

HP Operations Smart Plug-ins for Infrastructure

for HP Operations Manager for Windows®[®], HP-UX, Linux, and Solaris

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Installation Guide

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1 Introduction

The Smart Plug-ins for Infrastructure (Infrastructure SPIs) form a software suite that integrates fully with HP Operations Manager (HPOM). The Infrastructure SPIs extend HPOM's management scope to include monitoring a distributed enterprise-wide base infrastructure including systems, high-availability clusters (HA clusters), and virtual infrastructure. The Infrastructure SPI relates cross domain IT infrastructure events with relevant applications and maps them into a hierarchical service map.

Conventions Used in this Manual

The following conventions are used in this document.

Convention	Description
HPOM for UNIX	Refers collectively to HPOM on HP-UX, Linux, and Solaris. They are used individually to identify the following operating systems: <ul style="list-style-type: none">• HPOM on HP-UX• HPOM on Linux• HPOM on Solaris
Infrastructure SPIs	Refers to the HP Operations Smart Plug-ins for Infrastructure. The software suite includes three Smart Plug-ins: <ul style="list-style-type: none">• HP Operations Smart Plug-in for Systems Infrastructure• HP Operations Smart Plug-in for Virtualization Infrastructure• HP Operations Smart Plug-in for Cluster Infrastructure
SI SPI	HP Operations Smart Plug-in for Systems Infrastructure
VI SPI	HP Operations Smart Plug-in for Virtualization Infrastructure
CI SPI	HP Operations Smart Plug-in for Cluster Infrastructure

Infrastructure SPIs DVD Content and Descriptions

The Infrastructure SPIs media contains the software, documentation, applicable Reports package, and Graphs package.

Systems Infrastructure SPI

The SI SPI monitors individual system infrastructure performance and also provides fault management capabilities. The SI SPI helps analyze system performance based on monitoring aspects such as capacity, availability, and utilization. The SI SPI must be installed, while installing other components from the Infrastructure SPIs media, namely the VI SPI, the CI SPI, the reports pack, and the graphs pack. SI SPI monitors the following system resources:

- CPU
- Memory
- NIC
- Disk
- File systems
- Hardware health of HP Proliant servers

Virtualization Infrastructure SPI

The VI SPI helps to analyze the performance of the host and guest machines based on monitoring aspects such as capacity, utilization, availability, and resource consumption. The VI SPI uses metrics provided by the HP Performance agent for performance and configuration information. The VI SPI monitors the following virtualization infrastructure:

- VMware ESX / ESXi servers, the virtual machines hosted on them, the resource pools and the VMware datacenter.
- Microsoft Windows 2008 Hyper-V servers and the virtual machines hosted on them
- HP Integrity Virtual Machines (HPVM) host and guest machines
- Oracle Solaris Zones
- AIX IBM LPARs, Frames, and WPARs

Cluster Infrastructure SPI

The CI SPI monitors the availability of an HA cluster (or failover cluster) infrastructure. The CI SPI helps analyze the availability and state of cluster elements along with the process and services running on them. CI SPI monitors the following clusters:

- High Availability Cluster Multi-Processing (HACMP/PowerHA) for AIX
- MC Service Guard Cluster (MCSG) for HP-UX and Linux
- Red Hat Advanced Server (RHAS) Cluster for RHEL
- Solaris Cluster for Solaris
- Veritas Cluster Server (VCS) for UNIX and Windows
- Microsoft Cluster Server (MSCS) for Windows

Reports Package for the Infrastructure SPIs

To generate and view reports based on the metric data collected from the managed nodes, you need to integrate HP Reporter with HPOM. To view Infrastructure SPIs specific reports, you must install the reports package from the Infrastructure SPIs media on the management server. You can use the reports to analyze the performance trends of your infrastructure. This helps to identify the potential bottlenecks in your IT system, make accurate predictions for future upgrades, and collect accurate information to measure service levels.



The Reports pack is available only for 32-bit HPOM for Windows.

Graphs Package for the Infrastructure SPIs

To generate and view graphs from data collected from the managed nodes, you need to integrate HP Performance Manager with HPOM. To view Infrastructure SPIs specific graphs, you must install the graphs package from the Infrastructure SPIs media on the management server. The graphs enable you to analyze the Infrastructure performance and resource utilization.

Product Documentation

Information on Infrastructure SPIs is available in the following documents.

Document	Location	Purpose
Installation Guide	<CD\DVD-ROM>\Documents	To provide step-by-step instructions on installing, upgrading, configuring, and performing various tasks in Infrastructure SPIs.
Concepts Guide	<CD\DVD-ROM>\Documents	To provide information on Infrastructure SPIs architecture and key concepts used.
Online Help sets	Available on HPOM for Windows console Help drop-down menu	To perform the following tasks: <ul style="list-style-type: none">• Using the SPI policies• Using the SPI tools• Using Reports• Using Graphs The online help is specific to the individual SPI.

Document	Location	Purpose
User Guides	<CD\DVD-ROM>\Documents	To guide the user to perform the following tasks: <ul style="list-style-type: none"> • Using the SPI policies • Using the SPI tools • Using Reports • Using Graphs The user guide is specific to the individual SPI.
Release Notes	<CD\DVD-ROM>	To provide information on the current SPI release.

The Concepts Guide, Installation Guide, User Guides, and Release Notes are available on the Infrastructure SPIs DVD. You can directly access them from the DVD or copy the documents to the local system for reference.

However, to check for recent updates, go to:

<http://h20230.www2.hp.com/selfsolve/manuals>

Disk Space Requirements

The Infrastructure SPIs require the following amount of disk space in the various operating systems.

Operating System on HPOM server	Temporary Folder*	Total Disk Space
Windows	%tmp% - 15MB	90 MB
Linux	/tmp - 35 MB	90 MB
HP-UX	/tmp - 17 MB	240 MB
Solaris	/tmp - 35 MB	80 MB

*The disk space for the temporary folder / drive is required only during installation. These are approximate values.

Supported Platforms

Before installing the Infrastructure SPIs, you must install the supported hardware and software versions. For recent updates to information about the management server operating system versions, the managed node operating system versions, and the related HP product versions that are supported by the Infrastructure SPIs, see the individual release notes:

- *HP Operations Manager Smart Plug-in for Systems Infrastructure Release Notes*
- *HP Operations Manager Smart Plug-in for Virtualization Infrastructure Release Notes*
- *HP Operations Manager Smart Plug-in for Cluster Infrastructure Release Notes*

Supported Management Server Platforms

Operating Systems	Supported HP Operations Manager (HPOM) Versions *
Microsoft Windows	HPOM for Windows 9.00 HPOM for Windows 8.16
HP-UX	HPOM on HP-UX 9.10 HPOM on HP-UX 9.00
Linux	HPOM on Linux 9.10 HPOM on Linux 9.00
Solaris	HPOM on Solaris 9.10 HPOM on Solaris 9.00

* For details about the required patches on HPOM, see the *Systems Infrastructure SPI Release Notes*.

Supported Managed Node Platforms and Agent Versions

Supported Operating Systems on Nodes	Supported HP Operations Agent Versions*
Microsoft Windows	11.00, 8.60
Red Hat Enterprise Linux	11.00, 8.60
SuSe Linux Enterprise Server	11.00, 8.60
HP-UX	11.00, 8.60
Oracle Solaris	11.00, 8.60
IBM AIX	11.00, 8.60

* For details about the required HP Operations agent patches, see the *Systems Infrastructure SPI Release Notes*.

Supported Clusters

Operating System	Supported Clusters
IBM AIX	High Availability Cluster Multi-Processing (HACMP/PowerHA)
HP-UX	MC ServiceGuard, Veritas Cluster Server
Red Hat Enterprise Linux	Red HAT Cluster, Veritas Cluster Server, MC ServiceGuard
Oracle Solaris	Solaris Cluster, Veritas Cluster Server
SuSe Linux Enterprise Server	Veritas Cluster Server, ServiceGuard
Microsoft Windows	Microsoft Cluster Server, Veritas Cluster Server

Supported Performance Agent Versions

- HP Performance Agent 5.00 + patches

HP Performance Agent 5.00 is installed in conjunction with HP Operations agent 8.60. If you have installed HP Operations agent 11.00, 11.01, or 11.02, you need not install HP Performance Agent. For more information, see *HP Operations agent 11.00 and above Release Notes*.

For the SI SPI and the CI SPI, installation of HP Performance Agent is optional. In the absence of Performance Agent, the policies take values from HP Operations agent (available by default). If Performance Agent is present, the policies take values from Performance Agent metrics.

If you already have an existing version of HP Performance Agent installed on the managed nodes, upgrade it to version 5.00.

- ▶ For the VI SPI, HP Performance Agent version 5.00 or later is mandatory for metric collection used by the SPI policies.

For information about installing HP Performance Agent, see *HP Performance Agent Installation and Configuration Guide*.

Supported HP Performance Manager Versions

- HP Performance Manager version 8.20 (with software patches) or later to install the graphs package on HPOM for HP-UX, Windows, or Solaris management servers.
- HP Performance Manager version 8.21 or later to install the graphs package on HPOM for Linux management server.

For details about the required patches, see the *Systems Infrastructure SPI Release Notes*.

Supported HP Reporter Versions

- HP Reporter version 3.90.

HP Reporter can only be installed on 32-bit HPOM for Windows management server. To view reports on 64-bit Windows or UNIX management servers install HP Reporter on a different system. For details, see [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

Licenses for the Software

No separate license is required for the SI SPI or the CI SPI. These SPIs are included with the purchase of HP Software Operations Instance Advanced LTUs (License to Use). An LTU for the SI SPI and an LTU for the CI SPI are included with each HP Software Operations Instance Advanced LTU.

The license requirements for the VI SPI are defined according to the number of *virtual instances* in the virtualized environment that are managed by the HPOM server using the VI SPI.

- **Microsoft Hyper-V:** The licensing depends on the number of Hyper-V hosts to which the VI SPI is deployed. Hyper-V host systems that are monitored by the VI SPI each require a separate VI SPI LTU.
- **VMware:** ESX and ESXi hosts that are added to vMA for monitoring using the VI SPI each require a separate VI SPI LTU. Each vCenter that is added to vMA for monitoring using the VI SPI also requires a separate VI SPI LTU.
- **HPVM:** The licensing depends on the number of HPVM servers on which the VI SPI is deployed. Each HPVM server that is monitored by the VI SPI require a separate VI SPI LTU.
- **AIX LPAR:** The licensing depends on the number of LPARs on which the VI SPI is deployed. Each VI SPI installation requires a separate VI SPI LTU.
- **Oracle Solaris Zones:** The licensing depends on the number of Global Zones on which the VI SPI is deployed. Each Global Zones that is monitored by the VI SPI requires a separate VI SPI LTU.

There are two license options for guest virtual machines:

- The HP Operations Instance Advanced LTU can be acquired for each guest virtual machine and this provides additional high resolution monitoring for the guest virtual machine.
- You need to buy one target connector license for each operating system which can generate faults into HP Operations Manager.

The VI SPI comes with a trial license that allows you to use the product for 60 days after you install it.

For more information about how to obtain a license, how to apply the permanent license key password, or how to view a license report on HPOM, see the *HP Operations Manager for Windows Installation Guide* or *HP Operations Manager for UNIX Installation Guide*.

Language Options

For HPOM for Windows, the Infrastructure SPI version 2.00 software is available in English, Japanese, and Simplified Chinese languages. In localization, the user interface elements, web pages, and log files are translated to a specific language. HPOM for Windows supports the Multiple User Interface (MUI) that allows the installation of multiple interface languages on a single system. When installing Infrastructure SPIs with English as the base locale, the installer uploads the policies in the same language as selected at the time of the HPOM for Windows installation. When the locale is Japanese or Simplified Chinese, the installer selects the base locale language.

For HPOM for UNIX 9.10, the Infrastructure SPI version 2.00 software is available in English, Japanese, and Simplified Chinese. You can install Infrastructure SPIs in a non-English system locale, with user interface elements, web pages, logfiles, online help, and user documentation available in English language.

2 Installing the Infrastructure SPIs

You must install the Infrastructure SPIs on the HPOM management server. Log on as an administrator for Windows systems, or as a root user for HP-UX, Linux, and Solaris systems.

Installing on the HPOM for Windows Management Server

Read the rest of this guide before you start the installation to plan your decisions and gather the information that you need. You can install the Infrastructure SPIs on your Windows management server by using either of the following procedures.

Attended Installation

The installation wizard guides you through the entire process of SPI installation. Follow these steps:

- 1 Close all open applications.
- 2 If installing from a CDROM/DVD, insert the Infrastructure SPIs CD/DVD media into the CD/DVD-ROM drive of the management server/console system, and open the media contents in the Explorer window.

Or

Download the Infrastructure SPIs media image file (.iso) and burn the image on a physical media or mount the image file as a virtual CD using software such as Microsoft Virtual CD-ROM from the control panel.

- 3 On the media, navigate to the OMWindows directory and double-click **HPInfraSPI_setup.exe** to start the installer.

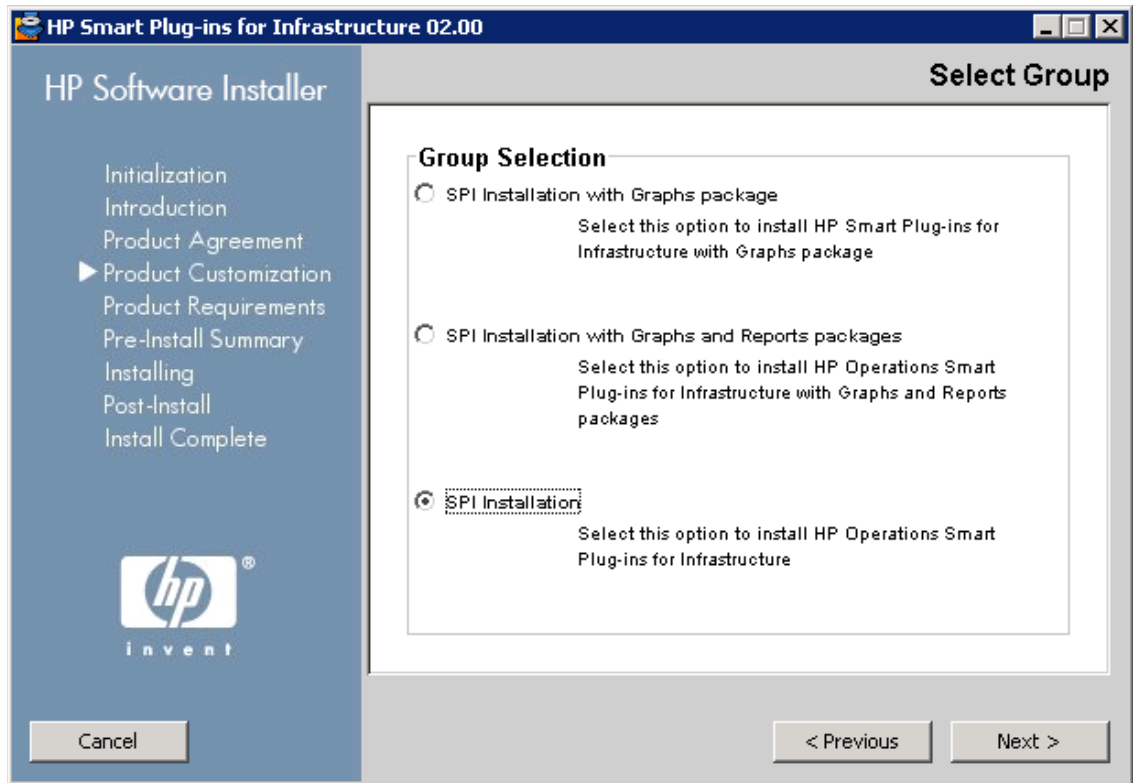
The installation wizard appears.

- 4 Select the language, and click **OK**. If you see the Application requirement check warnings box, click **Continue**. The Introduction (Install) page of the installation wizard opens.
- 5 On the Introduction (Install) page of the installation wizard, click **Next**.

The License Agreement page appears.

- 6 Read the terms of license agreement, select the I accept the terms of License Agreement option and click **Next**.

The Select Group page opens displaying the list of installation options.

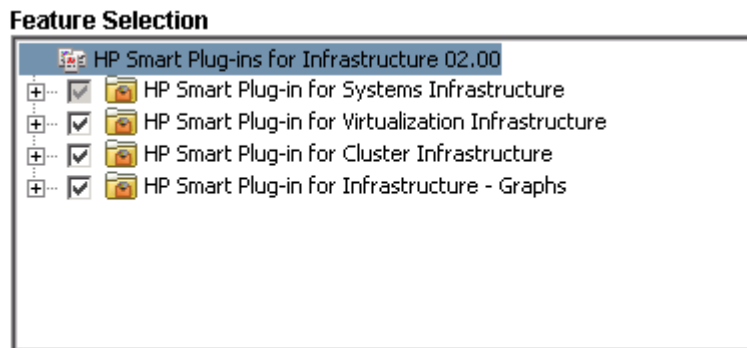


- ▶ On HPOM for Windows 9.00, **SPI Installation with Graphs and Reports packages** option is not available because HP Reporter does not support installation on 64-bit machines.

7 Select one of the following options:

— **SPI Installation with Graphs package**

Select this option to install the Infrastructure SPIs along with the Graphs package. The Graphs package requires HP Performance Manager to be already installed on the HPOM server.



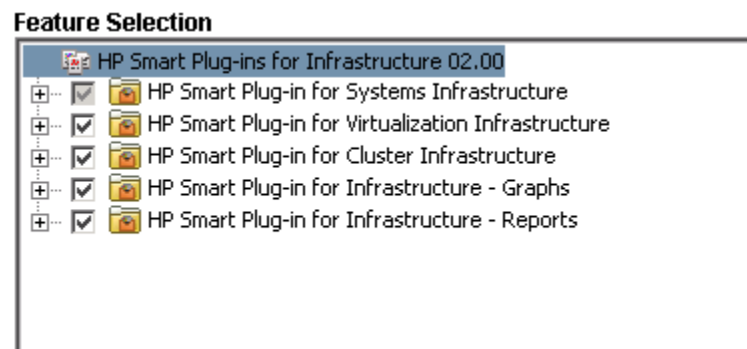
HP Smart Plug-in for Systems Infrastructure is pre-selected because its installation is mandatory. Select the features that you want to install from the remaining options.

— **SPI Installation with Graphs and Reports packages**

This option is available only on HPOM for Windows on 32-bit machines.

Select this option to install the Infrastructure SPIs along with the Graphs and Reports package. The Graphs and the Reports packages require HP Performance Manager and HP Reporter to be already installed on the HPOM server.

If HP reporter is installed on a separate system connected to HPOM for Windows, follow the instructions in the section [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

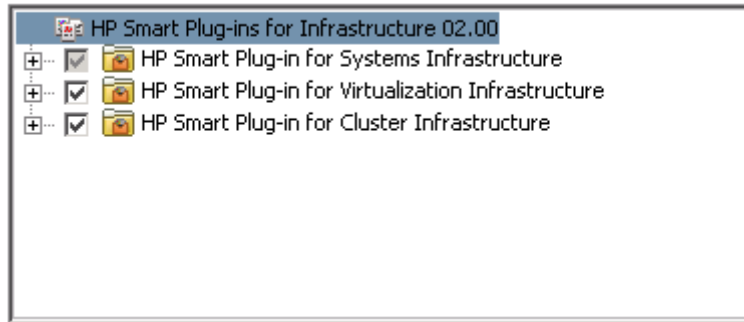


HP Smart Plug-in for Systems Infrastructure is selected by default because its installation is mandatory. Select the features that you want to install from the remaining options.

— **SPI Installation**

Select this option to install the Infrastructure SPIs. Selecting this option automatically includes all three Infrastructure SPIs for installation.

Feature Selection



- 8 Click **Next**.
The installer starts performing installation checks.
- 9 Follow the on-screen instructions and continue the installation process using the **Next** and **Install** buttons.
The installation wizard displays the Installer Completed dialog box after you complete the installation.
- 10 Click **Done** to complete the installation.

Unattended Installation

The unattended installation enables the HP Software Installer to run without any user interaction. Follow these steps:

- 1 Open the Windows command prompt and type the name of the drive where the Infrastructure SPIs `HPInfraSPI_setup.exe` file is located, as follows:

`<CD/DVD-ROM or temp>:`

The drive can be on the local system where the Infrastructure SPIs package is downloaded, or the CD/DVD-ROM drive containing the Infrastructure SPIs files.

- 2 Run the following command to change your current directory location:

```
cd OMWindows
```

- 3 Type either one of the following commands at the command prompt, according to your requirement:

— For SPI Installation with Graphs package, type:

```
HPInfraSPI_setup.exe -DGROUP=WithGraphs -i silent
```

Select this option to install Infrastructure SPIs along with the Graphs package. The Graphs package requires HP Performance Manager to be already installed on the HPOM server.

— For SPI Installation with Graphs and Reports packages, type:

```
HPInfraSPI_setup.exe -DGROUP=WithGraphsAndReports -i silent
```

The Graphs and the Reports package requires HP Performance Manager and HP Reporter to be already installed on the HPOM server.

If HP Reporter is installed on a separate system connected to HPOM, follow the instructions in [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

- For SPI Installation, type:

```
HPInfraSPI_setup.exe -i silent
```

The installation process runs in the background.

You can open **Windows Task Manager** → **Processes**, and check for the listed `HPInfraSPI_setup.exe`.

To verify if the installation is complete check the log files available at `%OvInstallDir%\install\SPIInstallLogs`

By default the `%OvInstallDir%` is `C:\Program Files\HP\HP BTO Software`.

Installing on the HPOM for UNIX Management Server

You can install the Infrastructure SPIs on your HP-UX, Linux or Solaris Management Server by using any of the following procedures.

Attended Installation

Attended installation requires the installation of Infrastructure SPIs using graphical and command line interfaces.

Installing Infrastructure SPIs Using the Graphical Interface

To install Infrastructure SPIs through the GUI, you might need to use a X Window System Client that is required to view the GUI. For example, you can use Reflection X.

Follow these steps:

- 1 Log on as a root user.
- 2 When installing from a CD/DVD-ROM, insert the Infrastructure SPIs CD/DVD media into the CD/DVD-ROM drive. If necessary, mount the CD/DVD-ROM.

Or

Download the Infrastructure SPIs media image file (.iso) and burn the image on a physical media or mount the ISO image on a `temp` directory.

- 3 In the terminal window verify that the `DISPLAY` environment variable is set correctly to your workstation. Type:

```
echo $DISPLAY
```

To view the console GUI properly, type:

```
export DISPLAY=<IP Address or host name of the local system from where you are installing Infrastructure SPIs>:0.0
```

- 4 Run the following command to change your current directory location, according to the operating system of the management server where you are installing the Infrastructure SPIs.

```
cd <OMSolaris/ OMLinux/ OMUnix>
```

- 5 Start a X Window System Client (X11 client) on the system if required.

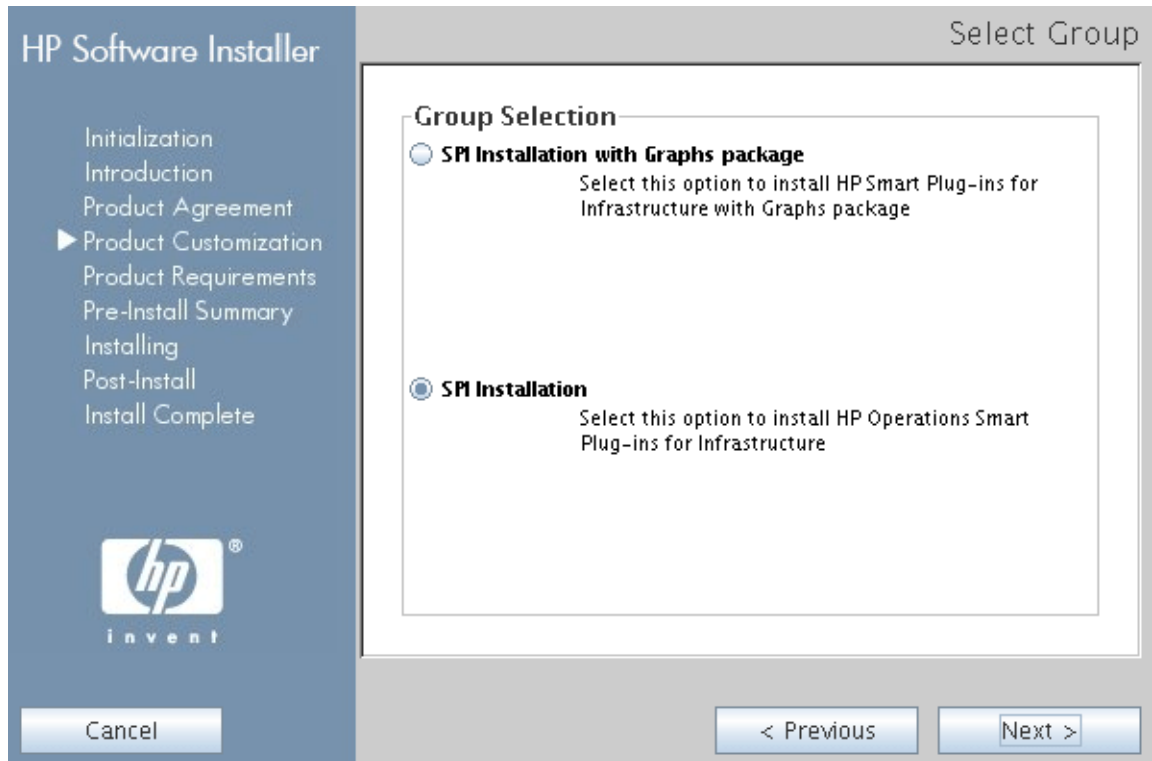
- 6 Run the following:

```
./HPInfraSPI_setup.bin
```

The installation wizard appears.

- 7 If you see the Application requirement check warnings box displayed, click **Continue**.
- 8 On the Introduction (Install) page of the installation wizard, click **Next**. The License Agreement page appears.
- 9 Read the terms of license agreement, select the 'I accept the terms of License Agreement' option and click **Next**.

The Select Group page opens displaying the list of installation options.



- 10 Select one of the following options:

- **SPI Installation with Graphs package**

Select this option to install the Infrastructure SPIs along with the Graphs package. The Graphs package requires HP Performance Manager to be already installed on the HPOM server.

HP Smart Plug-in for Systems Infrastructure is selected by default because its installation is mandatory. Select the features that you want to install from the remaining options available on the Feature Selection page.

- **SPI Installation**

Select this option to install the Infrastructure SPIs. Selecting this option automatically includes all three Infrastructure SPIs for installation.

- ▶ **Installing the Infrastructure SPIs reports package:** With HPOM for UNIX, HP Reporter is installed on a separate system (connected to HPOM) and therefore the Infrastructure SPIs reports package is a separate installer. To install the package and view reports for your infrastructure follow the instructions in [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

- 11 Click **Next**. The installer starts performing installation checks.
- 12 Follow the on-screen instructions and continue with the installation process using the **Next** and **Install** buttons.

The installation wizard displays the Installer Completed dialog box after you complete the installation.

Click **Done** to complete the installation.

Installing the Infrastructure SPIs through the Command Line Interface

Follow these steps:

- 1 Log on as a root user.
- 2 Insert the Infrastructure SPIs CD/DVD-ROM media into the CD/DVD drive. If necessary, mount the CD/DVD-ROM.
- 3 Run the following command to change your current directory location, according to the operating system of the management server where you are installing the Infrastructure SPIs.

`cd <OMSolaris/ OMLinux/ OMUnix>`
- 4 Type the following command:

`./HPInfraSPI_setup.bin -i console`
- 5 When the prompt, I accept the terms of the License Agreement appears, type **Y** to accept the terms and continue installation.

The installer checks all the Installation Requirements.
- 6 Click **Enter** to continue. A list of components that can be installed appears.
- 7 Click **Enter** to continue.

When the installation is complete, you will receive a message stating that the installation is completed successfully.

Unattended Installation

Installation carried out in unattended mode installs all three Infrastructures SPIs and graphs packages (optional) on the management server.

Follow these steps:

- 1 Log on as a root user.
- 2 Insert the Infrastructure SPIs CD/DVD-ROM media into the CD/DVD drive. If necessary, mount the CD/DVD-ROM.
- 3 Run the following command to change your current directory location, according to the operating system of the management server where you are installing the Infrastructure SPIs.

`cd <OMSolaris/ OMLinux/ OMUnix>`
- 4 Type either of the following commands at the command prompt, according to your requirements:
 - For SPI Installation with Graphs package, type:

`HPInfraSPI_setup.bin -DGROUP=WithGraphs -i silent`

The Graphs package requires HP Performance Manager to be already installed on the HPOM server.

- For SPI Installation, type:

```
HPInfraSPI_setup.bin -i silent
```



Installing the Infrastructure SPIs reports package: With HPOM for UNIX, HP Reporter is installed on a separate system (connected to HPOM) therefore the Infrastructure SPIs reports package is a separate installer. To install the package and view reports for your infrastructure follow the instructions in the section [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

The installation process takes place in the background.

The `ovinstallparams_YYYY.MM.DD_hh_mm.ini` file is created in the system temporary directory after you run the installer. The system temporary directory for HP-UX, Linux, and Solaris operating systems is `/tmp`.

After this file is generated, you can use it as an input configuration for silent installation. You can define groups such as *server* and *client* groups to contain features specifically for server side application and client side application. Groups are mutually exclusive, and you can install only one group at a time. The installer displays a group select panel to allow you to select features for a specific group.

Installing the Infrastructure SPIs in a Cluster Environment



The HPOM console does not function properly until you install the Infrastructure SPIs on all the nodes (that are a part of the cluster) in the HPOM cluster.

In a clustered installation of HPOM, it is necessary to keep the installation consistent on all nodes, regardless of the physical cluster nodes it is currently running on. A consistent installation means that all nodes have the same SPIs and HPOM patches installed. A clustered installation also requires a consistent configuration of HPOM on all cluster nodes.

Before installing the Infrastructure SPIs in a cluster environment, make sure that the first node you select to install the Infrastructure SPIs on, is an active cluster node; otherwise the installation on the first node will fail. Subsequently, install the same package on each cluster node. Alternatively, you can save the selection configuration file (ini file created by the installer) on the first node, and use it to install the same set of packages on other cluster nodes.

Installing the Reports Package when HP Reporter is Installed on a Separate System

HP Reporter can be installed on the management server or on a stand-alone Windows server (connected to the HPOM management server).

To install the Infrastructure SPIs reports package when the HP Reporter is installed on a system (stand-alone) other than HPOM management server, run the Infrastructure SPI Reporter msi file on the stand-alone HP Reporter system. You can find the `.msi` file on the Infrastructure SPIs media under the folder **Reports**.

After successful installation of the Infrastructure SPIs reports package, you can access the reports of your infrastructure from the stand alone system.



With HPOM for UNIX, the HP Reporter is always installed on a stand-alone Windows server (connected to the HPOM management server) as HP Reporter can be installed only on a Windows system.

Installing the Graphs Package when HP Performance Manager is Installed on a Separate System

If HP Performance Manager and HPOM are installed on the same system, no separate installation is necessary for the Infrastructure SPIs graphs package. It is installed along with the Infrastructure SPIs if you select the **SPI Installation with Graphs package** option on the Select Features page of the installer.

If HP Performance Manager is installed on a system where HPOM is not installed (stand-alone system), you need to integrate the HP Performance Manager and HPOM systems. For information about how to integrate HP Performance Manager with HPOM for UNIX operating systems, see [Integrating HP Performance Manager with HPOM for UNIX](#) on page 53.

Verifying the Installation

On the HPOM for Windows Management Server

To verify if the installation is successful, check for the following:

- The `<%OvInstallDir%>\Install\InfraSPI` folder is added to the installation directory.
- The related log files are available in the `<%temp%>\HPOvInstaller\HPInfraSPI_<version>` directory.
- The format of the file name of the log file is `HPInfraSPI_<version>_yyyy.MM.dd_xx_yy_HPOvInstallerLog.txt`.

In this instance, `yyyy` indicates the year, `MM` indicates the month, and `dd` indicates the day. The `xx` and `yy` in the file name indicate the time stamp when the last install was performed.

- The installation logs for the installed SPIs are available at: `<%OvInstallDir%>\install\SPIInstallLogs`.

On the HPOM for UNIX Management Server

To verify if the installation is successful, check for the following:

- The log files for HPOM for Linux are available in the `/tmp/HPOvInstaller/HPInfraSPI_<version>` directory
- The log files for HPOM for HP-UX and Solaris are available in the `/var/tmp/HPOvInstaller/HPInfraSPI_<version>` directory.

- The format of the file name of the log file is
HPInfraSPI_<version>_yyyy.MM.dd_xx_yy_HPOvInstallerLog.txt.
In this instance, yyyy indicates the year, MM indicates the month, and dd indicates the day. The xx and yy in the file name indicate the time stamp when the last install was performed.
- The application directory is /opt/OV/ and data directory is /var/opt/OV/.

Disabling Auto-Deployment on a Node on HPOM for Windows

To turn off or disable auto-deployment on a node associated to HPOM for Windows, follow these steps:

- 1 Right-click the node and select **Properties** from the pop-up menu. The node properties window opens.
- 2 Select the **Network** Tab.
- 3 Clear the **Enable Auto Deployment** check box.

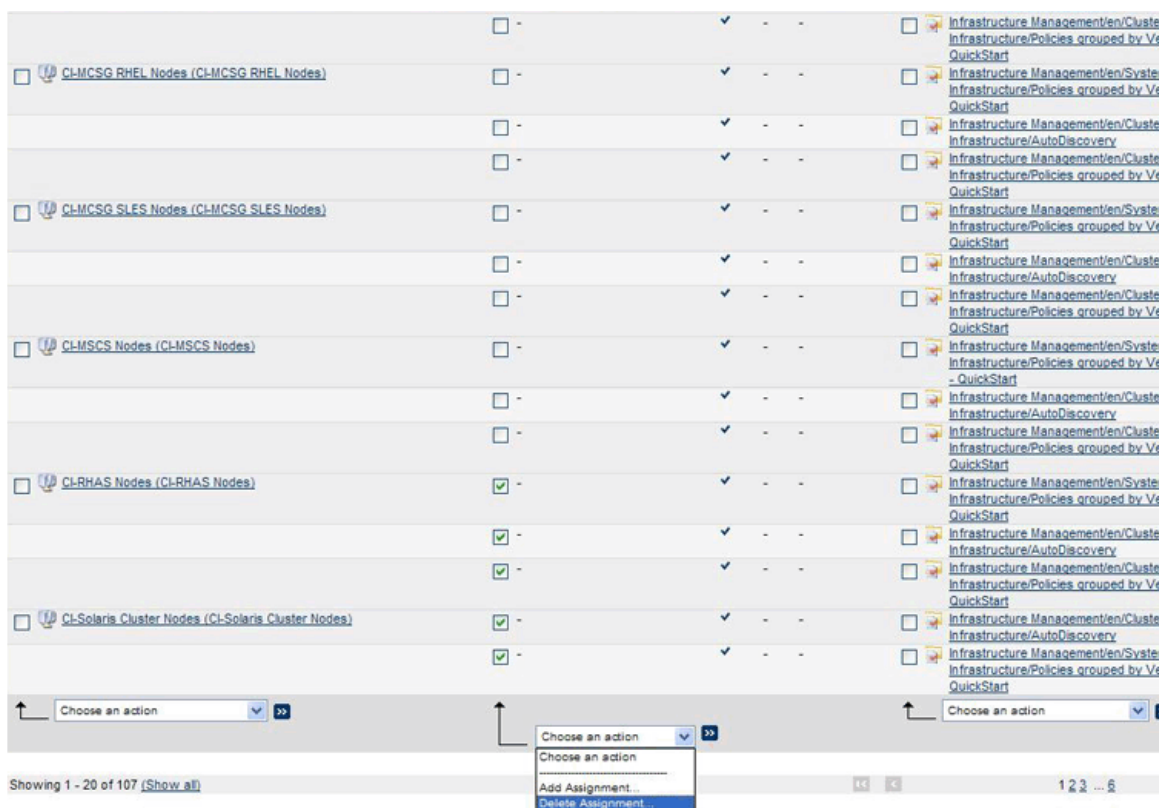
Disabling Auto-Assignment on a Node Group on HPOM for UNIX

To turn off or disable auto-assignment of QuickStart policies on a node group on HPOM for UNIX, follow these steps:

- 1 In the Admin GUI, click **Browse** → **All Policy Assignments**. The All Policy Assignments Window opens.

The node groups and the policies assigned to those node groups are displayed in this window.

- 2 Under the Assignment Mode column select the checkboxes against the desired node groups and choose **Delete Assignments** from the Choose An Action drop down list.



The auto-assignment gets removed from the selected node groups.

Upgrading Infrastructure SPIs to Version 2.00

You can upgrade to Infrastructure SPIs version 2.00 directly from Infrastructure SPIs version 1.00 or version 1.60. After the upgrade, the user interface appears similar to that of a new installation of the Infrastructure SPI 2.00.

For details about the enhancements and updates included in Infrastructure SPIs version 2.00, see the individual SPI (that form Infrastructure SPIs) release notes.

Direct upgrade from VI SPI version 1.00 to Infrastructure SPIs 2.00 is not supported. If you have installed VI SPI version 1.00, you must first uninstall it, then install Infrastructure SPIs version 2.00.

Valid upgrade paths supported by Infrastructure SPIs 2.00 is:

- On HPOM for Windows (8.16 or 9.00), HPOM for HP-UX (9.00 or 9.10), and HPOM for Linux (9.00 or 9.10)
 - Infrastructure SPI 1.60 → Infrastructure SPI 2.00
 - Infrastructure SPI 1.00 → Infrastructure SPI 2.00
 - Infrastructure SPI 1.00 → Infrastructure SPI 1.60 → Infrastructure SPI 2.00
- On HPOM for Solaris 9.00 or 9.10
 - Infrastructure SPI 1.60 → Infrastructure SPI 2.00

Deploying Policies on Nodes

Scenario 1

You want to deploy Infrastructure SPI 2.00 policies on nodes where no previous version of Infrastructure SPI policy is available.

Run the SI-SystemDiscovery policy and then deploy the Infrastructure SPI policies on the new nodes discovered.

Scenario 2

You want to install Infrastructure SPI 2.00 policies on nodes that have older versions of Infrastructure SPI installed.

- 1 Remove all older policies from the nodes and deploy 2.00 policies.
- 2 “Force” deploy latest instrumentation on the nodes to overwrite the existing/older instrumentation.

Upgrading Infrastructure SPIs

To upgrade to Infrastructure SPIs version 2.00 on HPOM, install the Infrastructure SPIs version 2.00. The Infrastructure SPIs installer identifies the presence of an existing version of the Infrastructure SPIs on the management server and upgrades it to the latest version.

For HPOM for Windows, see [Installing on the HPOM for Windows Management Server](#) on page 17 and follow the on-screen instructions while using the GUI.

For HPOM for UNIX, see [Installing on the HPOM for UNIX Management Server](#) on page 21.

Upgrade Results from 1.60 to 2.00

The upgrade action automatically updates the Infrastructure SPIs configurations for policies, tools, and service models, on the management servers.

The current release of the Infrastructure SPIs contains the following changes or additions:

- New Policy groups

The current release contains new policy groupings according to the monitored aspects and the supported vendors. The version-wise policy grouping is now removed.

- Changed Policy Version Number

Infrastructure SPIs policies update to version number 200.0000.

- New Policies for different vendors

- New Node Groups

New node groups are created with the Infrastructure SPIs version 2.00. The upgrade process removes the node groups that were created by older versions of Infrastructure SPI.

- Tools, Graphs, and Reports

After the upgrade, the older versions of tools, graphs, and reports are replaced with the 2.00 version.

Migrating from the Operating System SPIs to the Infrastructure SPIs

Installing the Infrastructure SPIs will result in some changes in Smart Plug-in for Microsoft Windows operating system and Smart Plug-in for UNIX operating system (The Operating System SPIs). The Infrastructure SPI installation disables the policy auto-deployment for the Operating System SPIs.

To migrate from the Operating System SPIs to the Infrastructure SPIs, perform the following tasks:

Task 1: Removing policies for the Operating System SPIs from Managed Nodes on HPOM for Windows

The software suite for Infrastructure SPIs provides you a script to remove policies for the Operating System SPIs from all Windows (excludes windows 2000 server), HP-UX, Linux, AIX, and Solaris managed nodes that are configured on HPOM for Windows.

To run the script on the management server, type the following commands:

```
cd %OvInstallDir%\install\INFRASPI\support\  
cscript Undeploy_OSSPIPolicies.vbs
```

The script removes policies for the Operating System SPIs from the managed nodes but does not remove them from the management server database inventory.

If the managed node is down or unreachable, the policy removal fails. For details see the log file at %OvInstallDir%\install\INFRASPI\log\.



The script can be used to remove policies from managed nodes configured on HPOM for Windows. You must manually remove the policies on managed nodes configured on HPOM for UNIX operating system.

Task 2: Deploying policies for the Infrastructure SPIs

Before deploying or assigning policies to the managed nodes, run the Systems Infrastructure SPI discovery policy.

3 Components of Infrastructure SPIs

After you install the Infrastructure SPIs, you must add nodes that you want to monitor to the management console.

Components of the Infrastructure SPIs on HPOM for Windows

The following Infrastructure SPIs components are available on the HPOM for Windows console.

Services

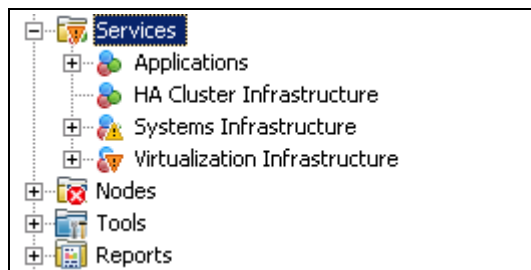
When you add a node to the HPOM for Windows node group, the SI SPI service discovery policy is automatically deployed.

This service discovery policy discovers the systems infrastructure and services on the node, and adds this information to the HPOM Services area.

To view the SI SPI service map, select **Services** → **Systems Infrastructure**. The SI SPI service map graphically represents the discovered systems and instances.

▶ The SI SPI discovery policy and QuickStart policies are auto-deployed on the new nodes (if auto-deployment is enabled) added to the HPOM for Windows server. On the existing nodes, you must manually deploy the SI SPI discovery policy.

The root element for the installed Infrastructure SPIs appears under Services in the HPOM console as displayed in the following image:



Discovery of Virtual Infrastructure

After the SI SPI discovery policy identifies a node as a virtualization node, the VI SPI discovery is auto-deployed. The virtual machines running on those nodes are added under the respective Virtualization Infrastructure node group and the vendor specific QuickStart policies are auto-deployed on those nodes.

The VI SPI discovery policy adds the discovered elements to the HPOM service map. To view the VI SPI service map, select **Services** → **Virtualization Infrastructure**. The VI SPI service map graphically represents the discovered virtual systems.

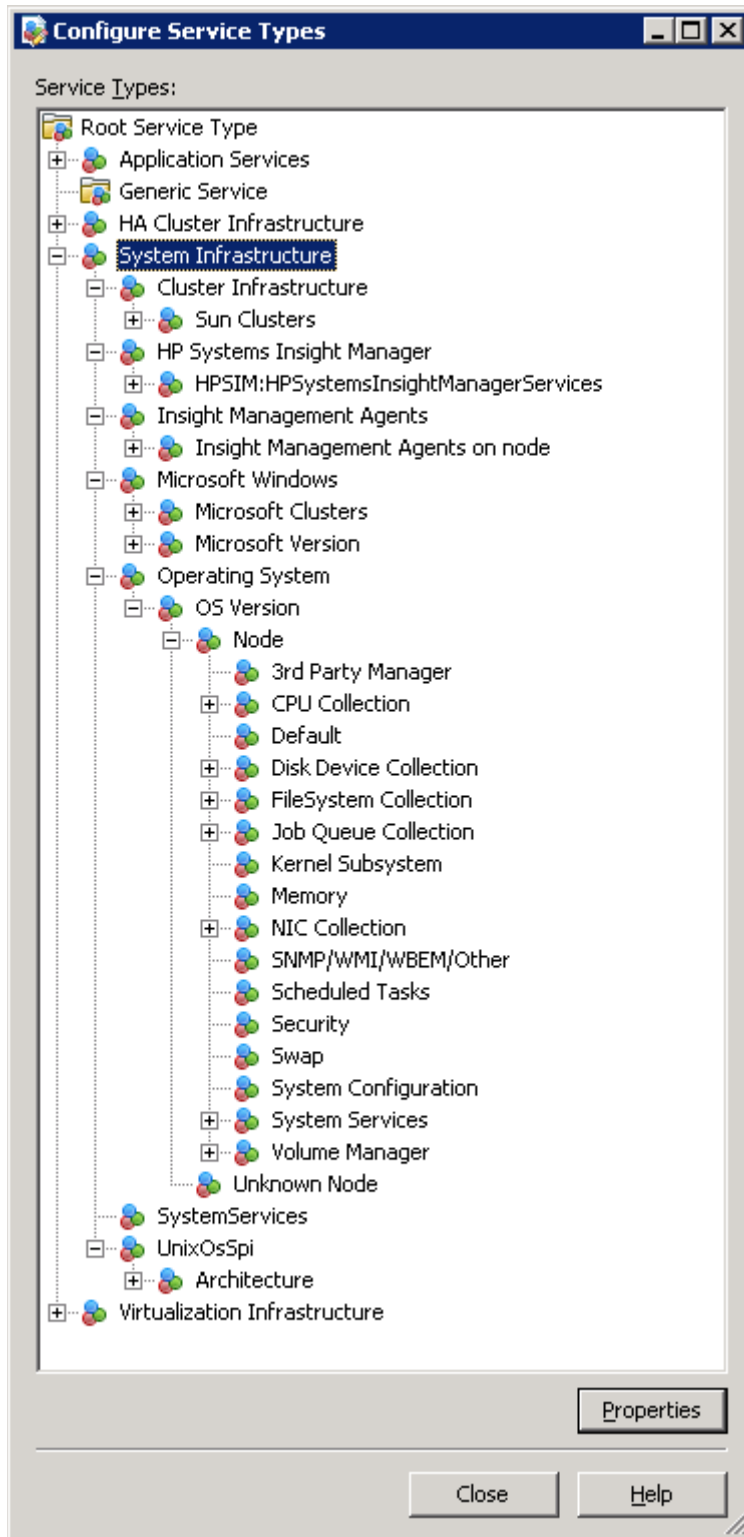
Discovery of Cluster Infrastructure

On HPOM for Windows, if the SI SPI discovery policy identifies the node as a cluster node, it initiates CISPI discovery policy on the node. The CI SPI discovery discovers the clusters, cluster nodes, and resource groups. To view the Cluster Infrastructure SPI service map, select **Services** → **Cluster Infrastructure**.

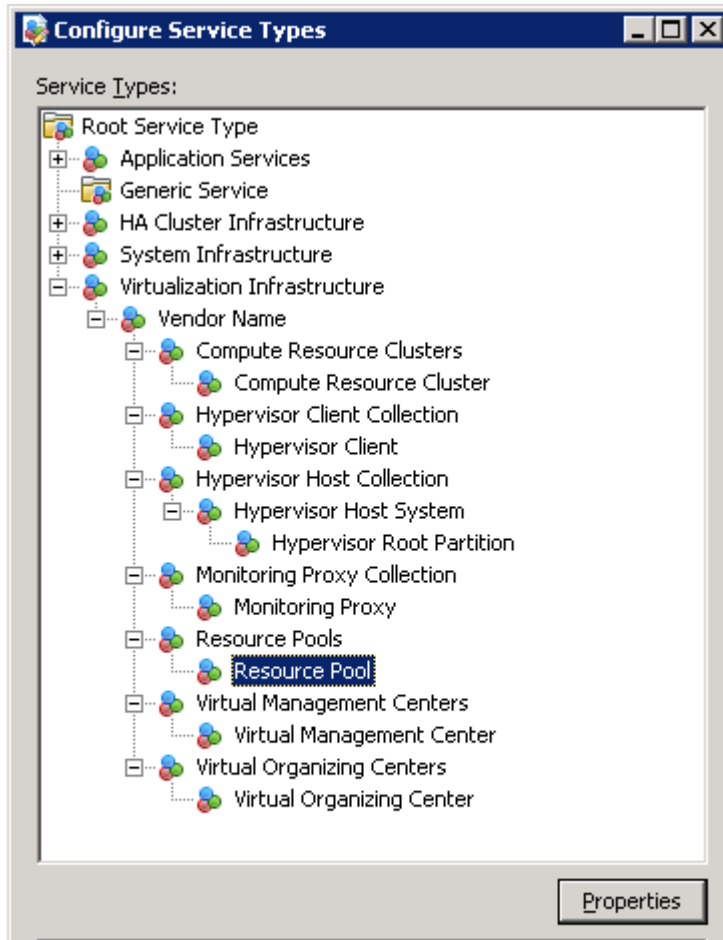
Service Type Models

The service type models display the service type categories that the nodes from node bank are logically assigned to. You can view the service type model in HPOM for Windows.

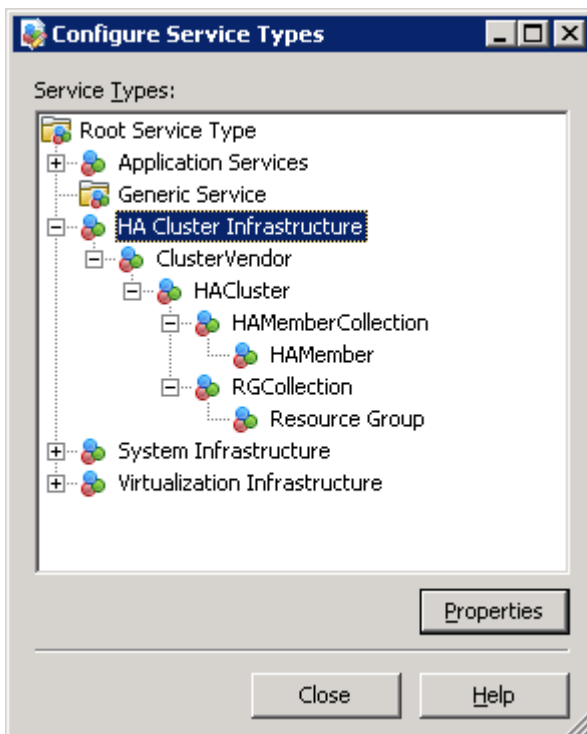
The following image shows the service type model for SI SPI:



The following image displays the service type model for VI SPI

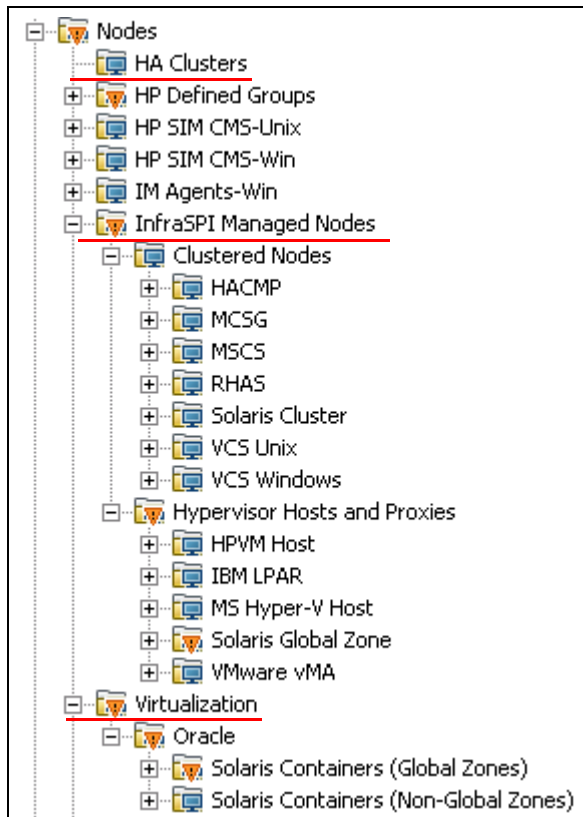


The following image displays the service type model for CI SPI



Node Groups

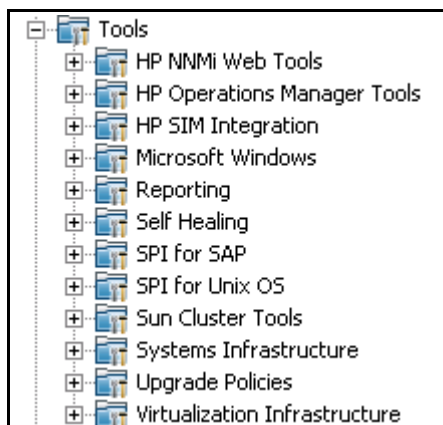
After installing Systems Infrastructure SPI 2.00, the following node groups get added under the console tree **Nodes** folder.



The node group names appear in English even in non-English locales.

Tools

Tools are provided for the SI SPI and VI SPI. You can access the Systems Infrastructure SPI tool group by selecting **Tools** → **Systems Infrastructure**, and the VI SPI tools group by selecting **Tools** → **Virtualization Infrastructure**, as displayed in the following image:.



Policy Management

Under the Infrastructure Management group, the policies are grouped according to language. For example, English policies are grouped under **en**, Japanese policies are grouped under **ja**, and Simplified Chinese policies are grouped under **zh**. The language groups appear according to the language selected at installation time.



The ConfigFile policies SI-ConfigureDiscovery and VI-VMwareEventTypes do not have a localized name. The policy names are same as the English name even in non-English locales.

Further grouping is based on the SI SPI, CI SPI, and VI SPI as selected at the time of installation. Under each SPI, the policies are grouped according to performance, availability, capacity, logs, and events.

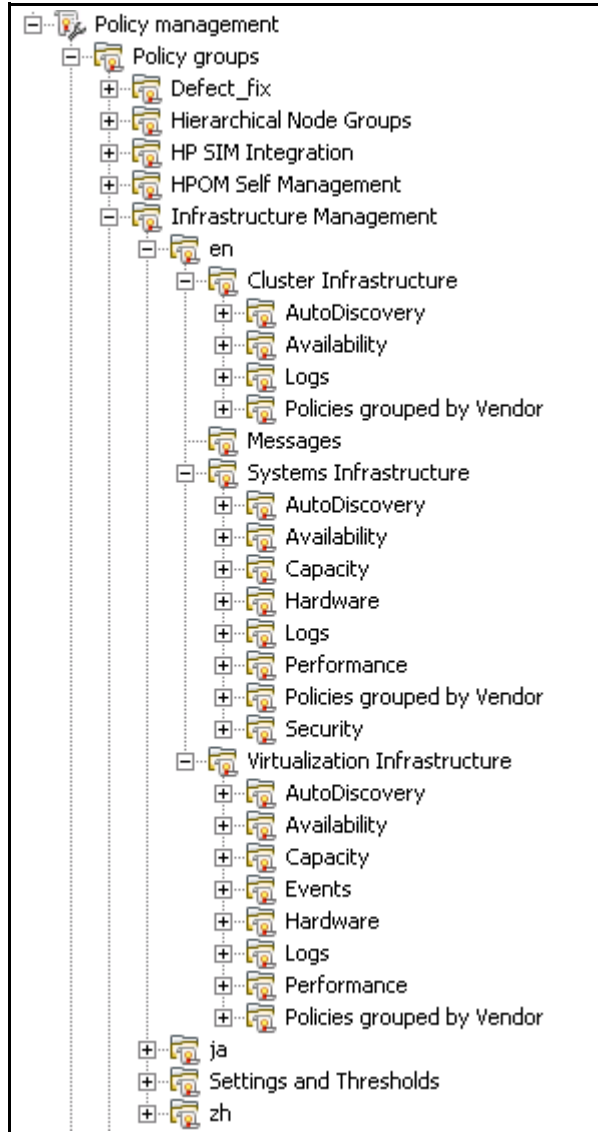
There is also a vendor based policy group. Under this group, the policies are re-grouped based on different operating systems or vendors. The policies grouped by vendor include QuickStart policies and Advanced policies. The QuickStart policies are automatically deployed on the supported managed nodes once they are added to the node respective node groups. You can choose to turn off automatic deployment of policies when services are discovered. In addition, you can modify and save preconfigured policies with new names to create custom policies for your own specialized purposes. For information about deploying QuickStart policies, see the section [Deploying Quick Start Policies from HPOM for UNIX](#) on page 50.

To view and access the Systems Infrastructure SPI policies, select **Policy management** → **Policy groups** → **Infrastructure Management** → *<language>* → **Systems Infrastructure**.

To view and access the VI SPI policies, select **Policy management** → **Policy groups** → **Infrastructure Management** → *<language>* → **Virtualization Infrastructure**.

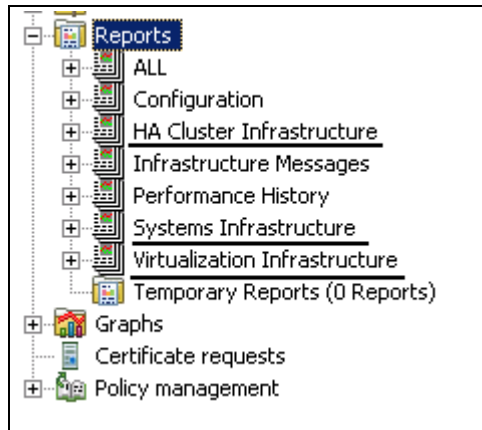
To view and access the Cluster Infrastructure SPI policies, select **Policy management** → **Policy groups** → **Infrastructure Management** → *<language>* → **Cluster Infrastructure**.

Figure 1 Policy groups for Infrastructure SPIs.



Reports

If HP Reporter is installed on the HPOM for Windows management server (32-bit), you can view the Reports group from the HPOM for Windows console.

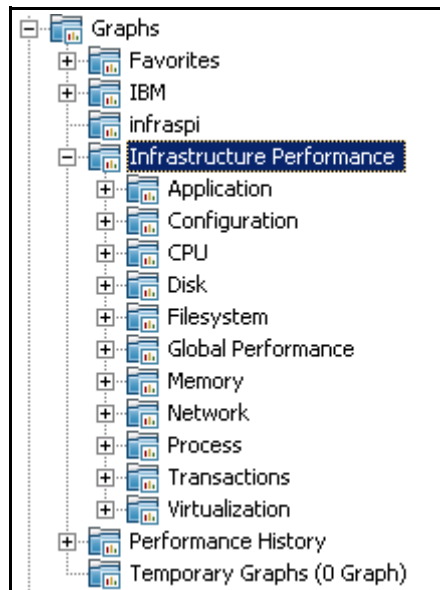


For 64-bit HPOM servers, to view reports, you must install HP Reporter on a separate system. See the section [Installing the Reports Package when HP Reporter is Installed on a Separate System](#) on page 24.

Graphs

A set of preconfigured graphs is provided with the SI SPI and the VI SPI. To access the graphs from the HPOM console, you must install HP Performance Manager on the HPOM management server prior to the installation of the Infrastructure SPI graphs package.

You can access the SI SPI graphs by selecting **Graphs**→ **Infrastructure Performance**, and the VI SPI graphs by selecting **Graphs**→ **Infrastructure Performance** → **Virtualization**, as displayed in the following image:



Alternatively, if HP Performance Manager is installed on a separate (stand-alone) system connected to the HPOM management server, you can view the graphs on the HP Performance Manager stand-alone system.

Components of the Infrastructure SPIs on HPOM for UNIX

The following Infrastructure SPIs components are available on the HPOM for UNIX (HP-UX, Linux, and Solaris) Admin UI:

Services

The SI-service discovery policy discovers the systems infrastructure and services on the node and adds this information to the HPOM Services area. Use Java GUI to view the service map and the Operator's console. You must install Java GUI on a separate system.

Discovery of Virtual Infrastructure

After the Systems discovery has identified a node as a virtualization node, the VI SPI discovery is auto-deployed. The virtual machines running on those nodes are added under the respective Virtualization Infrastructure node group and the vendor specific QuickStart policies are auto-assigned on those nodes.

The VI SPI discovery policy discovers the virtual machines (guest machines) hosted on the managed nodes (host machines), and adds this information to the HPOM Services area. Select **Services** → **Virtualization Infrastructure** → **Show Graph** to view the VI SPI service map. The service map graphically represents the discovered virtual systems.

Discovery of Cluster Infrastructure

For the cluster nodes that are added to the HPOM for HP-UX, Linux, or Solaris node bank, manually deploy the CI SPI service discovery. The CI SPI discovery discovers the clusters, cluster nodes, and resource groups. Select **Services** → **Cluster Infrastructure** → **Show Graph**, to view the CI SPI service map.

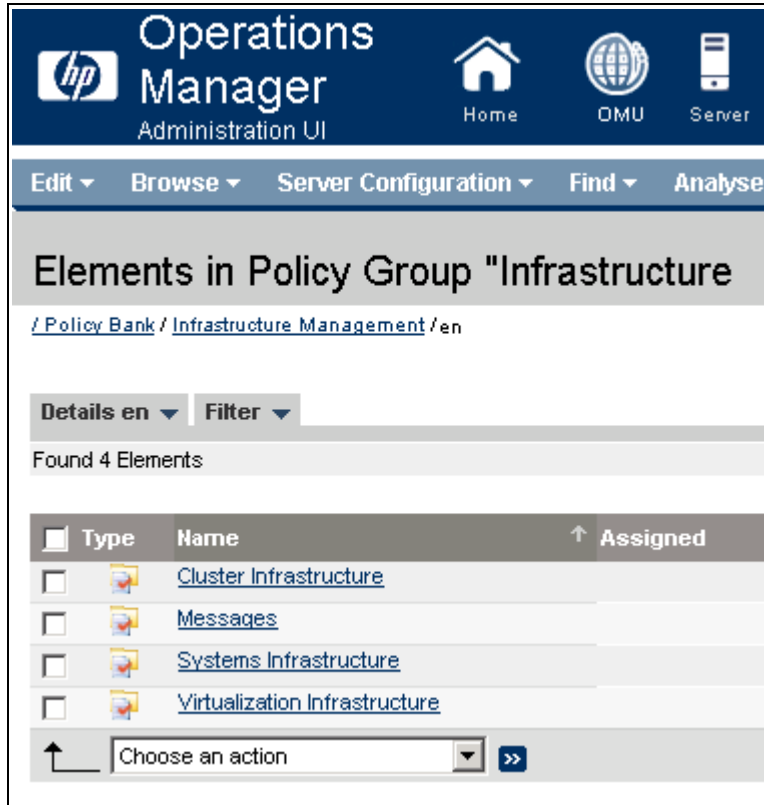
Policy Management

Under the Infrastructure Management group, the policies are grouped according to the language. For example, English policies are grouped under **en**, Japanese policies and grouped under **ja**, and Simplified Chinese policies are grouped under **zh**. The language groups appear according to the language selected at installation time.

There is also a vendor based policy group. Under this group, the policies are re-grouped based on different operating systems or vendors. The policies grouped by vendor include QuickStart policies and Advanced policies. The QuickStart policies are automatically assigned to the managed nodes after they are added to the respective node groups. You can manually deploy these policies on the nodes. For information on deploying QuickStart policies, see the section [Deploying Quick Start Policies from HPOM for UNIX](#) on page 50.

You can also modify and save preconfigured policies with new names to create custom policies for your own specialized purposes.

The following image displays the policy grouping for English locales.



To view and access the SI SPI policies, select **Policy Bank** → **Infrastructure Management** → **<language>** → **Systems Infrastructure**.

To view and access the VI SPI policies, select **Policy Bank** → **Infrastructure Management** → **<language>** → **Virtualization Infrastructure**.

To view and access the CI SPI policies, select **Policy Bank** → **Infrastructure Management** → **<language>** → **Cluster Infrastructure**.

Tools

The Infrastructure SPIs provides tools for the SI SPI and the VISPI. You can access the SI SPI tool group by selecting the **Tool Bank** → **Systems Infrastructure**, and the VI SPI tools group by selecting **Tool Bank** → **Virtualization Infrastructure**, as displayed in the following image:

Operations Manager
Administration UI

Home OMU Server Admin Help

Edit Browse Server Configuration Find Analyse Deployment

Tool Bank

Filter

Found 20 Elements

A B C D E F G H I J K

<input type="checkbox"/>	Type	Label	Name
<input type="checkbox"/>		Certificate Tools	Certificate Tools
<input type="checkbox"/>		OV Composer	Correlation Composer
<input type="checkbox"/>		Distr NNM Admin Tools	Distr NNM Admin Tools
<input type="checkbox"/>		NNM Admin Tools	NNM Admin Tools
<input type="checkbox"/>		NNM-ET Views	NNM-ET Views
<input type="checkbox"/>		NNMi	NNMi
<input type="checkbox"/>		NT Tools	NT Tools
<input type="checkbox"/>		OM License Tools	OMU License Tools
<input type="checkbox"/>		Performance Agent	Performance Agent
<input type="checkbox"/>		Systems Infrastructure	SISPI
<input type="checkbox"/>		SSP Tools	SSP Tools
<input type="checkbox"/>		UN*X Tools	UN*X Tools
<input type="checkbox"/>		Virtualization Infrastructure	Virtualization Infrastructure
<input type="checkbox"/>		X-OVw	X-OVw
<input type="checkbox"/>		Broadcast	Broadcast
<input type="checkbox"/>		HPOM Status	HPOM Status

Choose an action

Reports

On HPOM for HP-UX, Linux, and Solaris operating systems, HP Reporter is installed on a separate (stand-alone) system connected to the management server. You can view the reports on the HP Reporter stand-alone system.

For more information about the integration of HP Reporter with HPOM, see the *HP Reporter Installation and Special Configuration Guide*.

Graphs

The Infrastructure SPIs provide graphs for the SI SPI and the VI SPI. To generate and view graphs from data collected, you must use HP Performance Manager in conjunction with HPOM.

To access the graphs, select the active message, open the Message Properties window, and click **Actions**. Under the Operator initiated action section, click **Perform**. Alternatively you can, right-click active message, select **Perform/Stop Action** and click **Perform Operator-Initiated Action**.

If HP Performance Manager is installed on the management server, you can launch and view graphs on the management server. If HP Performance Manager is installed on a separate (stand-alone) system connected to the HPOM management server, you can view the graphs on the HP Performance Manager stand-alone system.

For information about how to integrate the HP Performance Manager with HPOM for HP-UX, Linux, and Solaris operating systems, see [Integrating HP Performance Manager with HPOM for UNIX](#) on page 53.

4 Getting Started

After you install the infrastructure SPIs on the HPOM for Windows management server or HPOM for UNIX management server, you must complete the tasks required to manage your infrastructure.

The deployment checklist summarises the tasks that you must complete before you start deploying the policies.

Table 1 Deployment Checklist

Complete (Y/N)	Tasks
	Verify that you have installed HPOM 9.10 on the management server. In addition, verify that HP Operations Agent version 11.00 and above is installed. Make sure that you have installed all the available patches and hotfixes for HPOM and HP Operations agent.
	Verify that you have Performance Manager and HP Reporter installed to generate the graphs and reports.
	If you use VI SPI to monitor VMware environment, make sure vMA appliance is created and the recommended resource configuration is used.
	If you use VI SPI to monitor VMware environment, make sure ESX/ESXi hosts and vCenter servers are added to vMA.
	Make sure that you give sufficient time to HP Operations agent to collect the metrics before you start deploying the monitoring policies.

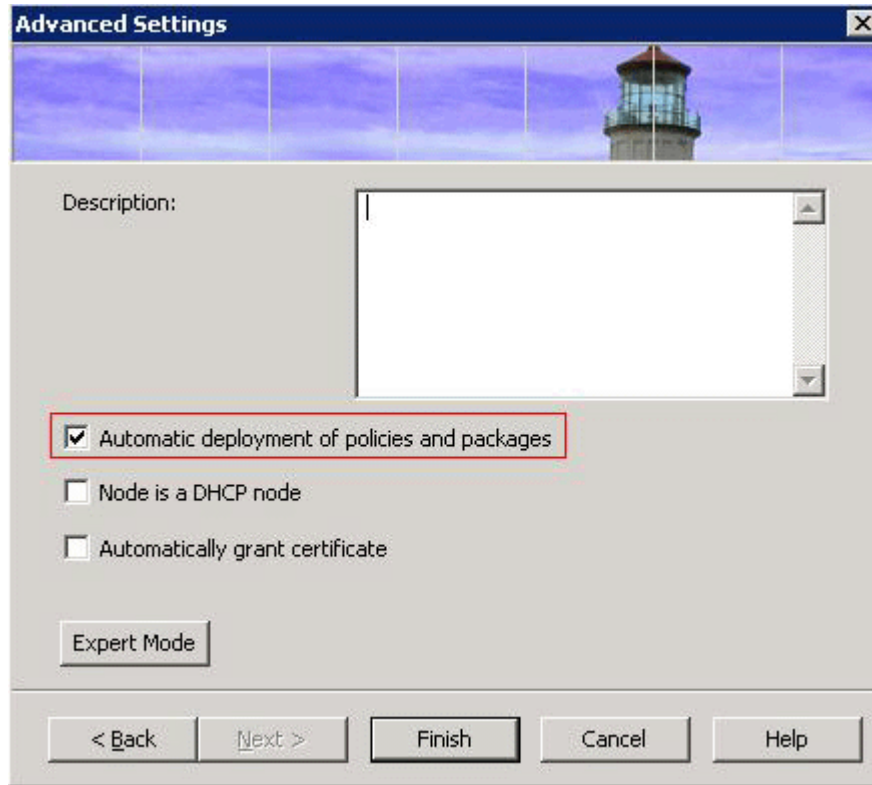
On HPOM for Windows

Follow the steps to getting started on HPOM for Windows.

Starting the SI SPI

After you install the SI SPI on the HPOM for Windows management server, follow the steps:

- 1 Add the nodes that you want to monitor. When adding the nodes, the option of **automatic deployment of policies and packages** is selected by default as shown in the following image.



This option enables autodeployment of the following policies on the managed node:

- SI-SystemDiscovery
- InfraSPI-Messages
- OPC_OPCMON_OVERRIDE_THRESHOLD
- OPC_PERL_INCLUDE_INSTR_DIR
- AUTO_ADDITION_SETTINGS

In case of existing nodes (that were added before the installation of Infrastructure SPIs), or where the **automatic deployment of policies and packages** check box was cleared while adding the managed node, manually deploy these policies.

2 To access and deploy the policies (in any order) on the managed nodes, follow these options in any order:

- Select **Policy management** → **Policy groups** → **Infrastructure Management** → *<language>* → **Messages**, and deploy InfraSPI-Messages policy.
- Select **Policy management** → **Policy groups** → **Infrastructure Management** → *<language>* → **Systems Infrastructure** → **AutoDiscovery**, and deploy SI-SystemDiscovery policy.
- Select **Policy management** → **Policy groups** → **Infrastructure Management** → **Settings and Thresholds** → **Agent Settings**, and deploy the following policies:
 - AUTO_ADDITION_SETTINGS
 - OPC_OPCMON_OVERRIDE_THRESHOLD
 - OPC_PERL_INCLUDE_INSTR_DIR



To automatically add guest virtual machines, set the `AutoAdd_Guests` parameter in the `AUTO_ADDITION_SETTINGS` policy to **True**. It is set as `False` by default.

Starting the VI SPI

To get started with discovering the virtualized infrastructure, the first step is to run the SI SPI discovery.

Plan the Virtualized Infrastructure

For monitoring VMware environment, follow these steps:

- 1 Add the ESX/ESXi hosts as targets to the vMA.
Run the command `vifp addserver <ESX host>`.
- 2 To monitor events from vCenter, add vCenter as target to vMA.
Run the command `vifp addserver <vCenter>`.



For a single vMA, HP Operations agent can monitor the maximum of 20 ESX hosts and 400 instances (ESX/ESXi ,VMs, resource pools, VCenter).

Prerequisites for Deploying VI SPI Policies

Before deploying the VI SPI policies, ensure the following:

- Install the latest HPOM patches. Make sure to check if you have installed OMW_000120 or higher patches.
- HP Performance Agent or HP Operation agent 11.00 is installed and running.
- “**logicalsystems**” is appended to the `parm` file on vMA and HyperV host. Follow these steps:

a On UNIX hosts, go to the directory `/var/opt/perf` and open the `parm` file.

b Append the text **logicalsystems** at the end of the following line:

```
application process device=disk,cpu,filesystem transaction
logicalsystems
```

If you want to monitor the WPARs as well, append **logicalsystems=all**.

On Windows hosts, `<drive>:\ProgramData\HP\HP BTO Software` and open the `parm.mwc` file. Append **logicalsystems** if not already present.

c For VMware, modify the settings in the `viserver.properties` file on vMA.

```
jvmArgs=-Xms512m -Xmx1024m -classpath .....
```

```
kill -9 <pid of viserver>
```

```
go to directory /var/opt/perf
```

```
rm -rf .viserver.lock
```

d Restart PA or HP Operations agent 11.00 and above.

```
Run the command ovpa restart
```

Wait for 10 to 15 minutes for collection to start.

Run the following command to check if BYLS data is being collected:

```
ovcodutil -dumpds scope | grep BYLS
```

e On the node, run the command to update the instance deletion threshold value :

```
ovconfchg -ns agtrep -set
INSTANCE_DELETION_THRESHOLD 3
```

```
ovconfchg -ns agtrep -set
RESEND_RELATIONSHIP_INSTANCES TRUE
```

By default, the threshold value is set to 5.

- f On the server, to update and increase the action agent timeout value, run the following command:

```
ovconfchg -ns eaagt -set OPC_KILL_AUTO_ACTION_TIMEOUT 4000
```

By default, the value is set to 600.

For more information about the commands, see *HPOM Online Help*.

- The Agent settings available under **Infrastructure Management** → **Settings and Thresholds** are deployed on the virtualized nodes (hypervisors and managed proxies.)
- Infrastructure SPI messages from the messages policy groups are deployed on the virtualized nodes (hypervisors and managed proxies.)

Make sure that HP Performance Manager is installed (to view graphs) on the HPOM server.

Running the Discovery Policies

After the SI SPI discovery has identified a node as a virtualization node, the VI SPI discovery is auto-deployed. The virtual machines running on those nodes are added under the respective Virtualization Infrastructure node group and the vendor specific QuickStart policies are auto-deployed on those nodes.

The discovered managed nodes are regrouped in the console tree under the following Node folders:

- **Nodes** → **InfraSPI Managed Nodes** → **Hypervisor Hosts and Proxies**
- **Nodes** → **Virtualization** → *<vendor name>*

The VI SPI discovery policy adds the discovered elements to the HPOM service map. Select **Services** → **Virtualization Infrastructure**, to view the VI SPI service map.



If the discovery map for virtualization is not appearing, see [Problem: Discovery map for VI SPI is not appearing](#), on page 63.

Starting the CI SPI

To get started with discovering cluster infrastructure, the first step is to run the SI SPI discovery.

Prerequisites for Deploying CI SPI Policies

Before deploying the CI SPI policies, ensure the following:

- 1 Install the latest HPOM patches. Make sure to check if you have installed OMW_000120 or higher patches.
- 2 On the cluster node, run the command to update the instance deletion threshold value:

```
ovconfchg -ns agtrep -set
```

```
INSTANCE_DELETION_THRESHOLD 3
ovconfchg -ns agtrep -set
RESEND_RELATIONSHIP_INSTANCES TRUE
```

By default, the threshold value is set to 5.

For more information about the commands, see *HPOM Online Help*.

Running the Discovery Policies

If you add a cluster node on HPOM for Windows, the SI SPI automatically adds the cluster nodes and resource groups in the node bank. The cluster nodes are regrouped in the console tree under the following Node folders:

- **Nodes** → **HA Clusters** → **Clustered Nodes**
- **Nodes** → **HA Clusters** → *<cluster name>* → **Nodes**

The resource groups are regrouped in the console tree under the following Node folders:

Nodes → **HA Clusters** → *<cluster name>* → **Resource Groups**

After adding the nodes in console tree Nodes folder, the SI SPI initiates CI SPI discovery policy.

The CI SPI discovery policy adds the discovered elements to the HPOM service map. Select **Services** → **HA Cluster Infrastructure**, to view the CI SPI service map that graphically represents the discovered cluster infrastructure.



If the discovery map for CI SPI is not appearing, see [Problem: Discovery map for CI SPI is not appearing](#), on page 63.

Deploying Quick Start Policies from HPOM for Windows

After the SI SPI discovery runs successfully, the discovered nodes are automatically added to the relevant Infrastructure SPI node groups.

By default, QuickStart policies are assigned to these node groups. When a node is added to the node group, these QuickStart policies get automatically deployed to the managed nodes (if policy autodeployment is enabled).

After the infrastructure is discovered and the service map is populated on the HPOM for Windows management server, the QuickStart policies are automatically deployed to the managed nodes (if policy autodeployment is enabled). Available for all three Infrastructure SPIs, QuickStart policies get you started immediately without having to spend much time customizing settings. Autodeployment of policies is enabled by default. You can choose to turn off automatic deployment of policies when services are discovered. In addition, you can modify and save preconfigured policies with new names to create custom policies for your own specialized purposes.

The advanced policies are used in specific scenarios. You can manually deploy these policies as required.

If you turned off autodeployment of policies, you can manually deploy the QuickStart policies by accessing either of the two policies grouping provided by the Infrastructure SPIs. The groupings are based on monitored aspects and vendor and operating system. The monitored aspects based grouping helps you to access and deploy policies to monitor performance, availability, capacity, logs, and security aspects across multiple operating systems. For example, to monitor availability of scheduled job service on your infrastructure, expand:

Infrastructure Management → *<language>* → Systems Infrastructure → Availability → Scheduled Job Service

The **Policies grouped by Vendor** help you to quickly access the policies relevant to your operating system at one place. For example, to access SI-RHELCronProcessMonitor policy for deploying it on a managed node, expand:

Infrastructure Management → *<language>* → Systems Infrastructure → Policies grouped by Vendor → RHEL - QuickStart Policies → SI-RHELCronProcessMonitor

On HPOM for UNIX

Follow the steps for getting started with the Infrastructure SPIs on HPOM for UNIX (HP-UX, Linux, and Solaris).

Before you start, make sure that you have installed the latest patches and hotfixes.

Table 2 List of the Patches

HPOM for HP-UX	HPOM for Linux	HPOM for Solaris
OMU_00042.rpm	OML_00042.rpm	OMS_00042.rpm
OMU_00043.rpm	OML_00043.rpm	OMS_00043.rpm
OMU_00044.rpm	OML_00044.rpm	OMS_00044.rpm
OMU_00045.rpm	OML_00045.rpm	OMS_00045.rpm

Starting the SI SPI

To add managed nodes and to deploy the SI SPI discovery policy, follow these steps:

- 1 Add the nodes that you want to monitor on the management server. These nodes appear in the Node Bank.

SI SPI creates the SI-Deployment node group and auto-assigns the following policies to the node group:

- SI-SystemDiscovery
- SI-ConfigureDiscovery
- InfraSPI-Messages
- OPC_OPCCMON_OVERRIDE_THRESHOLD
- OPC_PERL_INCLUDE_INSTR_DIR
- AUTO_ADDITION_SETTINGS

- 2 Add the managed nodes to the SI-Deployment node group.
- 3 Deploy (distribute) the assigned policies and Infrastructure SPI instrumentation on the managed nodes. For information about SI SPI policies and how to deploy the policies, see the *Systems Infrastructure Smart Plug-in User Guide*.



To automatically add guest virtual machines, set the `AutoAdd_Guests` parameter in the `AUTO_ADDITION_SETTINGS` policy to **True**. It is set as `False` by default.

Starting the VI SPI

To get started with discovering the virtualized infrastructure, the first step is to run the SI SPI discovery.

Plan the Virtualized Infrastructure

For monitoring VMware environment, follow these steps:

- 1 Add the ESX/ESXi hosts as targets to the vMA.
Run the command `vifp addserver <ESX host>`.
- 2 To monitor events from vCenter, add vCenter as target to vMA.
Run the command `vifp addserver <vCenter>`.



For a single vMA, HP Operations agent can monitor the maximum of 20 ESX hosts and 400 instances (ESX/ESXi ,VMs, resource pools, vCenter).

Prerequisites for Deploying VI SPI Policies

- 1 Install the latest HPOM patches. Make sure to check if you have installed the patches as documented in the list.
- 2 On node, run the command to update the instance deletion threshold value:

```
ovconfchg -ns agtrep -set
INSTANCE_DELETION_THRESHOLD 3
ovconfchg -ns agtrep -set
RESEND_RELATIONSHIP_INSTANCES TRUE
```

By default, the threshold value is set to 5.

For more information about the commands, see *HPOM Online Help*.

Running the Discovery Policies on the Virtualized Infrastructure

To get started with discovering the virtualized infrastructure, the first step is to deploy the SI-SystemDiscovery policy on the nodes. As VI SPI discovery policies are not auto deployed, one or more auto messages are sent to HPOM. These messages include the auto action to add the nodes to InfraSPI node groups. For example, for VMware, the Auto-Add messages add the virtualization nodes (eg, ESX/ESXi hosts, vCenter, and vMA) to Virtualization node group. The node is added as VI-VMwareESX Hosts, VI-VMware vCenter, and so on.

The vendor specific QuickStart policies are auto-assigned on those nodes. After the nodes are added to these node groups, you have to deploy the auto-assigned policies on the nodes. Also, deploy VI discovery policy on the node. The virtual machines running on those nodes are added under the respective Virtualization Infrastructure node group.

The discovered managed nodes are regrouped in the console tree as **Nodes** → **Virtualization** → *<vendor name>*.

The VI SPI discovery policy adds the discovered elements to the HPOM service map. The service map graphically represents the discovered virtual infrastructure.



If the discovery map for virtualization is not appearing, see [Problem: Discovery map for VI SPI is not appearing](#), on page 63.

Starting the CI SPI

To get started with discovering cluster infrastructure, the first step is to run the SI SPI discovery policy (SI-SystemDiscovery policy).

Prerequisites for Deploying CI SPI Policies

Before deploying the CI SPI policies, ensure the following:

- 1 Install the latest HPOM patches. Make sure to check if you have installed OMW_000120 or higher patches.
- 2 On the cluster node, run the command to update the instance deletion threshold value:

```
ovconfchg -ns agtrep -set
INSTANCE_DELETION_THRESHOLD 3
ovconfchg -ns agtrep -set
RESEND_RELATIONSHIP_INSTANCES TRUE
```

By default, the threshold value is set to 5.

For more information about the commands, see *HPOM Online Help*.

Running the Discovery Policies on the Cluster Infrastructure

The SI SPI discovery adds the cluster nodes to the relevant cluster node groups.

For example if the node is MCSG cluster on HP-UX, the cluster nodes get added to **SISPI-HPUX** and **CISPI-MCSG** HPUX node groups. In case of resource group, it will add it to **CI-Resource Group** node group.

After the cluster nodes get added to the respective node groups, deploy the auto-assigned policies to the cluster nodes. Deploy the CI SPI discovery policy (CI- Discovery) and other quick start policies to the cluster nodes.

The CI SPI discovery policy adds the discovered elements to HPOM service map. You can view the CI SPI service map that graphically represents the discovered cluster infrastructure.



If the cluster infrastructure discovery map is not appearing, see [Problem: Discovery map for CI SPI is not appearing](#). on page 63.

Deploying Quick Start Policies from HPOM for UNIX

After the SI SPI discovery runs successfully, the discovered nodes are automatically added to the relevant Infrastructure SPI node groups.

By default, QuickStart policies are assigned to these node groups. When a node is added to the node group, these QuickStart policies get assigned to the node automatically. You must then deploy these policies manually on the node by selecting **Deploy Configuration** from the **Actions** menu in the Admin GUI.

Available for all three Infrastructure SPIs, QuickStart policies get you started immediately without having to spend much time customizing settings. Automatic assignment of policies is enabled by default.


The groupings are based on *monitored aspects* and *operating systems/vendor*. The monitored aspects based grouping helps you to access and deploy policies to monitor performance, availability, capacity, logs, and security aspects across multiple operating systems. For example, to monitor the availability of a scheduled job service on your infrastructure, select:






/ Policy Bank / Infrastructure Management / en / Systems Infrastructure / Availability / Scheduled Job Service

The policies grouped by operating system and vendor help you to quickly access the policies relevant to your operating system at one place. For example, to access SI-CPUSpikeCheck policy for deploying it on a managed node, select:

/ Policy Bank / Infrastructure Management / en / Systems Infrastructure / Policies grouped by Vendor / RHEL - QuickStart Policies

Policies grouped by operating system include two sub groups: QuickStart and Advanced. The QuickStart group includes the policies that are used most often. The advanced policies like the disk utilization policy and the disk capacity monitor policy are used in specific scenarios. The following figure shows the policies grouped by vendor and the subgroups for QuickStart and Advanced policies.


Operations Manager
 Administration UI

 Home
  OMU
  Server
  Admin
  Help





































Edit ▾ Browse ▾ Server Configuration ▾ Find ▾ Analyse ▾ Deployment ▾


Elements in Policy Group "Infrastructure Management/Infrastructure/Policies grouped by Vendor"

[/ Policy Bank](#) / [Infrastructure Management](#) / [en](#) / [Systems Infrastructure](#) / [Policies grouped by Vendor](#)

Details Policies grouped by Vendor ▾ Filter ▾

Found 12 Elements

<input type="checkbox"/>	Type	Name	↑	Assigned	Latest	Mode	Sm
<input type="checkbox"/>		AIX - Advanced Policies				 	
<input type="checkbox"/>		AIX - QuickStart Policies				 	
<input type="checkbox"/>		HP-UX - Advanced Policies				 	
<input type="checkbox"/>		HP-UX - QuickStart Policies				 	
<input type="checkbox"/>		MS Windows - Advanced Policies				 	
<input type="checkbox"/>		MS Windows - QuickStart Policies				 	
<input type="checkbox"/>		RHEL - Advanced Policies				 	
<input type="checkbox"/>		RHEL - QuickStart Policies				 	
<input type="checkbox"/>		SLES - Advanced Policies				 	
<input type="checkbox"/>		SLES - QuickStart Policies				 	
<input type="checkbox"/>		Solaris - Advanced Policies				 	
<input type="checkbox"/>		Solaris - QuickStart Policies				 	

Choose an action ▾ 

Viewing Reports and Graphs

To generate and view reports and graphs from data collected by the Infrastructure SPIs, you must use HP Reporter and HP Performance Manager, respectively, in conjunction with HPOM. The Infrastructure SPIs collect and store reporting and graphing data in a data store. The data store can be CODA (HP Operations agent's data store—also known as embedded performance component) or HP Performance Agent.

For VI SPI reporting and graphing, HP Performance Agent must be installed on the managed node.

To view graphs on HPOM for HP-UX, Linux, or Solaris you need to first integrate HP Performance Manager with the HPOM management server.

Integrating HP Performance Manager with HPOM for UNIX

To integrate HPOM for UNIX (HP-UX, Linux, or Solaris) server with HP Performance Manager, follow these steps:

- If HP Performance Manager is installed on the HPOM server, run the following command:

```
# /opt/OV/contrib/OpC/OVPM/install_OVPM.sh
```

```
install_OVPM.sh <nodename>:<port>
```

```
Example: install_OVPM.sh test.ovtest.com:8081
```

- If HP Performance Manager is installed on a remote system connected to the HPOM server, follow these steps:
 - a Copy the graph templates from the remote system where HP Performance Manager is installed to the HPOM server. To learn about the graph types and their location on the system, see *HP Performance Manager Administrator Guide*.

- b Run the following command on the HPOM server:

```
# /opt/OV/contrib/OpC/OVPM/install_OVPM.sh
```

```
install_OVPM.sh <nodename>:<port>
```

```
Example: install_OVPM.sh test.ovtest.com:8081
```

These steps set the host system configuration for HP Performance Manager, that is used when launching graphs from events in the HPOM operator GUI.

Updating Reports after Upgrading the SPI

After the upgrade, the existing report files are replaced with the new report files. Run the following command to update the reports.

- a Go to the **Start** menu.
- b Select **Run**.
- c At the prompt, type the command **repcrys** and click **Ok**.

Confirm that all the reports on the management server are in sync with the reports on the HP Reporter GUI. Click the **Reporter Status** tab in the Reporter GUI to check for the number reports sent to the console and also for any error message.

Data Collection for Reports

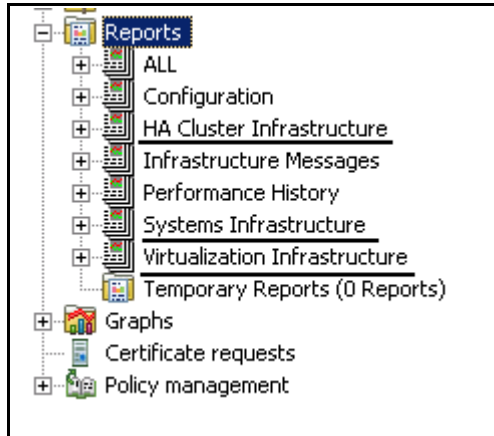
With the VI SPI, data collection for reports does not depend on policy deployment. The data is collected by the HP Performance Agent deployed on the managed nodes.

The reports provided for the SI SPI and the CI SPI depend on policies. The following table lists the reports and policies that are required to be deployed on the managed node to collect data for corresponding reports.

Reports	Policies	Managed Node Platform	SPI
Last Logins/ Unused Logins	SI-MSWindowsLastLogonsCollector	Windows	Systems Infrastructure
Last Logins/ Unused Logins	SI-LinuxLastLogonsCollector	Linux	Systems Infrastructure
Failed Login	SI-MSWindowsFailedLoginsCollector	Windows	Systems Infrastructure
Failed Login	SI-UNIXFailedLoginsCollect	Linux, HP-UX, AIX, Solaris	Systems Infrastructure
Cluster Configuration	CI-ClusterDataCollector	Solaris Cluster, VCS Clusters, Service Guard, RHEL Cluster	Cluster Infrastructure
Cluster Uptime	CI-ClusterDataCollector	Solaris Cluster, VCS Clusters, Service Guard, RHEL Cluster	Cluster Infrastructure
Cluster System Availability	CI-ClusterDataCollector	Solaris Cluster, VCS Clusters, Service Guard, RHEL Cluster	Cluster Infrastructure

To view reports for the Infrastructure SPIs from HPOM for Windows, expand **Reports** → **Infrastructure Management** → **<Systems/ HA Cluster/ Virtualization> Infrastructure** in the console tree. To display a report, select the desired report on the HPOM console, right-click, and then select **Show report**.

Figure 2 Reports for Infrastructure SPIs on HPOM for Windows



To view reports for the Infrastructure SPIs from HPOM for HP-UX, Linux, and Solaris operating systems, HP Reporter must be installed on a separate (stand-alone) system connected to the management server. To view the reports on the HP Reporter stand-alone system expand **Reporter Administrator** → **Reports** → **<Systems/ HA Cluster/ Virtualization> Infrastructure**.

5 Removing Infrastructure SPIs



The uninstallation procedure removes all versions of the Infrastructure SPIs policies including the customized policies, from the management server.

Disk Space Requirement

To remove the Infrastructure SPIs, make sure you have approximately 240 MB of total disk space and 35 MB of space in the temporary folders available on the management server.

Uninstalling the Infrastructure SPIs from the Windows Management Server

Perform the following tasks:

Task 1: Remove Infrastructure SPIs Policies from the Managed Nodes

Follow these steps:

- 1 In the HPOM console tree, expand the folders **Operations Manager** → **Policy Management** → **Policy groups** → **Infrastructure Management**.
- 2 Right-click **Infrastructure Management**, and then select **All Tasks** → **Uninstall from...**
- 3 In the Uninstall Policies dialog box, select **All Nodes**.
- 4 Click **OK**.

You must wait until all policies are uninstalled from all nodes. The status of policy uninstallation can be viewed in the Deployment jobs window.

Task 2: Remove the Infrastructure SPIs from the Management Server

You can remove the Infrastructure SPIs from the HPOM for Windows management server through either of the following methods:

Attended Uninstallation of the Infrastructure SPIs from the Windows Management Server

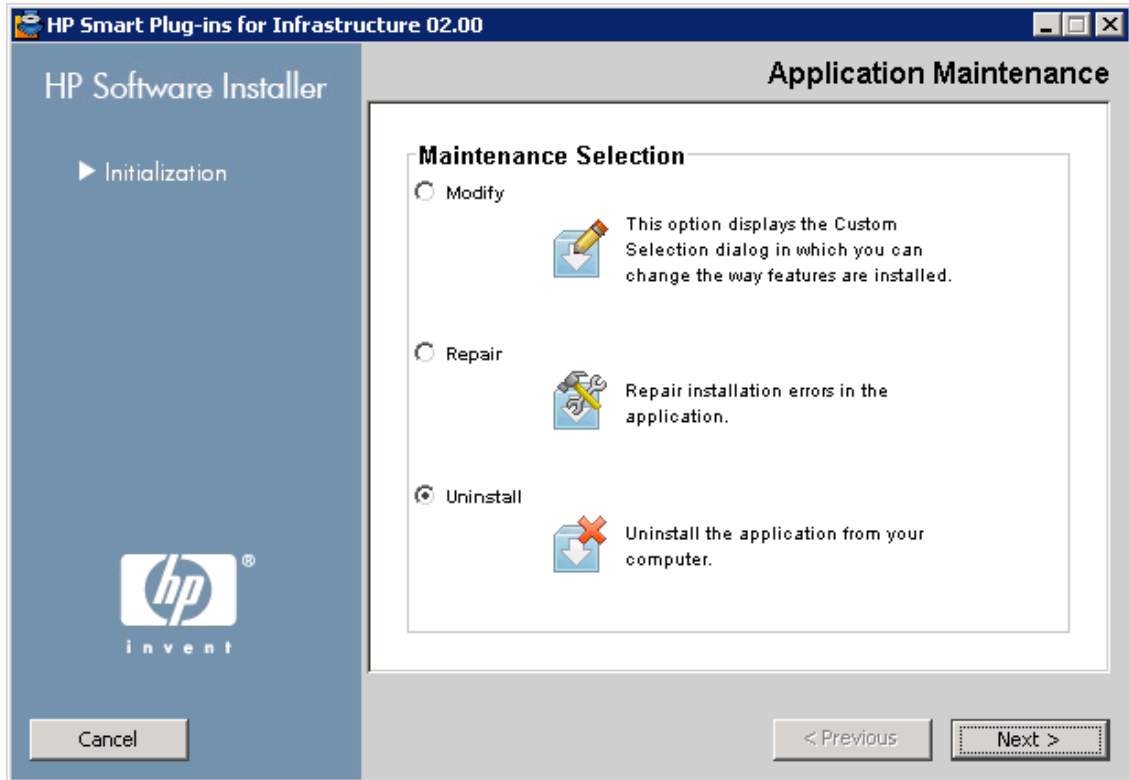
Follow these steps:

- 1 To start the Infrastructure SPIs Uninstallation wizard from the control panel:

- a Go to **Start** → **Settings** → **Control Panel**.
- b Double-click **Add or Remove Programs**.
- c Select *HP Smart Plug-ins for Infrastructure* and click **Change/Remove** to uninstall.

Alternatively, you can start Infrastructure SPIs uninstallation wizard from the HP Smart Plug-ins for Infrastructure DVD or the installer directory:

- a Open the temporary directory containing the Infrastructure SPIs Installer package.
 - b Click **HPInfraSPI_setup.exe** to start the uninstallation wizard.
- 2 If you see the Application requirement check warnings box displayed, click **Continue**.
The Application Maintenance page opens.



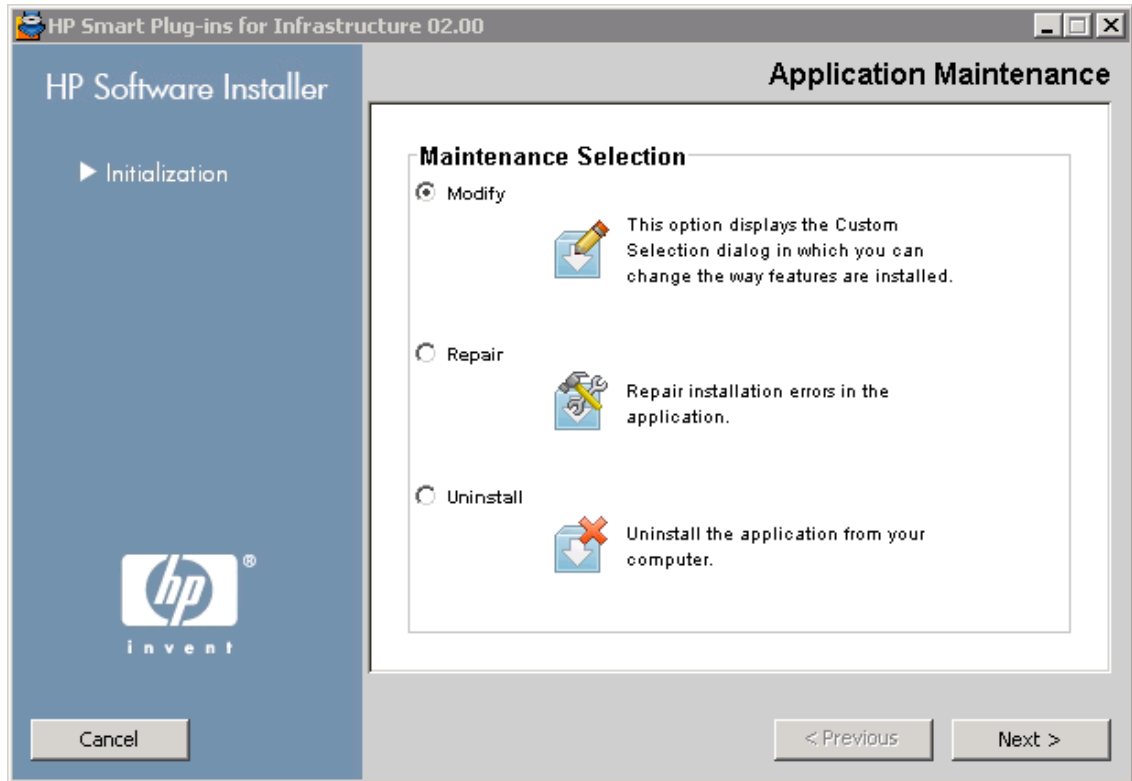
- 3 Select **Uninstall** and click **Next**.
The Pre-Uninstall Summary page appears.
- 4 Click **Uninstall**. The wizard starts uninstalling the Infrastructure SPIs.
- 5 Click **Done** to complete uninstallation.

Attended Uninstallation of Individual Infrastructure SPIs from the Windows Management Server

Follow these steps:

- 1 To start HP Infrastructure SPIs Uninstallation wizard from the control panel:
- a Go to **Start** → **Settings** → **Control Panel**.
 - b Double-click **Add or Remove Programs**.

- c Select *HP Smart Plug-ins for Infrastructure* and click **Change/Remove** to uninstall. Alternatively, you can start Infrastructure SPIs Uninstallation wizard from the HP Smart Plug-ins for Infrastructure DVD or the installer directory:
 - a Open the temporary directory containing the Infrastructure SPIs Installer package.
 - b Click **HPInfraSPI_setup.exe** to start the uninstallation wizard.
- 2 If you see the Application requirement check warnings box displayed, click **Continue**. The Application Maintenance page opens.



- 3 Select **Modify** and click **Next**. The Pre-Install Summary page appears.
- 4 Select all the options that you want to continue with except the SPI that you want to uninstall.
- 5 Click **Modify**. The wizard starts uninstalling the Infrastructure SPIs. At this stage the selected Infrastructure SPIs, reports package, and graphs package are ignored as they are already installed. The SPI that was *not* selected gets uninstalled.
- 6 Click **Done** to complete uninstallation of the individual SPI.

Unattended Uninstallation of the Infrastructure SPIs from the Windows Management Server

Follow these steps:

- 1 Open the Windows command prompt and change the directory to `C:\Program Files\HP\HP BTO Software\Uninstall\HPInfraSPI`

- 2 Run the following command:

```
setup.exe -DUNINSTALL -i silent
```

Uninstalling the Infrastructure SPIs from the UNIX Server

This process completely removes the Infrastructure SPIs installation, including policies for Infrastructure SPIs, from the HPOM Management Server. Any customization (copies of Infrastructure SPIs default policies) residing in other HPOM policy groups are also removed. Follow these steps in order to ensure a proper removal.

Task 1: Remove Policies from the Managed Nodes

Follow these steps:

- 1 Log on to HPOM as an administrator. The HPOM Administration UI appears.
- 2 Select **All Policy Assignments** from the Browse menu. The All Policy Assignments window opens.
- 3 In the All Policy Assignments window, select the policy or policy groups you want to remove from a node or a node group by clicking the Assignment Mode check box against the policies.
- 4 Select **Delete Assignment...** from the **Choose an Action** box and click **Submit**. A message window appears specifying that the operation cannot be undone.
- 5 Click **OK**.
- 6 The selected policy assignment is removed from the nodes.
- 7 From the HPOM Administration UI, click **Node Bank** under the Object Banks category. The Node Bank window opens.
- 8 In the Node Bank window, select the nodes or node groups from which you want to remove the policies.
- 9 Select **Deassign from this Group...** from the **Choose an Action** box and click **Submit**.
- 10 The policies are removed from the selected nodes.

Task 2: Remove the Infrastructure SPIs from the Management Server

You can remove the Infrastructure SPIs from the HPOM for UNIX management server by using either of the following methods:

Attended Uninstallation of the Infrastructure SPIs from the UNIX Server

Follow these steps:

- 1 Log on as `root`, and open a terminal window.
- 2 In the terminal window verify that the `DISPLAY` environment variable is set correctly to your workstation. Type:

```
echo $DISPLAY
```

If the `DISPLAY` environment variable is not set correctly, set it correctly to view the console GUI properly.

```
export DISPLAY=<IP Address or host name of the local system from where you
are installing Infrastructure SPIs>:0.0
```

- 3 Change to the directory `/opt/OV/Uninstall/HPInfraSPI`.
- 4 Start a X Window (or X11) system client on the system. The X Window System Client is required to view the graphical user interface (GUI) for installation. For example, you can use Reflection X.
- 5 Run the command:

```
./setup.bin
```
- 6 Select **Uninstall**. The wizard starts uninstalling the Infrastructure SPIs.
- 7 Follow the on-screen instructions and progress through the uninstallation process using the **Next** and **Uninstall** buttons.
- 8 Click **Done** to complete uninstallation.

Attended Uninstallation of the Infrastructure SPIs from the UNIX Server using command line interface

Follow these steps:

- 1 Change to the directory `/opt/OV/Uninstall/HPInfraSPI`.

- 2 Run the following command:

```
./setup.bin -i console
```

The following appears: PRESS <ENTER> TO CONTINUE:.

- 3 Press **ENTER** to continue.

The options to modify, repair or uninstall appear.

- 4 Type **3** to select uninstallation.

The following appears: PRESS <ENTER> TO CONTINUE:.

- 5 Press **ENTER** to continue.

When the uninstallation is complete, you will receive a message stating that the uninstallation is completed successfully.

Unattended Uninstallation of Infrastructure SPIs from UNIX Server

To perform unattended uninstallation of the Infrastructure SPIs through command prompt, run the following command:

```
/opt/OV/Uninstall/HPInfraSPI/setup.bin -i silent
```

Removing the Infrastructure SPIs from a Clustered Server Environment

To remove the Infrastructure SPIs from a cluster environment, follow these steps in the section [Uninstalling the Infrastructure SPIs from the Windows Management Server](#) on page 57 or [Uninstalling the Infrastructure SPIs from the UNIX Server](#) on page 60 as appropriate.

When you complete the uninstallation on one management server, proceed to the next management server in the cluster. (You can choose any management server in the cluster to begin the uninstallation.)

You are notified when uninstallation is complete.

Uninstallation cleans up all the Infrastructure SPI 2.0 node groups, policy groupings, and instrumentation folders.



The top-level service elements such as *Virtualization Infrastructure* and *HA Cluster Infrastructure* are not removed although the relevant SPI models are removed. The service map is cleaned up after relevant discovery policies are undeployed from all nodes.

6 Troubleshooting Infrastructure SPIs

This section helps you troubleshoot installation problems and provides you with information to help you avoid problems from occurring.

Discovery Issues

After you install the Infrastructure SPIs, you must add the nodes and start the discovery process. In this process, you may encounter some problems.

For VI SPI

Problem: Discovery map for VI SPI is not appearing.

Solution:

Follow the options in any order to verify the discovery process:

- Run the following command to check if BYLS data is being collected:
`ovcodautil -dumpds scope | grep BYLS`
- Ensure to receive Auto-Add messages on the HPOM and verify that the auto-actions get succeeded.
- Check for the errors in the `System.txt` file for SI-SystemDiscovery or VI-Discovery. For example, check for any `agtrep` timeout errors or other errors related to `agtrep`.
- Ensure that the latest HPOM patch is installed.
- Check the HPOM discovery log file `OvSvcDiscServer.log`. The log file is available at the following location: `%ovsharedir%\server\log`.

For CI SPI

Problem: Discovery map for CI SPI is not appearing.

Solution:

Follow the options in any order to verify the discovery process:

- Run the following command on the cluster node to display the node and resource group details:
`ovclusterinfo -a`
- Check for the errors in the `System.txt` file on cluster node. For example, check the timeout error messages.

- Ensure to receive Auto-Add messages from cluster node on HPOM and whether the auto-actions were succeeded.
- Ensure that the latest HPOM patch is installed.
- Check the HPOM discovery log file `OvSvcDiscServer.log`. The log file is available at the following location: `%ovshare_dir%\server\log`.

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