HP Operations Smart Plug-in for Storage Essentials SRM

for HP Operations Manager for Windows®

Software Version: 2.03

PDF version of the online help

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Smart Plug-in for HP Storage Essentials SRM

This chapter addresses the following topics:

- Overview

- Key Features and Benefits of HP Storage Essentials SRM

Overview

HP Storage Essentials SRM is a family of open standards-built storage area network management and storage resource management solutions that enable you to visualize, monitor, report on, provision, and manage your heterogeneous storage environment with simplicity and speed.It features a base management console and an expanding portfolio of value added plug-ins. When HP Storage Essentials is integrated with HP System Insight Manager (HP SIM), HP Storage Essentials SRM is accessed through HP SIM menu items that are labeled HP Storage Essentials SRM.

The HP Operations Smart Plug-in for HP SE SRM (the HP Storage Essentials SRM SPI) integrates HP SE SRM with HP Operations Manager (HPOM). The HPOM management scope for the HP Storage Essentials SRM SPI includes storage infrastructure managed by HP SE SRM installed in an environment that consists of the HPOM. The HP Storage Essentials SRM SPI is used to monitor the HP SE SRM services and infrastructure. The HP Storage Essentials SRM SPI, forwards events from HP SE SRM Central Management Server (CMS) to HPOM.

The HP Storage Essentials SRM SPI, allows the storage network to be monitored and managed from the HPOM management server console. The HP Storage Essentials SRM SPI enables HPOM administrators to troubleshoot problems in the storage network before they become serious enough to affect tools and, ultimately, the end-users. Storage events are stored in the HPOM database.

The HPOM intelligent agents are configured on the HP Storage Essentials SRM CMS, and managed servers that are managed nodes in the HPOM management domain. The CMS runs the HP Storage Essentials SRM AppStorManager service and initiates all management operations within the management domain.

Key features and benefits of HP Storage Essentials SRM

- **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. 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 caused by 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 by using multiple disparate point solutions.

- **Visualization**

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

- **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 the host, switch, and array level. Provides graphical trending and forecasting. Soft Quota management enables proactive monitoring of consumption levels. 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 applications, hosts, HBAs, switches, and disk subsystems. Enables quick detection of bottlenecks that cause performance problems.

- **Chargeback**

  Supports customizable chargeback values, depreciation formulas, asset-based and storage-based chargeback models, and business unit groupings. Reports enable administrators to associate costs with the quality and quantity of storage used by different business units.

- **NAS management**

  Analyzes the 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.

- **Standards-based architecture**

  Designs solutions 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 are protected.

- **Customizable reports**

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

Features and functionality of HP Storage Essentials SRM SPI

The HP Storage Essentials SRM SPI offers the following:

- **Service discovery**

  Discovers the HP Storage Essentials SRM CMS (Storage Essentials SRM CMS) and HP Storage Essentials SRM managed hosts CIM Extension services.

- **Service and process monitoring**

  Monitors the availability of HP Storage Essentials SRM CMS and Storage Essentials SRM CIM Extension. As a result, any service alerts can then be communicated to the HPOM Service map and the HPOM active message browser. This enables administrators to perform root-cause analysis of the inherent HP Storage Essentials SRM services.

- **Policy groups**

  Contains policies for monitoring the HP Storage Essentials SRM CMS process (AppStorManager) and the HP Storage Essentials SRM CIM Extension process.

- **Tools groups**

  Contains tools to start, stop, and view the status of the HP Storage Essentials SRM CMS process (AppStorManager) and the HP Storage Essentials SRM CIM Extension process.

You can find more information on the features of HP Storage Essentials SRM and other HP management products at the following HP web sites:

http://www.managementsoftware.hp.com/

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

Configuring the HP Storage Essentials SPI

This chapter addresses the following topics:

- Starting HP Storage Essentials SRM SPI Configuration

- Installing HPOM Agent on Nodes

- Assigning Nodes to the HP Storage Essentials SRM Node Group

- Obtaining HP Storage Essentials SRM Credentials

- Deploying Instrumentation to CIM Extension Nodes

- Configuring the HPOM Agent for a Non-root User

Starting HP Storage Essentials SRM SPI Configuration

Perform the following tasks:

- Installing HPOM Agent on Nodes

- Assigning Nodes to the HP Storage Essentials SRM Node Group

- Obtaining HP Storage Essentials SRM Credentials

- Deploying Instrumentation to CIM Extension Nodes

Installing the HPOM Agent on nodes

To begin configuring the HP Storage Essentials SRM SPI, you must install the HPOM agent on all the nodes where the HP Storage Essentials SRM SPI or IM Agents are installed.

Before starting the HPOM agent installation, make sure that the system on which you want to install the HPOM agent meets the installation requirements explained in the Prerequisites topic.

You can install the HPOM agent on a managed node by various methods. For details, see the *HP Operations Manager for Windows Installation Guide* and also the documents referenced in Prerequisites .

Assigning nodes to the HP Storage Essentials SRM node group

Perform the following tasks:

- Assigning AppStorManager Node to the Node Group

- Assigning the CIM Extension Node to the Node Group

Assigning the AppStorManager node to the node group

This tool assigns the node to the chosen HP Storage Essentials SRM CMS node group and deploys the HP Storage Essentials SRM policy groups **AppStorManager-Win** or **AppStorManager-Unix** (depending on your node's operating system), and Service Discovery policies. The service discovery policy deployment causes the HP Storage Essentials SRM discovery process to run. If an HP Storage Essentials SRM service is not discovered, the corresponding monitor policy is disabled.

To assign the nodes on which the Storage Essentials SRM AppStorManager service is running to the node group, follow these steps:

1. Log on to the HPOM management server, and start the HPOM Console.

2. Select **Tools   HP Storage Essentials SRM   AppStorManager-Win or AppStorManager-Unix** (depending on your node's operating system), and right-click **Assign AppStorManager node to node group.**

3. Select **All Tasks   Launch Tool.**

   The Edit Parameters window opens.

4. From the **Select the nodes/services to replace $OPC** window pane, select the node on which the Storage Essentials SRM AppStorManager service is running.

5. Click **Launch ...** .

   The Tool Status window opens.

This assigns the node on which the Storage Essentials SRM AppStorManager process is running to the **HP SE SRM CMS-Win** or **HP SE SRM CMS-Unix** node group.

> **NOTE:**
> When the new nodes in the **HP SE SRM CMS-Win** or **HP SE SRM CMS-Unix** node group are added, the Service Discovery policy is deployed to each new node.

Assigning the HP Storage Essentials SRM CMS node to the node group also invokes auto-deployment of Service Discovery and AppStorManager Service Monitoring policies to the node. The HP Storage Essentials SRM instrumentation gets auto-deployed along with the Service Discovery policy to the node.

> **CAUTION:**
> The automatic policy deployment requires that the HPOM agent be present on the managed

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nodes. If the HPOM 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 HPOM agent by various methods. For more information, see Installing HPOM Agent on Nodes

Assigning the CIM Extension node to the node group

To assign the node on which the Storage Essentials SRM CIM Extension process is running to the node group, follow these steps:

1. Log on to the HPOM management server, and start the HPOM Console.

2. Select **Tools   HP Storage Essentials SRM   CIM Extension-Unix or CIM Extension-Win** (depending on your node's operating system), and right-click **Assign CIM Extension node to node group.**

3. Select **All Tasks   Launch Tool.**

   The Edit Parameters window opens.

4. From the **Select the nodes/services to replace $OPC** pane, select the node on which the Storage Essentials SRM CIM Extension process is running.

5. Click **Launc h.**

   The Tool Status window opens.

This assigns the node on which the Storage Essentials SRM CIM Extension process is running to the **HP SE CIM Extn-Win** or **HP SE CIM Extn-Unix** node group.

> **NOTE:**
> When the new nodes are added in the **HP SE CIM Extn-Win** or **HP SE CIM Extn-Unix** node group, the Service Discovery policy is deployed to each new node.

Assigning HP SE CIM Extension node to the node group also invokes auto-deployment of Storage Essentials SRM CIM Extension Service Monitoring policy to the node.

Obtaining HP Storage Essentials SRM credentials

To start the functionality provided with the HP Storage Essentials SRM SPI, you must first enter the HP SE SRM credentials for each HP Storage Essentials SRM CMS.

> **NOTE:**
> HP SE SRM credentials are stored in an encrypted format in the HPOM managed nodes.

To obtain HP Storage Essentials SRM SPI credentials, follow these steps:

1. Log on to the HPOM management server and start the HPOM Console.

2. Select **Tools**   **HP Storage Essentials SRM**   **HPSESRMSPI Utils** , and right-click **Get HP SE SRM Credentials** .

3. Select **All Tasks**   **Launch Tool** .

   The Edit Parameters window opens.

4. From the **Select the nodes/services to replace $OPC parameters with:** pane, select the node on which HP SE SRM CMS is running.

5. Click **Launch...** . The following message is displayed:

   ```
   Enter the HP Storage Essentials SRM username:
   ```

6. At the prompt, enter the HP SE SRM user name for HP SE CMS on this node and press **Enter** .

   The following message is displayed at the prompt:

   ```
   Enter the HP SE SRM password:
   ```

7. Enter the corresponding HP Storage Essentials SRM password and press **Enter** .

8. Re-enter the password to confirm.

   The following message is displayed:

   ```
   Done creating hpsecms.conf file.
   ```

   ```
   Press any key to continue . . .
   ```

   The tool attempts to verify the user name and password. When prompted, press **Enter** to exit.

   If the credentials entered are not authenticated by HP Storage Essentials SRM, the following

message is displayed:

```
Failed to validate the HP Storage Essentials SRM CMS credentials. Possible
causes could be:

1. HP Storage Essentials SRM CMS is not installed

2. HP Storage Essentials SRM CMS service is not running

3. HP Storage Essentials SRM CMS credentials incorrect

Press any key to continue . . .
```

9. Press **Enter** . The command prompt window closes.

> **NOTE:**
>
> After successful execution, the `hpsecms.conf` file is created on the HP Storage Essentials
> SRM CMS node. This file is a prerequisite for significant features like importing HP SE
> SRM infrastructure, forwarding SE SRM events to HPOM and drawing HP SE SRM
> service map. If the service discovery policy in present in the node, soon after the execution
> of the **Get Credentials** tool, the service map would be drawn.

The credentials are used for Storage Essentials SRM service discovery.

> ⚠ **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.

Deploying instrumentation to CIM Extension nodes

After you successfully assign the node on which the Storage Essentials SRM CIM Extension service is running to the **HP Storage Essentials SRM CIM Extn-Win** or **HP Storage Essentials SRM CIM Extn-Unix** node group, you must deploy the HP Storage Essentials SRM SPI instrumentation to the node.

To deploy instrumentation on the Windows node on which the Storage Essentials SRM CIM Extension service is running, follow these steps:

1. Right-click the **HP Storage Essentials SRM CIMExtn-Win** node folder in the node tree.

   > ⓘ **NOTE:**
   > To deploy the instrumentation to the multiple nodes, ensure that CIM Extension nodes are added to the node group and select the appropriate node group in the nodes tree.

2. Select **All Tasks   Deploy instrumentation.**

   The Deploy Instrumentation window opens.

3. Select **HP Storage Essentials SRM** .

4. Click **OK** .

Configuring the HPOM Agent for a non-root user

To configure a non-root agent for the HP Storage Essentials SRM SPI, follow these steps:

> ⓘ **NOTE:**
> For information on configuring the HPOM agent to run as a non-root user, see the *HP Operations HTTPS Agent Concepts and Configuration Guide.*

1. Log on 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`

3. Enter the following command at the command prompt:

   `./HPSESRMSPI_perl HPSESRMSPI_root.pl.`

   This command generates the `HPSESRMSPI.su` file.

   The following message is displayed on successful execution of the command:

The script has completed successfully.

> ⓘ **NOTE:**
> The HP Storage Essentials SRM SPI does not support a non-root HPOM agent on AIX and Tru64 CIM Extension nodes.

Providing access to HP Storage Essentials SRM SPI applications

To provide access to HP Storage Essentials SRM SPI applications, follow these steps:

1. Log on to the managed node as a root user, and open a terminal window.

2. Open the following file:

   `/etc/HPStorage Essentials SRMSPI.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`

Using the HP Storage Essentials SRM SPI

See the following topics:

- Using the HP Storage Essentials SRM SPI node group

- Using HP Storage Essentials SRM SPI tools

- Using HP Storage Essentials SRM SPI messages

- Using the HP Storage Essentials SRM SPI service map

- Using HP Storage Essentials SRM SPI policy groups

Using the HP Storage Essentials SRM SPI node group

Installing the HP Storage Essentials SRM SPI creates the following node groups:

- HP SE SRM CMS-Win

- HP SE SRM CMS-Unix

- HP SE SRM CIM Extn-Win

- HP SE SRM CIM Extn-Unix

For more information on adding nodes to the node groups, see Assigning nodes to the HP Storage Essentials SRM node group .

Association of Nodes Folder with Tools Folder

Nodes Folder	Tools Folder
HP SE SRM CMS-Win	AppStorManager-Win
HP SE SRM CMS-Unix	AppStorManager-Unix
HP SE SRM CIM Extn-Win	CIM Extension-Win
HP SE SRM CIM Extn-Unix	CIM Extension-Unix

Using the HP Storage Essentials SRM SPI tools

The HP Storage Essentials SRM SPI adds the top-level tools group in the HPOM Application bank window. The following tools are available:

- AppStorManager-Unix

- AppStorManager-Win

- CIM Extension-Unix

- CIM Extension-Win

- HPSESRMSPI Utils

HP Storage Essentials SRM SPI tool folders contain tools that enable the HPOM administrator to manage HP Storage Essentials SRM. These tools are grouped under the HP Storage Essentials SRM folder.

The **AppStorManager-Unix** or **AppStorManager-Win** tools group contains tools that can be run on HP SE SRM CMS nodes (UNIX or Windows).

Using the AppStorManager tools group

The **AppStorManager-Unix** or **AppStorManager-Win** tools group includes tools for HP Storage Essentials SRM AppStorManager that are run on HP Storage Essentials SRM CMS server nodes.

The AppStorManager tools group includes tools that monitor the HP Storage Essentials SRM AppStorManager process on selected UNIX or Windows nodes.

AppStorManager Tools Group

Tools Group	Tool Name	Description
AppStorManager-Unix	AppStorManager-Unix Start	Starts the HP Storage Essentials SRM AppStorManager service on selected UNIX nodes.
	AppStorManager-Unix Status	Status of HP Storage Essentials SRM AppStorManager service on selected UNIX nodes.
	AppStorManager-Unix Stop	Stops HP Storage Essentials SRM AppStorManager service on selected UNIX nodes.
	Assign AppStorManager Unix node to node group	Assigns Storage Essentials SRM AppStorManager Unix node to the **HP Storage Essentials SRM CMS-Unix** node group.
	De-assign AppStorManager Unix node from node group	De-assigns Storage Essentials SRM AppStorManager Unix node from the **HP Storage Essentials SRM CMS-Unix** node group.
	Start forwarding HP SE SRM events to HPOM	Forwards the HP SE SRM events from Windows managed node to HPOM
	Status forwarding HP SE SRM events to HPOM	Gives status of forwarding the HP SE SRM events from Windows managed node to HPOM
	Stop forwarding the HP SE SRM events to HPOM	Stops forwarding the HP SE SRM events from Windows managed node to HPOM
AppStorManager-	AppStorManager-Win Start	Starts HP Storage Essentials SRM

Win		AppStorManager service on selected Windows nodes.
	AppStorManager-Win Status	Status of HP Storage Essentials SRM AppStorManager service on selected Windows nodes.
	AppStorManager-Win Stop	Stops HP Storage Essentials SRM AppStorManager service on selected Windows nodes.
	Assign AppStorManager Windows node to node group	Assigns Storage Essentials SRM AppStorManager Windows node to the **HP Storage Essentials SRM CMS-Win** node group.
	De-assign AppStorManager Windows node from node group	De-assigns Storage Essentials SRM AppStorManager Windows node from the **HP SE SRM CMS-Win** node group.
	Start forwarding HP SE SRM events to HPOM	Forwards the HP SE SRM events from Windows managed node to HPOM
	Status forwarding HP SE SRM events to HPOM	Gives status of forwarding the HP SE SRM events from Windows managed node to HPOM
	Stop forwarding HP SE SRM Events to HPOM	Stops forwarding the HP SE SRM events from Windows managed node to HPOM

Using the CIM Extension tools group

The **CIM Extension-Unix** or **CIM Extension-Win** tools group includes tools for HP Storage Essentials SRM CIM Extension that are run on the HP Storage Essentials SRM CIM Extension nodes (UNIX or Windows). The CIM Extension tools group includes the tools that monitor HP Storage Essentials SRM CIM Extension services on the selected UNIX or Windows nodes.

Tools in the CIM Extension Tools Group

Tools Group	Tool Name	Description
CIM Extension-Unix	CIM Extension-Unix Start	Starts HP Storage Essentials SRM CIM Extension on selected UNIX nodes
	CIM Extension-Unix Status	Status of the HP Storage Essentials SRM CIM Extension on selected UNIX nodes.
	CIM Extension-Unix Stop	Stops HP Storage Essentials SRM CIM Extension on selected UNIX nodes.
	Assign CIM Extension Unix node to node group	Assigns the HP Storage Essentials SRM CIM Extension Unix node to the **HP SE SRM CIM Extn-Unix** node group.
	De-assign CIM Extension Unix node from node group	De-assigns the HP SE SRM CIM Extension Unix node from the **HP SE SRM CIM Extn-Unix** node group.
CIM Extension-Win	CIM Extension-Win Start	Starts the HP SE SRM CIM Extension on selected Windows nodes.
	CIM Extension-Win Status	Gets the status of HP SE SRM CIM Extension on selected Windows nodes.
	CIM Extension-Win Stop	Stops the HP SE SRM CIM Extension on selected Windows nodes
	Assign CIM Extension Windows node to node group	Assigns the SE SRM CIM Extension Windows node to the **HP SE SRM CIM Extn-Win** node group.
	De-assign CIM Extension Windows node from node group	De-assigns the SE SRM CIM Extension Windows node from the **HP SE SRM CIM Extn-Win** node group.

Using the HPStorage Essentials SRMSPI Utils tools group

The HPSESRMSPI Utils tools group includes tools for performing administrative tasks for the HP Storage Essentials SRM SPI.

HPSESRMSPI Utils Tools Group

Tools Group	Tools Name	Description
HPSESRMSPI Utils	Clean HPSESRMSPI - Unix	Deletes HP Storage Essentials SRM SPI files on selected UNIX managed nodes. Disables HP Storage Essentials SRM SPI policies on DCE managed nodes and deletes HTTPS managed nodes. When the agent is running as a non-root user, the file /etc/HPSESRMSPI.su is not removed.
	Clean HPSESRMSPI - Win	Deletes HP Storage Essentials SRM SPI files on selected Windows managed nodes. Disables HP Storage Essentials SRM SPI policies on DCE managed nodes and deletes HTTPS managed nodes. After successful execution, only the HPSESRMSPI_perl.cmd file remains on the managed node.
	Get HP SE SRM Credentials	Get username and password of HP Storage Essentials SRM for HPSESRMSPI.
	Self-Healing Info	Runs the HP Storage Essentials SRM SPI Data collector on managed nodes.
	Service Discovery - Unix	Performs Service Discovery on UNIX managed nodes.
	Service Discovery - Win	Performs Service Discovery on Windows managed nodes.
	Tracing Off - Unix	Sets HP Storage Essentials SRM SPI tracing to OFF state on UNIX managed nodes.
	Tracing Off - Win	Sets HP Storage Essentials SRM SPI tracing to OFF state on Windows managed nodes.
	Tracing On - Unix	Sets HPSESRMSPI tracing to ON state on UNIX managed nodes.

	Tracing On - Win	Sets HPSESRMSPI tracing to ON state on Windows managed nodes.
	Version Verify	Verifies the version of HPSESRMSPI files.
	Import HPSESRM Infrastructure	Queries the HPSESRM Infrastructure details and adds Hosts, Switches and Storage Systems to the Node Bank. Note: Get HP SE SRM Credentials" tool must be executed before running this tool.
	Clean HP SE SRM SPI-UNIX	Deletes HP SE SRM SPI files on selected UNIX managed nodes.
	Clean HP SE SRM SPI-Win	Deletes HP SE SRM SPI files on selected Windows managed nodes.

Using HP Storage Essentials SRM SPI messages

Events generated by the HP Storage Essentials SRM SPI are grouped under the HP Storage Essentials SRM SPI's **HPSESRMSPI-StorageEssentials_SRM** message group. Messages generated by HP Storage Essentials SRM SPI policies appear in the message browser window and contain information that is vital for understanding the problems being reported.

The message headline on the browser describes the scope of the problem. Information is categorized as follows:

- **Node** - The system name of the event source

- **Application** - HP Storage Essentials SRM

- **Text** - A single line description of the event.

- **Object** - Name of the HP SE SRM CMS node that forwarded the message to HPOM.

- **Group** - HPSESRMSPI-StorageEssentials_SRM

Using the HP Storage Essentials SRM SPI service map

The HP Storage Essentials SRM SPI provides the administrator with the additional perspective of service views. It discovers the services automatically and uses the discovered data to generate service maps that can be viewed by the administrator from the HPOM console.

HP Storage Essentials SRM managed hosts are discovered by querying the Storage Essentials SRM CMS for its managed hosts. Therefore, some of the nodes represented in the tree may not be HPOM managed nodes. Status is shown only for CIM Extension nodes that have an HPOM Agent installed and the HP Storage Essentials SRM SPI configured.

You can decide whether or not these nodes must be configured as HPOM managed nodes. You can also decide whether or not the HP Storage Essentials SRM SPI policies must be installed. If the nodes in the tree are HPOM managed nodes with the Storage Essentials SRM SPI policies deployed, the service view node status changes according to the status of the CIM Extension on the node.

Item	Description
1	SE SRM CMS node
2	Nodes with CIM Extensions installed or running

By default, status propagation rules for the objects in the HP Storage Essentials SRM service trees are defined such that if the HP Storage Essentials SRM CIM Extension service objects is critical (item 2), the higher service objects status are decreased by two levels to minor. If the HP Storage Essentials SRM AppStorManager service objects is critical (item 1), the higher service objects status are decreased by a level to major. The parent service does not change the status of a child object and, by default, calculation rules for the HP Storage Essentials SRM service trees are set to Most Critical. Therefore, 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.

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

Viewing services

The service views are created after Storage Essentials SRM CMS is added to the **HP SE SRM CMS-Win** or **HP SE SRM CMS-Unix** node group and service discovery is invoked (see Assigning Nodes to the HP Storage Essentials SRM Node Group .)

Running the appropriate Service Discovery tool on the Storage Essentials SRM CMS node generates services in the HP Storage Essentials SRM service map. Make sure that you perform the steps in Obtaining HP Storage Essentials SRM credentials before performing the steps for viewing the discovered HP Storage Essentials SRM service.

To view the discovered HP Storage Essentials SRM service, follow these steps:

1. Log on to the HPOM management server, and start the HPOM console.

2. Select **Services   System Infrastructure** on the left pane of the HPOM console. The HP Storage Essentials SRM service map displays in the right pane.

By default, the HP Storage Essentials SRM SPI service discovery policy is configured to run service discovery every day at 2:00 am. You 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 HP Storage Essentials SRM CMS node.

Importing HPSESRM Infrastructure

To get events from the HP SE SRM devices, you must import the infrastructure for each of the HP SE SRM CMS. To import the HP SE SRM Infrastructure, follow the below mentioned steps.

1. Log on to the HPOM Management Server and start the HPOM Console.

2. Select **Tools** > **HP Storage Essentials SRM** > **HPSESRMSPI Utils** and right click **Import SE Infrastructure**

> ⓘ **NOTE:**
> The discovery policy (if deployed) automatically updates the service map and WebLogic SPI configuration. Set the AUTO_DISCOVER property to "false" if you do not want the discovery policy to automatically overwrite this configuration information (unselect the AUTO_DISCOVER check box if you are using the configuration editor).

3. Select **All Tasks** > **Launch Tool** . The Edit Paramenters window opens.

4. From the **Select the nodes/services to replace $OPC parameters with** option, select the node on which the HP SE SRM CMS is running.

5. Click **Launch** . This will add all the Hosts, Switches and Storage Systems to the Node Bank.

6. Click **Enter** and the command prompt window closes.

Now the HP SE SRM Infrastructure (Fabrics and corresponding Hosts, Switches and Storage Systems) is added to the OM Node Bank under the Node Group HP SESRM INFRA with the following sub groups.

– HP SE SRM INFRA
  –FABRICNAME-SECMS
    – HP SE SRM HOSTS
    – HP SE SRM SWITCHES
    – HP SE SRM STORAGESYSTEMS

> ⓘ **NOTE:**
>
> In order to delete the HPSESRMSPI Infrastructure node groups and the nodes that they contain, execute the following steps:
>
> 1) Open the Node Configuration Editor.
> 2) On the right pane , right click on HP SE SRM INFRA node group and click on Delete.
> 3) A Confirm Delete window opens , click on Yes.

> ⓘ **NOTE:**
>
> The Device(s) without any fabric association is not added to the Node Bank.

> ⓘ **NOTE:**
>
> If a host already exists in HP SE SRM INFRA and becomes a HPOM managed node, then all the new events are mapped to the HPOM managed node only. You have to delete the node manually using HPOM node editor from HP SE SRM INFRA. This will help you to identify the node that get events.

Using HP Storage Essentials SRM SPI user roles

The installation of the HP Storage Essentials SRM SPI adds a new user role, HP Storage Essentials SRM SPI Admin to HPOM.

User roles simplify the process of assigning responsibilities to HPOM users. Users associated with the role HP Storage Essentials SRM SPI Admin can access all the HP Storage Essentials SRM SPI tools, policies, and **HPSESRMSPI-StorageEssentials_SRM** message groups assigned to them, and can manage and control the HP SE SRM CMS and HP SE SRM CIM Extension nodes.

The HP Storage Essentials SRM SPI Admin user role assigns the following authorizations:

- Access all messages with message group attribute **HPSESRMSPI-StorageEssentials_SRM** from HP SE SRM CMS or HP SE SRM CIM Extension node.

- Run any tool in the HP Storage Essentials SRM Tools groups.

- Update the HPOM service map, which displays the HP Storage Essentials SRM services successfully discovered.

Using HP Storage Essentials SRM SPI policy groups

Policies provided with the HP Storage Essentials SRM SPI are grouped under the HP Storage Essentials SRM policy group.

Messages generated by HP Storage Essentials SRM SPI policies are assigned HPOM severity level as defined in the policy groups. By default, all messages generated by the HP Storage Essentials SRM SPI policy belong to the HPSESRMSPI-StorageEssentials_SRM message group.

Policies in the **AppStorManager** and **CIM Extension** policy groups for the indicated operating systems monitor the status of the AppStorManager service running on the HP Storage Essentials SRM CMS node and the Storage Essentials SRM CIM Extension service running on the HP Storage Essentials SRM managed nodes. These policies generate messages to indicate any status change in the monitored services.

Policies in the Service Discovery policy group discover the Storage Essentials SRM services when deployed on HP Storage Essentials SRM CMS nodes.

HP Storage Essentials SRM SPI Policies

Policy Group	Policy Name	Description	Policy Type
AppStorManager-Unix	HPSESRMSPI-AppStorManager-Unix	Monitors HP SE SRM AppStorManager service on Unix	Measurement Threshold
AppStorManager-Win	HPSESRMSPI-AppStorManager-Win	Monitors HP SE SRM AppStorManager service on Windows	Measurement Threshold
CIM Extension-Unix	HPSESRMSPI-CIM Extension-Unix	Monitors HP SE SRM CIM Extension on Unix	Measurement Threshold
CIM Extension-Win	HPSESRMSPI-CIM Extension-Win	Monitors HP SE SRM CIM Extension on Windows	Measurement Threshold
Service Discovery	HPSESRMSPI-Storage_Essentials_SRM_Services	Discovers services of the hosts managed by	Service Auto-discovery

		the Storage Essentials SRM AppStorManager	

The CIM extension can be either an extension to the Windows WMI service or a separate executable called AppStorWin32Agent service. The **HPSESRMSPI-CIM_Extension-Win** monitor policy monitors only the AppStorWin32Agent service. **HPSESRMSPI-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.

Uninstalling the HP Storage Essentials SRM SPI

Perform the following tasks:

- Deleting HP Storage Essentials SRM SPI Instrumentation from Nodes

- Removing Nodes from the Node Group

- Uninstalling HP Storage Essentials SRM SPI from HPOM

- Uninstalling HP Storage Essentials SRM SPI Components from HPOM

Deleting HP Storage Essentials SRM SPI Instrumentation from nodes

To remove HP Storage Essentials SRM SPI instrumentation from the managed nodes, follow these steps:

1. Open the **HPStorage Essentials SRM SPI Utils** tools group in the HP Storage Essentials SRM SPI tools group.

2. Run the **Clean HPSESRMSPI - Win** tool on the selected Windows managed nodes.

3. Run the **Clean HPSESRMSPI - Unix** tool on the selected Unix managed nodes.

4. Right click each node on which the clean tool has been executed in above step and select > **All Tasks > Synchronize Inventory > Policies** . All the policies present in the node gets synchronized with HPOM GUI.

Removing nodes from the node group

Removing a node from the node group involves the following:

- Removing the AppStorManager Node from the Node Group

- Removing the CIM Extension Windows Node from the Node Group

Removing the AppStorManager node from the node group

To remove the node on which the Storage Essentials SRM AppStorManager service is running from the **HP SE SRM CMS-Win** or **HP SE SRM CMS-Unix** node group, follow these steps:

1. Log on to the HPOM management server and start the HPOM Console.

2. Select **Tools** **HP SE SRM** **AppStorManager-Win** , and right-click **De-assign AppStorManager node from node group.**

3. Select **All Tasks** **Launch Tool** .

   The Edit Parameters window opens.

4. Select the node in the **HP SE SRM CMS-Win** node group in the **Select the nodes/services to replace $OPC** window pane.

5. Click **Launch...** .

   The Tool Status window opens.

   Repeat these steps to remove nodes from the **AppStorMgr-Unix** node groups.

Removing the CIM Extension Windows node from the node group

To remove the node on which the Storage Essentials SRM CIM Extension service is running from the **HP SE SRM CIM Extn-Win** or **HP SE SRM CIM Extn-Unix** node group, follow these steps:

1. Select **Tools   HP Storage Essentials SRM   CIM Extension-Win** , and right-click **De-assign CIM Extension Windows node from node group.**

2. Select **All Tasks   Launch Tool.**

   The Edit Parameters window opens.

3. Select the node in the **HP SE SRM CIM Extn-Win** node group in the **Select the nodes/services to replace $OPC** window pane.

4. Click **Launch...** .

   The Tool Status window opens.

   Repeat these steps to remove nodes from the **SE SRM CIM Extension-Unix** node groups.

Uninstalling HP Storage Essentials SRM SPI from HPOM

To uninstall HP Storage Essentials SRM SPI components from HPOM, follow these steps:

> ⓘ **NOTE:**
> Make sure that HPOM managed nodes are not present under HP Storage Essentials SRM SPI node groups. If they are there, remove them. See Removing Nodes from the Node Group .

1. Insert the HP Operations Smart Plug-ins DVD, Installation and Upgrade Guide.

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 SRM** and click **Next** .

4. Select **Remove.**

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

   This procedure removes all the configuration files, executables, node groups, policies, and tools of the HP Storage Essentials SRM SPI from the HPOM server.

   For more information on uninstalling HP Operations New and Upgraded Smart Plug-ins, see the *HP Operations Smart Plug-ins DVD, Installation and Upgrade Guide.*

Uninstalling HP Storage Essentials SRM SPI components from HPOM

Most of the components of the HP Storage Essentials SRM SPI in HPOM are automatically removed during the uninstallation of the product. But the HP Storage Essentials SRM SPI Admin user role must be removed manually.

Removing HP Storage Essentials SRM SPI user roles

To remove the HP Storage Essentials SRM SPI user roles, follow these steps:

1. Select **Actions** **Configure** **User Roles** . You can also click **User Roles Configuration Editor** located on the menu bar of the main HPOM.

   The User Roles window opens.

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

   The HP Storage Essentials SRM SPI user roles are removed.

Troubleshooting the HP Storage Essentials SRM SPI

This chapter discusses the following topics:

Before you start

Before investigating the problem, check the following:

○ Make sure that the HP Storage Essentials SRM SPI is installed properly. For more information on installing the HP Storage Essentials SRM SPI, see Installing HP Storage Essentials SRM SPI .

○ Make sure that the HP Storage Essentials SRM SPI is configured properly. For more information on configuring the HP Storage Essentials SRM SPI, see Configuring the HP Storage Essentials SRM SPI .

Verify that the messages seen in the HPOM message browser are:

○ Intercepted by the HP Storage Essentials SRM SPI policies.

○ Appearing in the HPOM message browser in the form you expect.

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

Troubleshooting

Following are the issues in HP SE SRM SPI:

- Service monitoring events not arriving on the HPOM message browser console

- HP SE Services not visible in the HPOM console

- Auto-deployment of policies failing on HPOM 8.10

- Auto-deployment of policies failing on OVOW 7.5

Service monitoring events not arriving on the HPOM Message Browser console

The following table provides troubleshooting information.

Symptom	Solution
No Storage Essentials SRM service monitoring events arrive in HPOM message browser	- Verify that the connection between HPOM and the Storage Essentials SRM CMS and the CIM Extension nodes is up and running. - Verify that the HPOM agent is correctly installed and configured on the management server, and the HPOM agent processes (especially the control agent) are running. - Verify that the Storage Essentials SRM CMS and CIM Extension nodes were added to the appropriate node groups. See Assigning Nodes to the HP Storage Essentials SRM Node Group .

HP Storage Essentials SRM services not visible in the HPOM console

The following table provides troubleshooting information.

HP Storage Essentials SRM services not visible in the HPOM console

Symptom	Solution
HP Storage Essentials SRM services are not visible in the HPOM console	- Make sure that the connection between HPOM and the Storage Essentials SRM CMS nodes is up and running. - Verify that the HPOM agent is correctly installed and configured on the management server, and the HPOM agent processes (especially the control agent) are running. - If the HP Storage Essentials SRM CMS credentials are invalid, there could be error messages in the service discovery log – <OvAgentDir>\log\javaagent.log – on the HP Storage Essentials SRM CMS node indicating authentication failures. - Make sure that the Service Discovery policies in **Policy Management Policy Groups HP Storage Essentials SRM Service Discovery** are deployed on the HP Storage Essentials SRM CMS nodes. To check whether the policies are correctly deployed, right-click the node, select **View Policy Inventory** , and verify that the Service Discovery policies are present. You can also check the service discovery log – <OvAgentDir>\log\javaagent.log – on the HP Storage Essentials SRM CMS node for error messages.

Auto-deployment of policies failing on HPOM 8.10

Symptom: auto-deployment of policies failing on HPOM 8.10

Action: HPOM Console   Operations Manager   Nodes   Server Configuration Utility

Name Space   Policy Management and Deployment   Disable autodeployment for all nodes and services

Check that the above parameter value is set to False.

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