opt/OV/share/conf/OpC/mgmt sv/remactconf.xml for editing.
- 2. Insert the following rules in the xml file:

```
<rule>
  <doc>Actions from HP SE CMS-Win node group to management server</doc>
    <if>
      <source>
         <nodegroup>HP SE CMS-Win</nodegroup>
      </source>
      <target>
        <mgmtsrv/>
      </target>
      <certified>false</certified>
    </if>
    <allow/>
</rule>
<rule>
  <doc>Actions from HP SE CMS-Unix node group to management server</doc>
    \langle if \rangle
      <source>
          <nodegroup>HP SE CMS-Unix</nodegroup>
      </source>
      <target>
        <mgmtsrv/>
      </target>
      <certified>false</certified>
    </if>
    < allow/>
</rule>
<rule>
  <doc>Actions from HP SE CIM Extn-Win node group to management server</doc>
    \langle if \rangle
      <source>
        <nodegroup>HP SE CIM Extn-Win</nodegroup>
      </source>
      <target>
        <mgmtsrv/>
      </target>
      <certified>false</certified>
    </if>
    <allow/>
</rule>
<rule>
  <doc>Actions from HP SE CIM Extn-Unix node group to management server</doc>
    \langle if \rangle
      <source>
        <nodegroup>HP SE CIM Extn-Unix</nodegroup>
      </source>
      <target>
```

```
<mgmtsrv/>
</target>
<certified>false</certified>
</if>
<allow/>
</rule>
```

3. Save and close the file

A Applications

Self-Healing Info

Self-Healing Info application collects and sends data to the HP support representative. With the Self-Healing Info, the OVO administrator collects data that is used by HP support representative. Self-Healing Info runs and saves data for all managed nodes. You can access the following HP OpenView self-healing services website for troubleshooting information and subsequent problem solutions:

http://support.openview.hp.com/self_healing.jsp

Perform the following steps for running Self-Healing Info application:

- 1. From the OVO console, select a node in the Node Bank window.
- 2. In the Application Bank window, select HP Storage Essentials SPI.
- Double-click HPSESPI Utils and select Self-Healing Info.

For more information, please see the HP OpenView Smart Plug-ins DVD Installation Guide. and the section covering Self-Healing Services.

Tracing On - Unix and Tracing Off - Unix

Tracing On - Unix and Tracing Off - Unix features enables you to start and stop the tracing of the collection of matrices into a file. Run this application only when instructed by your HP support representative.

- Tracing On Unix saves information about the collection of matrixes in a file.
- Tracing Off Unix stops saving information about the collection of matrixes.

If tracing is enabled, all tracing information generated by the Storage Essentials SPI scripts and executables is written to the following file:

Linux: /var/opt/OV/log/HPSESPI/HPSESPI.trc

You can enable tracing by setting a flag in the configuration file/data:

Linux: /var/opt/OV/conf/ HPSESPI/HPSESPI.cfg

NOTE:

The Storage Essentials SPI supports tracing only on Unix managed nodes where HP SE CMS is running.

NOTE:

The Trace ON/OFF application is only applicable for the service discovery module of Storage Essentials SPI.

HP Storage Essentials Application Group

Storage Essentials SPI adds the top-level application group **HP Storage Essentials** in the OVO Application bank window. Following applications are available in the HP Storage Essentials application group:

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

- CIM Extension-Win
- HPSESPI Utils

AppStorManager Application Groups

Table 14 describes the applications in the AppStorManager application groups.

Table 20 Applications in the AppStorManager Application Groups

Application Group	Application Name	Description
AppStorManager-Unix	AppStorManager-Unix Start	Starts HP Storage Essentials AppStorManager service on the selected Unix nodes.
	AppStorManager-Unix Status	Gets the status of HP Storage Essentials AppStorManager Service on the selected Unix nodes.
	AppStorManager-Unix Stop	Stops HP Storage Essentials AppStorManager Service on the selected Unix nodes.
AppStorManager-Win	AppStorManager-Win Start	Starts HP Storage Essentials AppStorManager service on the selected Windows nodes.
	AppStorManager-Win Status	Gets the status of HP Storage Essentials AppStorManager Service on the selected Windows nodes.
	AppStorManager-Win Stop	Stops HP Storage Essentials AppStorManager Service on the selected Windows nodes.

CIM Extension Application Groups

Table 14 describes the applications in the CIM Extension application groups.

Table 21 Applications in the CIM Extension Application Groups

Application Group	Application Name	Description		
CIM Extension-Unix	CIM Extension-Unix Start	Starts HP Storage Essentials CIM Extension on the selected Unix nodes		
	CIM Extension-Unix Status	Gets the status of the HP Storage Essentials CIM Extension on the selected Unix nodes		
	CIM Extension-Unix Stop	Stops HP Storage Essentials CIM Extension on the selected Unix nodes		
CIM Extension-Win	CIM Extension-Win Start	Starts the HP Storage Essentials CIM Extension on the selected Windows nodes		
	CIM Extension-Win Status	Gets the status of HP Storage Essentials CIM Extension on the selected Windows nodes		
	CIM Extension-Win Stop	Stops the HP Storage Essentials CIM Extension on the selected Windows nodes		

NOTE:

CIM extension can be either an extension to the Windows WMI service or a separate process running as the AppStorWin32Agent service. The HPSESPI-CIM_Extension-Win monitor template monitors only the AppStorWin32Agent service, and HPSESPI-CIM_Extension-Win is disabled on the node if this service is not present on a Windows managed node.

HPSESPI Utils Application Group

Table 14 describes the applications in the HPSESPI Utils application group.

Table 22 Applications in the HPSESPI Utils Application G	roup
--	------

Application Group	Application Name	Description
HPSESPI Utils	Clean HPSESPI - Unix	Deletes Storage Essentials SPI files on the selected Unix managed nodes
	Clean HPSESPI - Win	Deletes Storage Essentials SPI files on the selected Windows managed nodes
	Get HP SIM Credentials	Gets the user name and password of HP SIM for Storage Essentials SPI.
	Self-Healing Info	Runs the Storage Essentials SPI Data collector on the managed nodes.
	Service Discovery - Unix	Performs HP Storage Essentials Service Discovery on the Unix managed nodes.
	Service Discovery - Win	Performs HP Storage Essentials Service Discovery on the Windows managed nodes.
	Tracing Off - Unix	Sets the Storage Essentials SPI tracing to OFF state on the Unix managed nodes.
	Tracing On - Unix	Sets the Storage Essentials SPI tracing to ON state on the Unix managed nodes.
	Version Verify	Verifies the version of Storage Essentials SPI files on the managed nodes.

B Templates

Templates provided with the Storage Essentials SPI are grouped under the **HP Storage Essentials** templates group.

Table 17 describes the default templates provided with Storage Essentials SPI template groups.

Template Group	Template Name	Description	Template Type
HP SE CIM Extn-Unix	HPSESPI-CIM_Extension- Unix	Monitors HP Storage Essentials CIM Extension on Unix	Monitor
HP SE CIM Extn-Win	HPSESPI-CIM_Extension- Win	Monitors HP Storage Essentials CIM Extension on Windows	Monitor
HP SE CMS-Unix	HPSESPI-AppStorManager- Unix	Monitors HP Storage Essentials AppStorManager service on Unix	Monitor
HP SE CMS-Win	HPSESPI-AppStorManager- Win	Monitors HP Storage Essentials AppStorManager service on Windows	Monitor
HPSESPI Service Discovery	HPSESPI_ServiceDiscovery- Unix	HP Storage Essentials Service Discovery on Unix nodes	Scheduled
	HPSESPI_ServiceDiscovery- Win	HP Storage Essentials Service Discovery on Windows nodes	Scheduled

 Table 23 Storage Essentials SPI Templates

C Service Discovery File Locations

The locations of the files that are created or used during the Storage Essentials SPI service discovery process are listed below:

OVO Management Server

If you need to locate a particular type of file on the OVO management server, use the following list:

The OVO Service Navigator/Discovery Output files also contain information about errors that occur during the service discovery process, for example, if a node is down or not responding.

₿ NOTE:

You can set values for variables in the discovery configuration file to enable tracing and to receive discovery related messages from the managed nodes. To enable tracing, the variable SPI_DISC_TRACE should be set to ON and to receive discovery related messages from the node, the variable MSG_ALLOW should be set to Y. By default, tracing is set to OFF and MSG_ALLOW is set to N.

Table 24 Service Discovery File Location on the OVO Management Server

File Type	Storage Essentials SPI File Location
Discovery Server Script	/opt/OV/lbin/SPISvcDisc/SPI_DiscServ.sh
Logs	/var/opt/OV/log/SPISvcDisc/discovery_error.log
Service Configuration File (XML)	/var/opt/OV/share/conf/SPISvcDisc/HPSESPI-Unix/ HPSESPI-UnixSvcDisc_\${NODENAME}.xml /var/opt/OV/share/conf/SPISvcDisc/HPSESPI-Win/HPSESPI- WinSvcDisc_\${NODENAME}.xml
Discovery Configuration File	/var/opt/OV/conf/SPISvcDisc/HPSESPI-Unix_DiscConf.sh /var/opt/OV/conf/SPISvcDisc/HPSESPI-Win_DiscConf.sh
Trace (If tracing is enabled)	/var/opt/OV/log/SPISvcDisc/discovery_trace_HPSESPI- Unix.log /var/opt/OV/log/SPISvcDisc/discovery_trace_HPSESPI- Win.log

OVO Managed Nodes for HTTPS Agents

The following list shows the directory locations for the files the Storage Essentials SPI deploys on OVO managed nodes for HTTPS agents.

Table 25 provides Service Discovery File Location on the OVO Managed Nodes for HTTPS.

Table	25	Service	Discoverv	File	Location	on t	he	ονο	Manac	led	Nodes	for	HTT	PS /	\ aen	ts
											110400					

File Type	Storage Essentials SPI File Location
Discovery Client Script	%OvInstallDir%\data\bin\Instrumentation\SPI_DiscClient.pl
Discovery Modules	Windows: %OvInstallDir%\data\bin\Instrumentation Linux: /var/opt/OV/bin/instrumentation
Logs	Windows: %OvInstallDir%\data\log\SPISvcDisc\HPSESPI- Win_discovery.log Linux: /var/opt/OV/log/SPISvcDisc/HPSESPI-Unix_discovery.log
Service Configuration File (XML)	Windows: %OvInstallDir%\data\tmp\SPISvcDisc\HPSESPI- Win_discovery.xml Linux: /var/opt/OV/tmp/SPISvcDisc/HPSESPI-Unix_discovery.xml
Trace (If tracing is enabled)	Windows: %OvInstallDir%\data\log\SPISvcDisc\HPSESPI- Win_discovery.trc Linux: /var/opt/OV/log/SPISvcDisc/HPSESPI-Unix_discovery.trc

OVO Managed Nodes for DCE Agents

The following list shows the directory locations for the files the Storage Essentials SPI deploys on OVO managed nodes for DCE agents.

Table 26 provides Service Discovery File Location on the OVO Managed Nodes for DCE Agents

Table 26 Service Discover	y File	Location on 1	the OVO	Managed	Nodes	for DCE A	gents
---------------------------	--------	---------------	---------	---------	-------	-----------	-------

File Type	Storage Essentials SPI File Location
Discovery Client Script	%OvAgentDir%\bin\OpC\cmds\SPI_DiscClient.pl
Discovery Modules	Windows: %OvAgentDir%\bin\OpC\cmds Linux: /var/opt/OV/bin/OpC/cmds
Service Configuration File (XML)	Windows: %OvAgentDir%\tmp\SPISvcDisc\HPSIMInt-Win_discovery.xml Linux: /var/opt/OV/tmp/SPISvcDisc/HPSIMInt-Unix_discovery.xml
Logs	Windows: %OvAgentDir%\log\SPISvcDisc\HPSESPI-Win_discovery.log Linux: /var/opt/OV/log/SPISvcDisc/HPSESPI-Unix_discovery.log
Trace (If tracing is enabled)	Windows: %OvAgentDir%\log\SPISvcDisc\HPSESPI-Win_discovery.trc Linux: /var/opt/OV/log/SPISvcDisc/HPSESPI-Unix_discovery.trc



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 Manage-

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.

Index

В

Before troubleshooting, 53

C Configuration, 23

D

Disk Space,

F

Features of Storage Essentials, 11, 13 file locations, 21

Η

Hardware requirements, 16

Installation prerequisites, 16

Installing OVO agent, 24

S

Software requirements, 16 Storage Essentials, 13 Storage Essentials SPI, 13

Т

Troubleshooting, 53

U

Using messages, 45 Using node folders, 38 Using policies, 43 Using services, 45 Using SPI, 37

V

Viewing services, 47