

# HP Operations Smart Plug-in for Oracle Application Server

for HP Operations Manager for Solaris

Software Version: 7.02

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## Installation and Configuration Guide

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# 1 Introduction to HP Operations Smart Plug-in for Oracle Application Server

This guide contains Oracle AS SPI information for HP Operations Manager for UNIX version 9.00, HP Operations Manager for Linux version 9.01 and HP Operations Manager for Solaris version 9.02.

The HP Operations Smart Plug-in for Oracle Application Server (Oracle AS SPI) enables you to manage Oracle Application Servers from an HP Operations Manager for UNIX (HPOM) console. The Oracle AS SPI adds monitoring capabilities to HPOM. For more information on HPOM, see *HP Operations Manager for UNIX Concepts Guide*.

## About the Oracle AS SPI

The Oracle AS SPI, used in conjunction with HPOM, helps you monitor and manage systems using the Oracle Application Server. From the HPOM console, you can monitor the availability, use, and performance of Oracle Application Servers running on HPOM managed nodes. You can set threshold values for the Oracle AS SPI metrics. When these thresholds are crossed the Oracle AS SPI generates an alarm and message. The metrics can also be consolidated into reports and graphs that can help you analyze trends in server usage, availability, and performance.

You can integrate the Oracle AS SPI with HP Reporter and HP Performance Manager to get additional reporting and graphing flexibility and capabilities. For details on integrating the Oracle AS SPI with other HP products, see [Chapter 6, Integrating HPOM Reporting and Graphing Products with the Oracle AS SPI](#).

## Smart Plug-in Data

The Oracle AS SPI has several server-related metrics that gather data about the following:

- Server availability
- Server performance
- JVM memory usage
- EJB client and method wrapper active threads, execution times, and calls processed
- Servlet execution times and threads
- JSP service time and active requests
- Java message service connections and messages
- JDBC connection status
- Web application processing and open sessions
- HTTP server active connections and processed data

## Smart Plug-in Uses and Customizations

As an Oracle AS SPI administrator, you can choose the metrics, which are crucial for the operation of Oracle Application Server by modifying the Oracle AS SPI policies. These policies contain settings that enable incoming data to be measured against predefined rules. These rules generate useful information in the form of messages. These messages have color-coding to indicate the severity level. You can review these messages for problem analysis and resolution.

## Components of the Oracle AS SPI

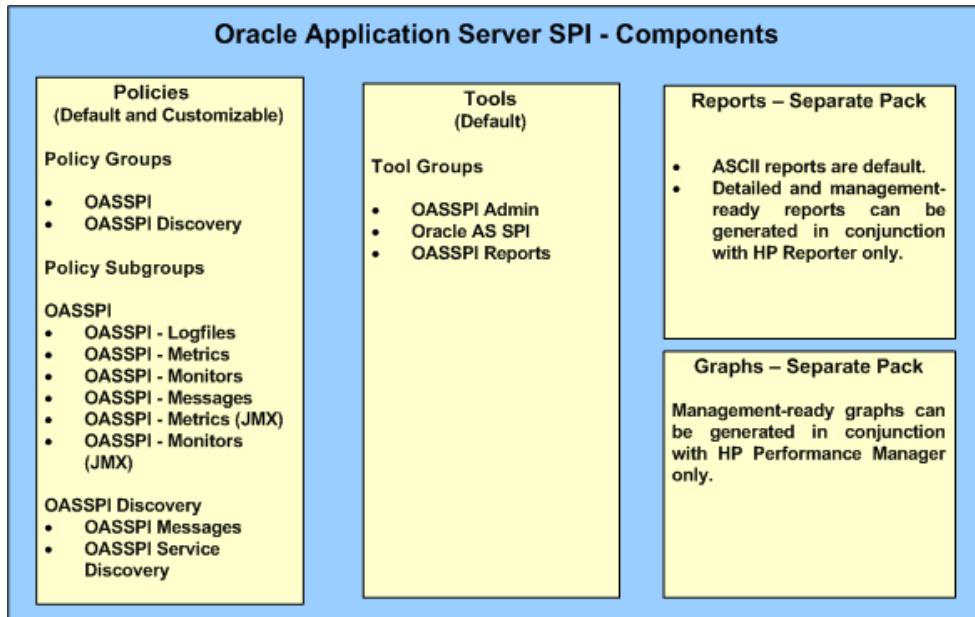
The Oracle AS SPI has the following components:

- Policies
- Tools (including reports)
- Reports
- Graphs

You can use the tools and policies to configure and receive data in the form of messages, annotations, and metric reports. These messages (available in the message browser), annotations (available through message properties), and metric reports (available through tools) provide information about the conditions present in the servers running on specific managed nodes.

The Oracle AS SPI configuration tools enable you to configure the management server's connection to selected server instances on specific managed nodes. You can assign policies to the nodes after you configure the connection. You can use the Oracle AS SPI reporting tools to generate metric reports with the HP Operations agent software running on the managed nodes. In addition, you can generate graphs, which show the Oracle AS SPI data (available through message properties).

**Figure 1 Oracle Application Server SPI - Components**



## Policies

The Oracle Application Server SPI consists of policies that monitor the Oracle Application Server. The policies contain settings which enable incoming data to be measured against predefined rules. These rules generate useful information in the form of messages.

The messages are color-coded to indicate the severity level. You can review these messages for problem analysis and resolution. There are several pre-defined corrective actions for specific events or threshold violations. These corrective actions are automatically triggered or operator-initiated. When you double-click a message text, corrective actions appear under the Instructions tab and automatically generated metric reports appear under the Annotations tab in the Message Properties window.

In the Policy bank window, the SPI for Oracle AS policy group contains policies grouped into two policy groups:

- OASSPI
- OASSPI Discovery

For more information on policies, see [Chapter 5, Customizing the Oracle AS SPI Policies](#).

## Tools

The Oracle AS SPI tools include configuration, troubleshooting, and report-generating utilities.

The Oracle AS SPI version 6.10 uses JMX standards to discover and monitor Oracle Application Server 10gR3. The metrics, policies, and reports for Oracle AS, therefore, are now divided in two groups. For example, the OASSPI Reports is divided into OASSPI Reports group and OASSPI Reports (JMX) group. The OAS SPI tool groups are:

- OASSPI Admin Tools Group
- Oracle AS SPI Tools Group
- OASSPI Reports Group
- OASSPI Reports (JMX) Group - This tool group is available *only* if you install the SPIJMB software.

For more information on tools, see [Chapter 4, Using Tools](#).

## Reports

The SPI package contains the default reporting policies provided by the SPI. Reports are generated by the HP Reporter using the Oracle SPI data. The reports show consolidated, historical data generated as web pages in management-ready presentation format, which helps you analyze the performance of the Oracle Server over a period of time. For details on integrating the Oracle SPI with HP Reporter to get consolidated reports, see [Integrating with HP Reporter](#) on page 76.

## Graphs

The SPI package contains the default graphing policies provided by the SPI. Graphs are drawn from metrics that are collected in the datasources created by the SPI. The graphs help you analyze trends in server usage, availability, and performance. For details on integrating the Oracle SPI with HP Performance Manager to get consolidated graphs, see [Integrating with HP Performance Manager](#) on page 78.

## Functions of the Oracle AS SPI

The Oracle AS SPI messaging, reporting, and action-executing capabilities are based on the HPOM concept of policies. For more information, see *HP Operations Manager for UNIX Concepts Guide*. The settings within these policies define various conditions that can occur within the Oracle Application Server and enable information to be sent back to the HPOM management server. This helps you to proactively address potential or existing problems and avoid serious disruptions to web transaction processing. The Oracle AS SPI performs the following functions:

### Collecting and Interpreting Server Performance and Availability Information

After you configure the Oracle AS SPI, and the policies are deployed on the managed nodes, the SPI starts gathering server performance and availability data. This data is compared with the settings within the deployed policies. The policies define conditions that can occur within the Oracle AS Server, such as queue throughput rates, cache use percentages, timeout rates, and average transaction times. The policies monitor these conditions against default thresholds (set within the policies) and trigger messages when a threshold has been exceeded.

### Displaying Information

The Oracle AS SPI policies generate messages when a threshold is exceeded. These messages can appear as:

- **Messages in the Message Browser**

HP Operations agent software compares the values gathered for Oracle AS Server performance and availability against the monitor policy settings related to those specific areas. The agent software then forwards appropriate messages to the HPOM console. These messages appear with color-coded severity levels in the HPOM message browser. To view the Message Browser, select **Integrations** → **HPOM for UNIX Operational UI** from the Administration UI.

**Figure 2 Message Browser**

Severity	Dup.	SUIAONE	Time Received	Node	Application	MsgGrp	Object	Message
Warning		--X----	02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log	OASSPI-181: WASSPI-1212:
Warning		--X----	02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log	OASSPI-181: WASSPI-1221:
Warning		--X----	02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log	OASSPI-181: WASSPI-1220:
Warning		--X----	02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log	OASSPI-181: WASSPI-1211:
Warning		--X----	02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log	OASSPI-181: WASSPI-1210:

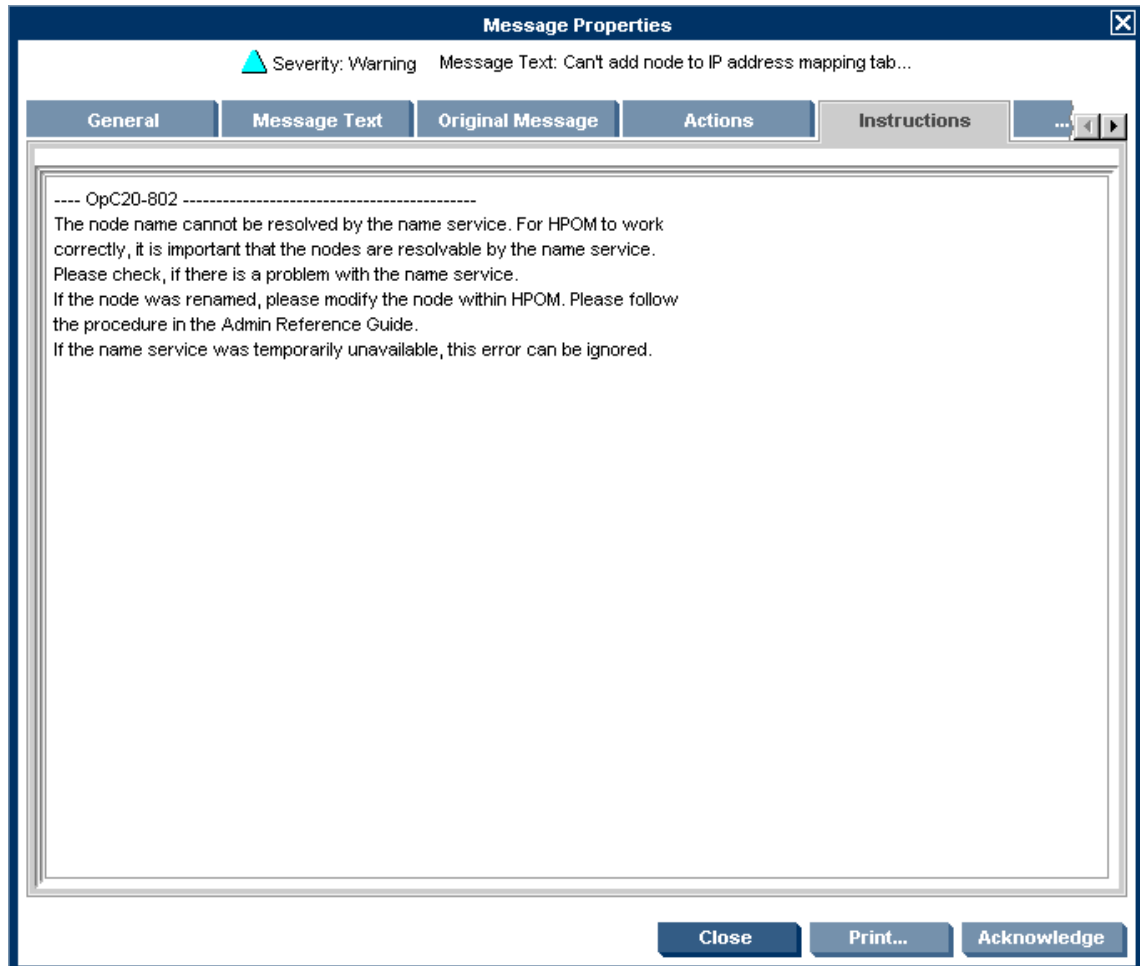
50 of 15 0 0 25 25 0 0 0 Lock

All Active Messages Filtered Active Messages

- **Instruction Text**

Messages generated by the Oracle AS SPI programs contain instruction text to help analyze and solve problems. You can manually perform corrective actions preassigned to events or they can be triggered automatically. Instruction text is present in the Message Properties window. Double-click the corresponding Message Text, the Message Properties window appears. To view instruction text, click the **Instruction** tab. Instruction text is also available in the *HP Operations Smart Plug-in for Oracle Application Server Reference Guide*.

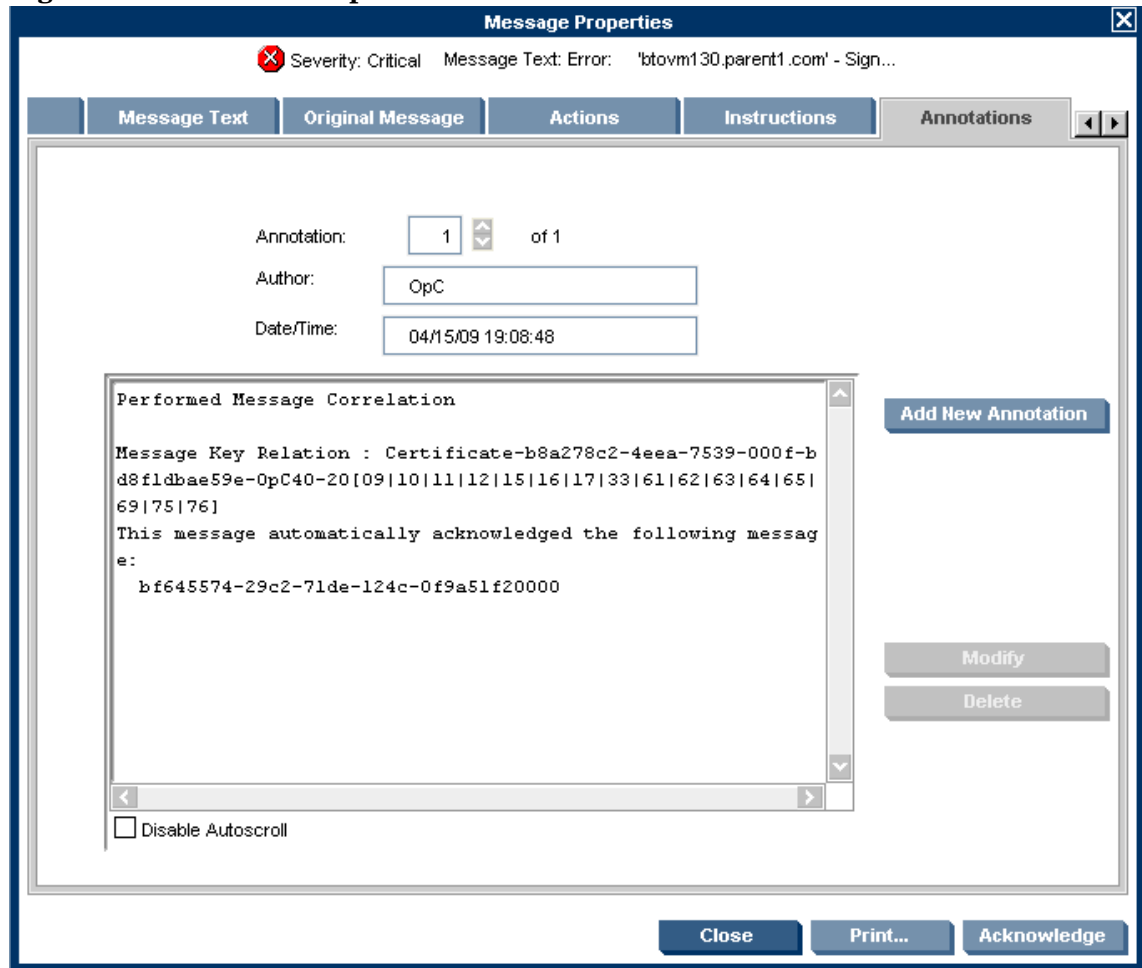
**Figure 3 Instruction Text**



- **ASCII-Text Reports**

In addition to the instruction text, some messages cause automatic action reports to be generated. These reports display conditions of a specific Oracle OC4J/OHS server instance. If a report is available, you can view it by clicking the **Annotations** tab in the Message Properties window.

**Figure 4 ASCII-Text Reports**



## Generating Reports Using HP Reporter

You can integrate the Oracle AS SPI with HP Reporter to provide you with management-ready, web-based reports. The Oracle AS SPI Report package includes the policies for generating these reports. You can install the Report package on the Reporter Windows system.

After you install the product and complete basic configuration, Reporter generates reports of summarized, consolidated data every night. You can assess how the Oracle OC4J/OHS server is performing over a period of time with the help of these reports.

## Graphing Data with HP Performance Manager

Metrics collected by the Oracle AS SPI can be graphed. The values can then be viewed for trend analysis.

You can integrate the Oracle AS SPI with HP Performance Manager to generate and view graphs (use the **View Graphs** tool from the OASSPI Admin tools group to view graphs). These graphs display the values of the metrics collected by the Oracle AS SPI. You can click **Perform Action** to view graphed data from almost all the Oracle AS SPI alarm messages. **Perform Action**



is present within the **Actions** tab in the Message Properties window. The action launches your web browser, where you can choose a graph that displays values for the metric which generated the message as well as other related metrics.

## Customizing Policies and Metrics

You can use the Oracle AS SPI policies without customization, or you can modify them to suit the needs of your environment. Some of the modifications and customizations that you can do are:

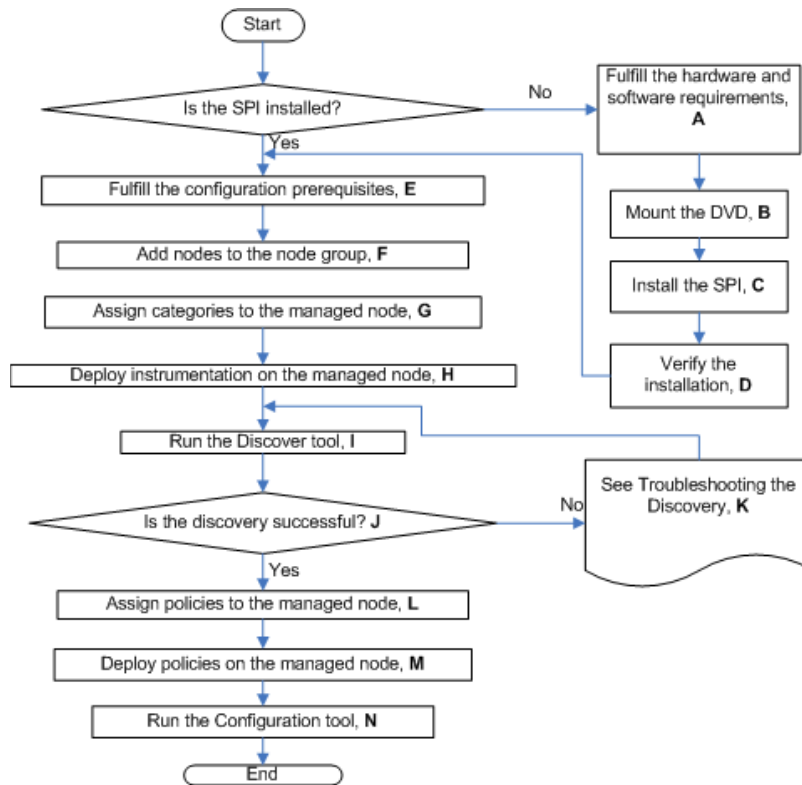
- Modify the default policies – Within a policy, you can change the default settings for:
  - Collection interval
  - Threshold
  - Message text
  - Duration
  - Severity level of the condition
  - Actions assigned to the condition (operator-initiated or automatic)
- Create custom policy groups – You can create custom policy groups, using default policies as base. For more information, see [Chapter 5, Customizing the Oracle AS SPI Policies](#).
- Create custom metrics – You can define your own metrics or User Defined Metrics (UDMs) to expand the monitoring capabilities of the Oracle AS SPI. For more information on UDMs, see the *HP Operations Smart Plug-in User Defined Metrics User Guide*.



## 2 Installing and Upgrading the Oracle AS SPI

This chapter provides the steps on how to install and upgrade the Oracle AS SPI. To successfully install the Oracle AS SPI, you must complete all installation prerequisites and complete all the described steps. The following flowcharts summarize the steps for installing and configuring the Oracle AS SPI.

**Figure 5 Flowchart for installing and configuring the SPI on HP-UX**

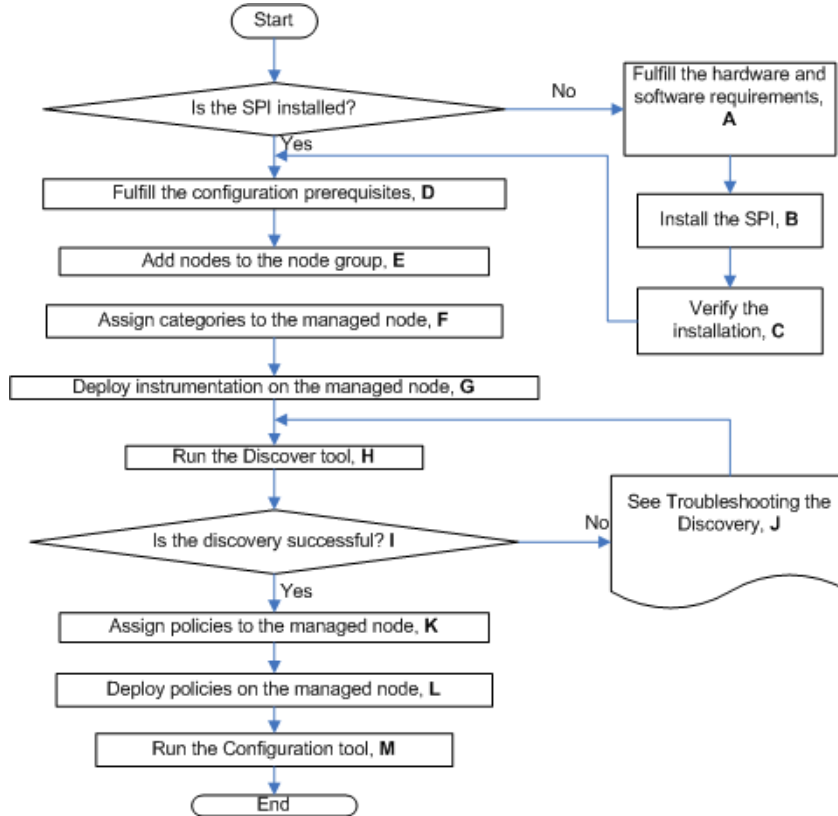


**Table 1 References of the legends in the flowchart**

<b>A</b>	Prerequisites on page 21
<b>B</b>	To Mount the DVD on HP-UX on page 25
<b>C</b>	To Install the Oracle AS SPI on page 26
<b>D</b>	Verifying Installation on page 29
<b>E</b>	Prerequisites on page 35
<b>F</b>	Add Nodes to the Oracle SPI Node Group on page 38
<b>G</b>	Assign Categories to the Managed Nodes on page 38
<b>H</b>	Deploy Instrumentation on the Managed Node on page 38

<b>I</b>	Run Discovery on page 39
<b>J</b>	Verify the Discovery Process on page 42
<b>K</b>	Troubleshooting the Discovery Process on page 93
<b>L</b>	Assign Policies to the Managed Node on page 43
<b>M</b>	Deploy the Oracle AS SPI Policies on page 44
<b>N</b>	Run Configuration on page 45

**Figure 6 Flowchart of installing and configuring the SPI for Linux and Solaris**



**Table 2 References of the legends in the flowchart**

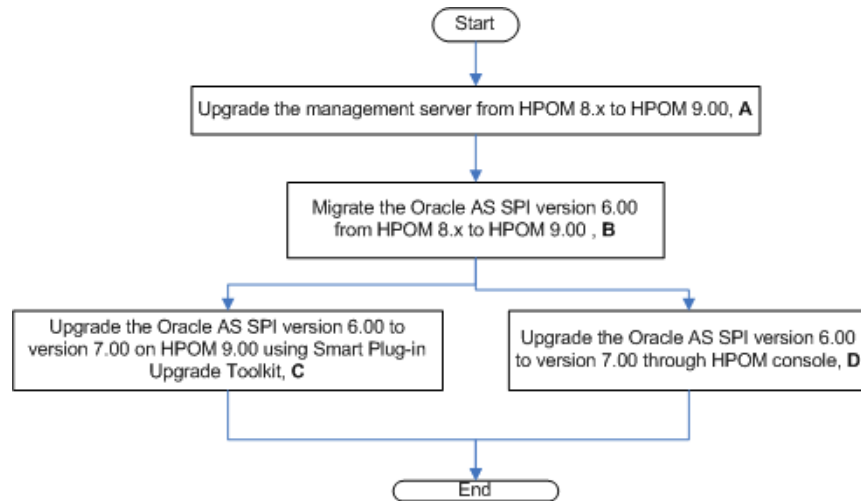
<b>A</b>	Prerequisites on page 21
<b>B</b>	Installing the SPI on the Linux or Solaris management server on page 26
<b>C</b>	Verifying Installation on page 29
<b>D</b>	Prerequisites on page 35
<b>E</b>	Add Nodes to the Oracle SPI Node Group on page 38
<b>F</b>	Assign Categories to the Managed Nodes on page 38
<b>G</b>	Deploy Instrumentation on the Managed Node on page 38
<b>H</b>	Run Discovery on page 39
<b>I</b>	Verify the Discovery Process on page 42

**Table 2** References of the legends in the flowchart

<b>J</b>	<a href="#">Troubleshooting the Discovery Process</a> on page 93
<b>K</b>	<a href="#">Assign Policies to the Managed Node</a> on page 43
<b>L</b>	<a href="#">Deploy the Oracle AS SPI Policies</a> on page 44
<b>M</b>	<a href="#">Run Configuration</a> on page 45

The following flowchart summarizes the steps for upgrading the Oracle AS SPI. See [Table 3](#) to locate any step by clicking on the hyperlink.

**Figure 7** Flowchart on steps for upgrading the SPI on HP-UX and Solaris



**Table 3** References of the legends in the flowchart

<b>A</b>	<a href="#">Upgrading the Oracle AS SPI</a> on page 29
<b>B</b>	<a href="#">Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x</a> on page 31
<b>C</b>	<a href="#">Migrate the Oracle AS SPI 6.00 from HPOM 8.xx to HPOM 9.0x</a> on page 31
<b>D</b>	<a href="#">Upgrading the SPI using the HP Operations Smart Plug-in Upgrade Toolkit</a> on page 31
<b>E</b>	<a href="#">Upgrading the Oracle AS SPI on a Standalone HPOM 9.0x Server through HPOM Console</a> on page 32

## Prerequisites

You must install the HP Operations Manager (HPOM) management server and discovery package before installing the Oracle AS SPI. It is not necessary to stop HPOM sessions before beginning the Oracle AS SPI installation.

## Hardware Requirements

For information on hardware requirements for the management server, see the *HP Operations Manager for UNIX* documents. For information on hardware requirements for the managed nodes, see the Support Matrix (SUMA) link:

<http://support.openview.hp.com/selfsolve/document/KM323488>.

## Software Requirements

Ensure that the following software requirements are completed prior to the installation of the Oracle SPI:

### On the Management Server:

#### Solaris

- HP Operations Manager for Solaris: 9.02
- HP Performance Manager: 8.20 (required if you want to generate graphs)
- HP Reporter: 3.80 (required if you want to generate web-based reports)
- HP Operations SPI Data Collector (DSI2DDF): 2.41 (for HP-UX, automatically installed while installing the SPI on the management server)
- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.02
- JMX Component (JMXSPI): 7.02
- HP Operations SPI Upgrade Toolkit (SpiSutk): 2.02

You have to select DSI2DDF, SPI-SHS-OVO, and JMXSPI components while installing the SPI on the Solaris management server for the first time.

#### HP-UX

- HP Operations Manager for UNIX: 9.00
- HP Performance Manager: 8.20 (required if you want to generate graphs)
- HP Reporter: 3.80 (required if you want to generate web-based reports)
- HP Operations SPI Data Collector (DSI2DDF): 2.40 (for HP-UX, automatically installed while installing the SPI on the management server)
- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.00
- JMX Component (JMXSPI): 7.00
- HP Operations SPI Upgrade Toolkit (SpiSutk): 2.00

DSI2DDF, SPI-SHS-OVO, and JMXSPI are automatically installed while installing the SPI on the HP-UX management server for the first time.

#### Linux

- HP Operations Manager for Linux: 9.01
- HP Performance Manager (Linux): 8.21 (required if you want to generate graphs)
- HP Reporter: 3.80 (required if you want to generate web-based reports)
- HP Operations SPI Data Collector (DSI2DDF): 2.41
- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.01

- JMX Component (JMXSPI): 7.01
- HP Operations SPI Upgrade Toolkit (SpiSutk): 2.01

**On the Managed Node(for both HP-UX and Linux):**

- HP Performance Agent: 5.00 (required if you want to use HP Performance Agent for data logging)
- HP Operations Agent (version 8.60) must be installed and configured

See the Support Matrix (SUMA) link, for more information on supported versions of HP Operations Manager, application servers, HP Performance Agent, HP Performance Manager, and HP Reporter:

**<http://support.openview.hp.com/selfsolve/document/KM323488>**

## Installation Packages

This section lists the installation packages for the WebSphere SPI for HPOM for UNIX version 9.00, HPOM for Linux version 9.01 and HPOM for Solaris version 9.02. You can visit the section, which is applicable in your scenario, by clicking on one of the following:

- [Linux](#)
- [HP-UX](#)
- [Solaris](#)



The DVD for this release will have packages for Solaris only.

### Linux

#### SPI Package

The core package is the `HP_Operations_Smart_Plug-ins_Linux_setup.bin`, which contains all the SPI functionality. The package must be installed on a server managed by HPOM. The SPIs consists of policies and instrumentation (binaries or scripts) that monitor the application server.

Location of main package:

`<SPI DVD>\HP_Operations_Smart_Plug-ins_Linux_setup.bin`

#### Reporting Package

The package contains the default reporter policies provided by the SPI. These policies are static and cannot be modified unless Crystal Reports 10.0 or later is installed. The Reporter gathers the data from the nodes managed by the SPI through the HPOM server, stores it in its local database, and then creates .html reports based on the default SPI report policies. The name and location of the reporting package is:

`\WINDOWS\HP_REPORTER\ORACLEAS_SPI\OASSPI-Reporter.msi`

## Graphing Package

The package contains the default graphing templates provided by the SPI. Graphs are drawn from metrics that are collected in the datasources created by the SPI. The name and location of the graphing package are:

- For HP-UX: /HPUX/HP\_PM/ORACLEAS\_SPI/HPOvSpiOasG.depot
- For Windows: \WINDOWS\HP\_PM\ORACLEAS\_SPI\HPOvSpiOasG.msi
- For Solaris: /SOLARIS/HP\_PM/ORACLEAS\_SPI/HPOvSpiOasG.sparc
- For Linux: The core and graph templates packages for WLS SPI are contained in the main packages for Linux mentioned earlier.

## HP-UX

### SPI Package

The core package is the `HP_Operations_Smart_Plug-ins_HPUX.depot`, which contains all the SPI functionality. The package must be installed on a server managed by HPOM. The SPIs consists of policies and instrumentation (binaries or scripts) that monitor the application server.

Location of main package:

```
<SPI DVD>\HP_Operations_Smart_Plug-ins_HPUX.depot
```

### Reporting Package

The package contains the default reporter policies provided by the SPI. These policies are static and cannot be modified unless Crystal Reports 10.0 or later is installed. The Reporter gathers the data from the nodes managed by the SPI through the HPOM server, stores it in its local database, and then creates .html reports based on the default SPI report policies. The name and location of the reporting package is:

```
\WINDOWS\OV_REPORTER\ORACLEAS_SPI\OASSPI-Reporter.msi
```

### Graphing Package

The package contains the default graphing templates provided by the SPI. Graphs are drawn from metrics that are collected in the datasources created by the SPI. The name and location of the graphing package are:

- For HP-UX: The graph templates packages for OAS SPI are contained in the main packages for HP-UX mentioned earlier.
- For Windows: \WINDOWS\OV\_PM\ORACLEAS\_SPI\OASSPI-OVPM.msi

## Solaris

### SPI Package

The core package is the `HP_Operations_Smart_Plug-ins_Solaris_setup.bin`, which contains all the SPI functionality. The package must be installed on a server managed by HPOM. The SPIs consists of policies and instrumentation (binaries or scripts) that monitor the application server.

Location of main package:

```
<SPI DVD>\HP_Operations_Smart_Plug-ins_Solaris_setup.bin
```



## Reporting Package

This package contains the default reporter policies provided by the SPI. These policies are static and cannot be modified unless Crystal Reports 10.0 or later is installed. The Reporter gathers the data from the nodes managed by the SPI through the HPOM server, stores it in its local database, and then creates .html reports based on the default SPI report policies. The name and location of the reporting package is:

```
\WINDOWS\HP_REPORTER\ORACLEAS_SPI\OASSPI-Reporter.msi
```

## Graphing Package

This package contains the default graphing templates provided by the SPI. Graphs are drawn from metrics that are collected in the datasources created by the SPI. The name and location of the graphing packages are:

- For HP-UX: /HPUX/HP\_PM/ORACLEAS\_SPI/HPOvSpiOasG.depot
- For Windows: \WINDOWS\HP\_PM\ORACLEAS\_SPI\HPOvSpiOasG.msi
- For Linux: /LINUX/HP\_PM/ORACLEAS\_SPI/HPOvSpiOasG.rpm
- For Solaris: The core and graph templates packages for OAS SPI are contained in the main packages for Solaris mentioned earlier.

# Installing the Oracle AS SPI

Perform the steps given in the following sections to install the Oracle AS SPI.

## Installing the SPI on HP-UX

Install the HP Operations Manager (HPOM) management server and discovery package before installing the Oracle SPI. It is not necessary to stop HPOM sessions before beginning the Oracle SPI installation. The discovery package and Oracle SPI are available on the HP Operations Smart Plug-ins DVD.

### To Mount the DVD on HP-UX

To mount the DVD on HP-UX:

- 1 Log on as a **root** user.
- 2 Set the user root's umask by entering:  
**umask 027**
- 3 Create a directory to mount the DVD:  
**mkdir /<mount\_point>**  
For example: **mkdir /dvdrom**
- 4 Insert the DVD into the disk drive and mount it as user root by entering:  
**mount /dev/<dvdrom\_drive\_name> /<mount\_point>**

For example, for a local DVD, you might enter:

```
mount /dev/dsk/c0t2d0 /dvdrom
```

You can also run SAM and mount the DVD to a specific path in the Disks and File Systems window.

## To Install the Oracle AS SPI

The instructions that follow show the command line usage of `swinstall`. For HP-UX systems, you can also use the graphical user interface (GUI), which is not covered in this guide.



It is not necessary to stop HPOM sessions before beginning the Oracle AS SPI installation.

For an HP-UX 11.31 IA management server, type:

```
swinstall -s /dvdrom/HPUX/HP_Operations_Smart_Plug-ins_HPUX.depot  
OASSPI
```

## Installing the SPI on the Linux or Solaris management server

To install the SPI on the Linux or Solaris management server, perform any of the following procedures:

- Installing the SPI through Graphical User Interface
- Installing the SPI through Command Line Interface

### Installing the SPI through Graphical User Interface

To install the Oracle AS SPI using X-Windows client software:

- 1 Log on as a **root** user.
- 2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.
- 3 Start the X-windows client software and export the `DISPLAY` variable by typing the following command:

```
export DISPLAY=<ip address>:0.0
```

- 4 To start the installation, type one of the following commands, according to your management server:

```
./HP_Operations_Smart_Plug-ins_Linux_setup.bin
```

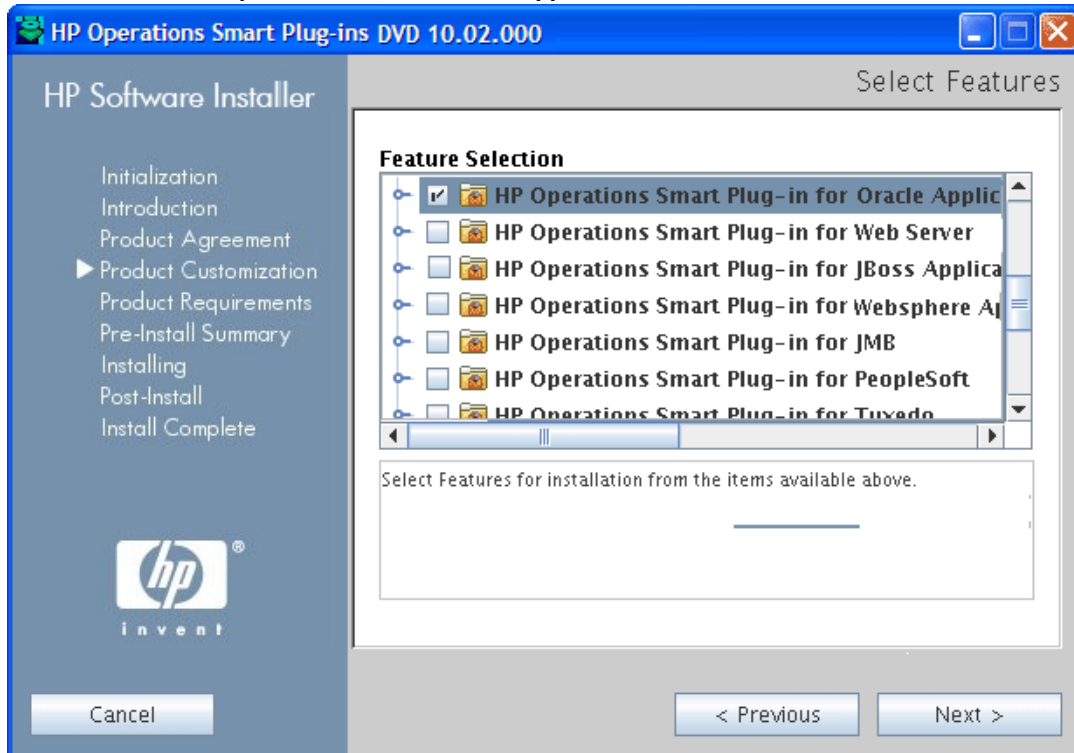
or

```
./HP_Operations_Smart_Plug-ins_Solaris_setup.bin
```

The introductory window appears.

- 5 Select the language from the drop-down list and click **OK**. The Introduction(Install) window appears.
- 6 Click **Next**. The License Agreement window appears.
- 7 Select **I accept the terms of the License Agreement** button and click **Next**. The Select Features window appears.

- 8 Select the **HP Operations SPI for Oracle Application Server** check box and click **Next**.



By default, the HP Operations Smart Plug-in Common Components is selected.

The Install Check window opens.

- 9 Click **Next**. The Pre-Install Summary window opens.
- 10 Click **Install**.

While installing, you might see the Force reinstallation of already installed component packages check box. You can use either of the following options:

- Select the Force reinstallation of already installed component packages check box to reinstall the selected components, as applicable.
- Clear the Force reinstallation of already installed component packages check box to prevent reinstallation of the selected HP Software components, as applicable. Clearing the check box does not change the currently installed software components.

If the installation fails, you can quit installation. Clicking **Quit** stops the installation, but does not uninstall the components installed till then.

The Installing window appears. The Install Complete window appears once the SPI is uninstalled.

- 11 Click **Done** to complete the installation.

### Installing the SPI through Command Line Interface

To install the Oracle AS SPI through command line interface:

- 1 Log on as a **root** user.
- 2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.

- 3 To start the installation, type one of the following commands, according to your management server:

```
./HP_Operations_Smart_Plug-ins_Linux_setup.bin -i console
```

or

```
./HP_Operations_Smart_Plug-ins_Solaris_setup.bin -i console
```

- 4 When the prompt, 'Choose Locale...' appears, press the number corresponding to the language you want to choose.
- 5 Press **Enter** to continue. The Introduction screen appears.
- 6 Press **Enter** to continue.
- 7 When the prompt, 'I accept the terms of the License Agreement' for the License information appears, press **Y** to accept the terms and continue installation.
- 8 When the prompt, 'Please select Features' for the selection of the feature appears, press the number corresponding to the feature you want to install.

▶ When you have installed one SPI on the Linux or Solaris management server and want to install another SPI on the server, you have to reselect the previously installed SPI and select the required SPI from the Modify option. If you do not reselect the previously installed SPI, it removes the previously installed SPI and installs the selected SPI on the Linux or Solaris management server.

- 9 Press **Enter**. A series of message appears. Follow the instructions as displayed in the message.

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

## Installing the Oracle AS SPI in an HPOM Cluster Environment

You must first install the HPOM management server on each system in the cluster. When the management server cluster installations are complete, the setup for the installation of the Oracle AS SPI is ready.

▶ Before beginning, make sure that sufficient disk space (500 MB) is available on each management server for the Oracle AS SPI you plan to install. Cancelling the installation process before completion could result in partial installations and require manual removal of the partially installed components.

After installing the HPOM management server, proceed as follows:

For the first installation (Node A) and all remaining installations in the cluster — Follow the standard installation procedure by either making the product choices or typing the name of the SPI component you want to install. Once you complete the installation on Node A, proceed to the next node. Repeat the same procedure proceeding from one node to another until you have completed installing the SPI on each of the nodes in the cluster.

## Installing the SPI on the Cluster-Aware Management Server for UNIX

Complete all the tasks in the section [Installing the Oracle AS SPI](#) on page 25 and then proceed to the next management server until the installation on every management server in the cluster is complete.



The HPOM console will not function properly until installations are completed on all nodes in the cluster.

## Verifying Installation

HP-UX - Type the command `swlist` to verify the installation of the Oracle SPI on the management server.

Linux - Type the command `rpm -qa` to verify the installation of the Oracle SPI on the management server.

Solaris - Type the command `pkginfo -l HPOvSpiOas` to verify the installation of the Oracle SPI on the management server.

Linux, HP-UX and Solaris - Verify the `OASSPI_Install.log` file to check if the installation is successful. The path of this file is `/var/opt/OV/log/SPIInstallLogs`.

## Upgrading the Oracle AS SPI

You can upgrade the Oracle AS SPI from HP Operations Manager for UNIX version 8.0x to HP Operations Manager for UNIX version 9.0x, HP Operations Manager for Linux version 9.0x and HP Operations Manager for Solaris version 9.0x. Be aware of the following limitations when you plan to install the Oracle AS SPI 7.0x from SPI DVD 2009 and SPI DVD 2010 on an HPOM 9.0x, which has the Oracle AS SPI 6.00 installed from SPI DVD 2008.

- You must complete the migration process from HPOM 8.xx to HPOM 9.0x before upgrading the Oracle AS SPI to version 7.0x. Once the Oracle AS SPI 7.0x is installed, migrating from HPOM 8.xx is not supported.
- You must take the backup of the content in the `/opt/OV/wasspi/oas` directory before upgrading the SPI to the version 7.0x, in case you want to reuse the old content. When you upgrade the SPI to the new version, the old content in the `/opt/OV/wasspi/oas` directory will be lost permanently.
- The HP-UX binary files will not work when migrated from HPOM for UNIX 8.0x to HPOM for Linux 9.0x or HPOM for Solaris 9.0x.
- The Oracle AS SPI version 6.00 (migrated from HPOM 8.xx) and Oracle AS SPI version 7.0x (newly installed from SPI DVD 2009 or SPI DVD 2010) on HPOM 9.0x is an intermediate mode and you must move all managed nodes to the Oracle AS SPI version 7.0x as soon as possible.
- If you have multiple SPIs deployed on a managed node, you can monitor the node either by SPI DVD 2008 SPIs or by SPI DVD 2009 or SPI DVD 2010 SPIs. Monitoring a node by combination of SPIs from SPI DVD 2008 and SPI DVD 2009 or SPI DVD 2010 is not supported.

- If you have the Oracle AS SPI 7.0x installed on HPOM 9.0x systems, which also has the Oracle AS SPI 6.00 as well, the following points are true:
  - You must configure the newly added managed nodes using the Oracle AS SPI 7.0x.
  - No configuration is possible on the existing or old managed nodes monitored by the Oracle AS SPI 6.00.

This is because the Oracle AS SPI 6.00 configuration tools are overwritten by the Oracle AS SPI 7.0x tools and these tools are incompatible.

- Patches for the Oracle AS SPI version 6.00 must be installed before you start the HPOM migration process. Once the Oracle AS SPI version 7.0x is installed, no patches or hot-fixes pertaining to the Oracle AS SPI version 6.00 can be installed on the HPOM server.
- To launch the GUIs related to Oracle AS SPI 7.0x, you must install X-windows client software on the machine from which you will launch the HPOM for UNIX 9.0x, HPOM for Linux 9.0x or HPOM for Solaris 9.0x server Operator GUI.
- Installing patches that would be released in the future for the Oracle AS SPI version 6.00 are not supported on HPOM for UNIX 9.0x, HPOM for Linux 9.0x or HPOM for Solaris 9.0x after migration. However, a patch can be installed on the HPOM for UNIX 8.xx server and migrated to HPOM for UNIX 9.0x, HPOM for Linux 9.0x or HPOM for Solaris 9.0x environment.
- Migration of Java Metric Builder (JMB) to HPOM for UNIX 9.0x server is not supported.
- Graph templates cannot be invoked from automatic action or Operator initiated action of alerts.
- After migration from HPOM 8.xx to HPOM 9.0x, when you run license reporting tool from HPOM 9.0x, the following errors would be reported. This is an expected behavior. You can ignore this error.

```
ERROR: (oprel-407) License status for 'SPI Name' is: Error
Can't check license status because of missing ID mapping file.
Please install the missing component and make sure that a sufficient number
of licenses is installed.
```

```
Error: '(oprel-130) ID mapping file does not exist: (oprel-129) Can't find
ID mapping file '/opt/OV/misc/EL/registration/<SPIname>.xml' for plug-in
'<SPIname>'. '
```



If you have installed more than one Smart Plug-ins for Web Application Server (for example, the WebLogic SPI, Oracle SPI, and Oracle AS SPI), make sure that the SPIs are upgraded simultaneously on the management server because the Smart Plug-ins for Web Application Server share common components amongst them.

This version of the Oracle AS SPI supports HPOM for UNIX 9.0x. To upgrade the earlier versions of Oracle AS SPI to Oracle AS SPI 7.0x, perform the following tasks:

- Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x
- Migrate the Oracle AS SPI 6.00 from HPOM 8.xx to HPOM 9.0x
- Upgrade the Oracle AS SPI 6.00 to Oracle AS SPI 7.0x on HPOM 9.0x

## Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x

Read and follow the steps provided in *HP Operations Manager for UNIX 9.00 Installation Guide* for migrating or upgrading HPOM for UNIX 8.xx to HPOM for UNIX 9.0x.

## Migrate the Oracle AS SPI 6.00 from HPOM 8.xx to HPOM 9.0x

The instrumentation files and other SPI specific data are migrated while migrating or upgrading HPOM for UNIX 8.xx server (where the Oracle AS SPI 6.00 is installed) to HPOM for UNIX 9.0x. Some SPI specific data, however, must be migrated manually.

### Migrate the HPOM from one system to another

Install HPOM for UNIX 9.0x on a new system. To perform the migration from one system to another, perform the following steps:

- 1 After completing migrating HPOM for UNIX 8.xx to HPOM for UNIX 9.0x, create the following directories on the target HPOM for UNIX 9.0x server:

```
/var/opt/OV/wasspi/oas/  
/opt/OV/SPISvcDisc/conf/OASSPI/  
/opt/OV/wasspi/oas/  
/var/opt/OV/share/conf/SPISvcDisc/OASSPI/
```

- 2 Copy the files present in the folders created in step 1 from HPOM for UNIX 8.xx to HPOM for UNIX 9.0x server at their respective folders.
- 3 Copy the following files from HPOM for UNIX 8.xx to HPOM for UNIX 9.0x server at their respective folders:

```
/opt/OV/SPISvcDisc/conf/wasspi_oas_DiscConfig.sh  
/opt/OV/newconfig/inventory/HPOvSpiOas.xml
```

## Upgrade the Oracle AS SPI 6.00 to Oracle AS SPI 7.0x on HPOM 9.0x

You can upgrade the Oracle AS SPI either using the HP Operations Smart Plug-in Upgrade Toolkit (SPI Upgrade Toolkit) or through the HPOM for UNIX console.

### Upgrading the SPI using the HP Operations Smart Plug-in Upgrade Toolkit

The HP Operations Smart Plug-in Upgrade Toolkit (SPI Upgrade Toolkit) version 2.0x helps you upgrade the Oracle AS SPI to a higher version while retaining the customizations done on policies. During the Oracle AS SPI upgrade process, the SPI Upgrade Toolkit enables you to store the modifications done on the customer version of policies. For a specific policy, the SPI Upgrade Toolkit analyzes and compares three versions—base, customer, and factory—and helps you select the settings of the base, customer, or factory version of the policy, depending on your requirement. To upgrade the Oracle AS SPI using the SPI Upgrade Toolkit, follow the instructions defined in *HP Operations Smart Plug-in Upgrade Toolkit UNIX User Guide*.



## Upgrading the Oracle AS SPI on a Standalone HPOM 9.0x Server through HPOM Console

To upgrade the Oracle AS SPI on a standalone HPOM 9.0x server, complete these tasks:

- 1 Rename the policy and tool group for Oracle AS SPI from *SPI for Oracle AS* to *SPI for Oracle AS\_OLD*. Rename both the Name and the Label (for example, *OASSPI:TOOLS* to *OASSPI:TOOLS\_OLD*).
- 2 Deassign the policies or policy groups assigned to the node.
- 3 Kill the rmid and all Java processes started by the SPI on the node.
- 4 Delete the old policies, instrumentation, and datasources on the node manually. The existing data is deleted. Hence, take a backup of your existing data.



The existing Oracle AS SPI datasource should be manually deleted when you upgrade the SPI. For example, `ddfutil /var/opt/OV/wasspi/oas/datalog/graph.log -rm all`. A new datasource is created and the existing data is lost. The datasource is deleted irrespective of whether you are using CODA or HP Performance Agent. When you upgrade from a previous installation, all your configuration entries are preserved.

- 5 Install the Oracle AS SPI by performing the steps in [Installing the Oracle AS SPI](#) on page 25.
- 6 Configure the SPI by performing the steps in [Chapter 3, Configuring the Oracle AS SPI](#).

### To Install the New Report Package (Optional)

Remove older versions of the Oracle AS SPI report package from your Windows system running HP Reporter and install the new Oracle AS SPI report package. To install the new report package:

- 1 On the Windows system running HP Reporter, go to **Settings** → **Control Panel** → **Add/Remove Programs**.
- 2 Select the Oracle AS SPI report package and click **Remove**.
- 3 To install the Oracle AS SPI report package, follow the steps in [Integrating with HP Reporter](#) on page 76.

### To Install the New Graph Package (Optional)

- If HP Performance Manager is running on a Windows system, remove older versions of the Oracle AS SPI graph package and install the new Oracle AS SPI graph package. To install the new graph package:
  - a Go to **Settings** → **Control Panel** → **Add/Remove Programs**.
  - b Select the Oracle AS SPI graph package (HP Operations Manager SPI for Oracle AS - Graphing Component Integration) and click **Remove**.
  - c To install the Oracle AS SPI graph package, follow the steps in [Integrating with HP Performance Manager](#) on page 78.
- If HP Performance Manager is running on a HP-UX system (not the HPOM management server):
  - ▶ If HP Performance Manager is installed on the HPOM management server, the files are automatically updated when you install the SPI software.
    - a Run `swlist | grep OASSPI-GRAPHS` to verify that the graph package is installed.
    - b Run `swremove OASSPI-GRAPHS` if the graph package is installed.



- c To install the Oracle AS SPI graph package, follow the steps in [Integrating with HP Performance Manager](#) on page 78.
- If HP Performance Manager is running on a Solaris system (not the HPOM management server):
  - ▶ If HP Performance Manager is installed on the HPOM management server, the files are automatically updated when you install the SPI software.
  - a Run `/usr/bin/pkginfo HPOvSpiOasG` to verify that the graph package is installed.
  - b Run `/usr/sbin/pkgrm HPOvSpiOasG` if the graph package is installed.

To install the Oracle AS SPI graph package, follow the steps in [Integrating with HP Performance Manager](#) on page 78.



# 3 Configuring the Oracle AS SPI

This chapter explains how to configure the Oracle AS SPI and complete all configuration prerequisites, Oracle AS SPI configuration (for managed nodes and the management server), and additional configuration based on your environment.

## Prerequisites

Log on to HPOM as an administrator. The Administration UI window appears. Complete the following tasks before configuring the Oracle AS SPI.

- [Assign Operator Responsibilities to the Operator](#)
- [Assign Tools to the Managed Nodes](#)
- [Verify the Application Server Status](#)
- [Collect Oracle AS Login Information](#)

## Assign Operator Responsibilities to the Operator

To assign operator responsibilities to the operator:

- 1 Log on to HPOM (For example, as an administrator (`opc_adm`)).
- 2 Select **All Users** → `opc_adm`. The User “opc\_adm” window appears.

The screenshot shows the configuration page for the user "opc\_adm". At the top, there are navigation icons and a title "User 'opc\_adm'". Below the title, there are two links: "Capabilities" and "Responsibilities". A table lists the user's attributes and their values:

Attribute	Value
Name	opc_adm
Label	opc_adm
Description	HPOM Administrator
Type	Administrator
Real Name	HPOM Administrator
Node Hierarchy	<a href="#">NodeBank</a>

Below the table, there are sections for "Capabilities" and "Responsibilities".

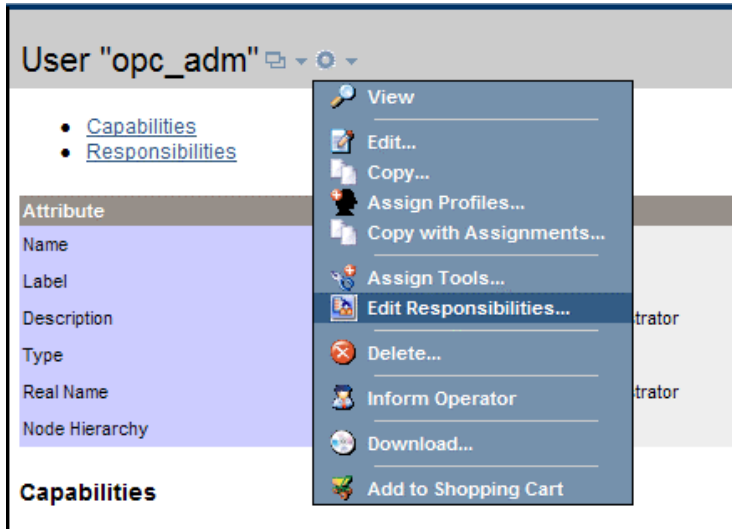
**Capabilities**

- Acknowledge
- Modify Message Attributes
- Perform actions
- Own messages

**Responsibilities**

Message Groups

- To change a User's responsibility, select **Edit Responsibilities...** from the drop down list as shown in the following figure.



- For OASSPI and OracleAS Message Groups, make sure all check boxes are selected.


Edit Responsibilities for User/Profile opc\_adm

	hp_ux	net_devices	VMware...VI SPI)	VMware...-Added)
OASSPI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OpC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OpenView	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OracleAS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Output	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Performance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R3_ABAP-4	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R3_ALE	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R3_Backup	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
R3_Buffers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

- Assign the OASSPI Node or Message Groups to any other appropriate operators.
- Click **Close**. Operator responsibilities are added to the operator.

## Assign Tools to the Managed Nodes

To assign tools to the managed nodes:

- Open the Tool Bank window and select the SPI for Oracle AS tool group.
- Select Assign to User/Profile... from the Choose an Action drop-down list and click  to submit. The Selector window appears.
- Click **All Users** and select the operator to which you want to assign the tools.
- Click **OK**. The Oracle AS SPI tools are assigned to the operator.

## Verify the Application Server Status

For each managed node, verify that the application servers are running by checking a server's status from the Oracle Application Server Control Console.

The screenshot displays the Oracle Enterprise Manager 10g Application Server Control console. The page title is "Application Server: testapps1.test.com". The status is "Up". The host is "vm1111-vm1.ovrtest.adapps.hp.com". The installation type is "Portal and Wireless". The Oracle Home is "C:\oracle\bi". The farm is "saspi.openview". The CPU Usage pie chart shows 0% for Application Server, 0% for Idle, and 100% for Other. The Memory Usage pie chart shows 0% for Application Server, 3% (134MB) for Free, and 97% (3,969MB) for Other. The System Components section includes buttons for Start, Stop, Restart, Delete OC4J Instance, Enable/Disable Components, Configure Component, and Create OC4J Instance.

## Collect Oracle AS Login Information

If security is enabled on the Oracle AS, collect the Oracle AS login and password for each OC4J/OHS server. If you do not want to use the existing login and password, create a new login and password. The Oracle AS SPI discovery process uses the login and password to gather basic configuration information, and the Oracle AS SPI data collector uses the login and password to collect metrics.



To simplify the Oracle AS SPI configuration, keep the login and password for both OC4J and OHS servers similar.

You can use the username and password for users/groups assigned to the administrator or operator role.

## The Oracle SPI Configuration from the Management Server


To configure the Oracle AS SPI, complete the following tasks from the management server:

- 1 Add Nodes to the Oracle SPI Node Group
- 2 Assign Categories to the Managed Nodes
- 3 Deploy Instrumentation on the Managed Node
- 4 Run Discovery
- 5 Verify the Discovery Process
- 6 Assign Policies to the Managed Node

- 7 Deploy the Oracle AS SPI Policies
- 8 Run Configuration
- 9 Verify the Oracle AS SPI Configuration

## Add Nodes to the Oracle SPI Node Group

The Oracle AS SPI automatically creates a single node group (Oracle AS) with appropriate policy groups already assigned. Place any nodes running Oracle OC4J/OHS servers in this node group.


- 1 Open the Node Group window and select the Oracle AS node group.
- 2 Select **Assign Nodes...** from the **Choose an Action** drop-down list and click  to submit.

The Selector window appears.

- 3 Click **All Nodes** and select the managed nodes running Oracle OC4J/OHS servers.
- 4 Click **OK**. The selected nodes are added to the Oracle Node Group.

## Assign Categories to the Managed Nodes

To assign categories to the managed node:

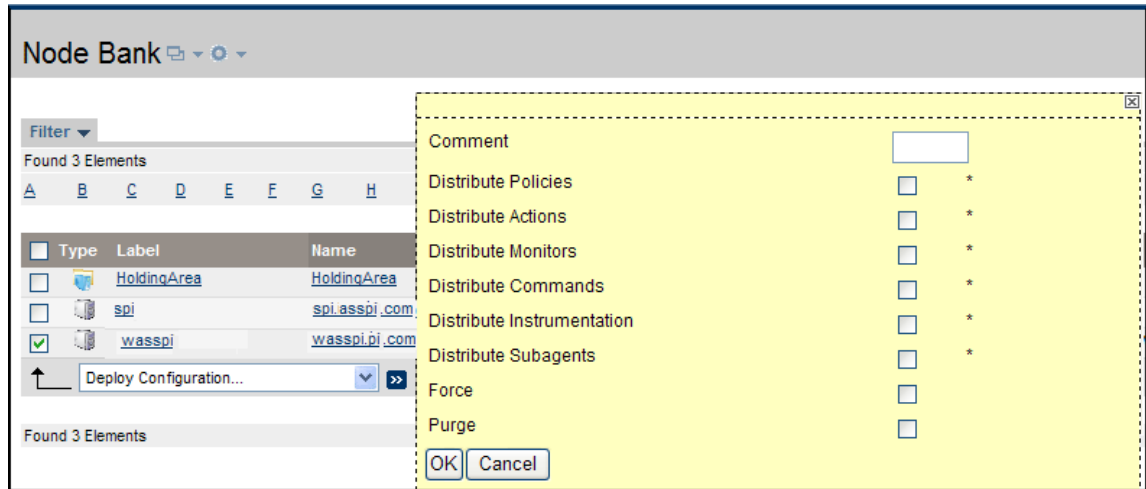
- 1 Open the Node Bank window and select the managed nodes.
- 2 Select **Assign Categories...** from the **Choose an Action** drop-down list and click  to submit. The Selector window appears.
- 3 Select the **Oracle**, **OASSPI Discovery** (optional), **JMX**, **SHS\_Data\_Collector**, and **SPIDataCollector** instrumentation categories.
- 4 Click **OK**. Categories are assigned to the managed node.

## Deploy Instrumentation on the Managed Node

To deploy instrumentation on the managed node:

- 1 From the Node Bank window, select the nodes or node groups on which you want to install the Oracle AS SPI.

- 2 Select **Deploy Configuration...** from the **Choose an Action** drop-down list and click  to submit.



- 3 Select **Distribute Instrumentation** check box.
- 4 Click **OK**. Instrumentation is deployed on the managed nodes.

## Run Discovery

You must run discovery using the Discover or Configure OASSPI tool to set the basic configuration properties required for the Oracle AS SPI to discover instances of the Oracle Application Server, deploy the Oracle AS SPI discovery policies, and update the service map.

To run discovery:

- 1 From the Administration UI, select **Integrations** → **HPOM for Unix Operational UI**.
- 2 Select one or more nodes on which you want to launch Discover or Configure OASSPI tool. To launch Oracle AS GUIs. see [Launching GUIs](#) on page 57.
- 3 Right-click a node and select **Start** → **SPI for Oracle AS** → **SPI Admin** → **Discover or Configure OASSPI**. The Tool Selector window appears.
- 4 Select the Launch Discover Tool button and click **OK**. By default, the Launch Configure Tool button is selected. The Introduction window appears.
- 5 Click **Next**. The Configuration Editor appears.
- 6 If you have already set the LOGIN, PASSWORD, HOME or HOME\_LIST, and JAVA\_HOME properties, go to the step 7.

If you have not set the LOGIN, PASSWORD, HOME or HOME\_LIST, and JAVA\_HOME properties, perform the following steps to set these mandatory properties.

- ▶ Make sure that the LOGIN, PASSWORD, JAVA\_HOME, and HOME or HOME\_LIST properties are set because these are mandatory properties. In earlier versions of the SPI, only LOGIN and PASSWORD were required properties.

- a Select LOGIN/PASSWORD from the **Select a Property to Set...** drop-down list.

The Set Access Info for Default Properties window appears.

Enter the username and password collected in [Collect Oracle AS Login Information](#) on page 37. The LOGIN and PASSWORD properties are set to this information.

The LOGIN and PASSWORD properties set in this window are used as the default Oracle Admin Server login and password (they are set at the global properties level). If no NODE level or server-specific LOGIN and PASSWORD properties are set, this Oracle AS login and password are used by the Oracle AS SPI to log on to all Oracle Admin Servers. For more information on the configuration structure, see [Structure](#) on page 105.

**If the Oracle Admin Server login and password are the same for all Oracle application servers** on all HPOM managed nodes, set the LOGIN and PASSWORD properties in the Set Access Info for Default Properties window and click **OK**.

**If the Oracle Admin Server login and password are different for different instances of Oracle**, you must customize the Oracle AS SPI configuration by setting the LOGIN and PASSWORD properties at the NODE or server-specific level (for more information on the configuration structure, see [Structure](#) on page 105) and click **OK**:

- b Select HOME or HOME\_LIST from the **Select a Property to Set...** drop-down list and click **Set Property**. Set the value for HOME or HOME\_LIST.
  - c Select JAVA\_HOME from the **Select a Property to Set...** drop-down list and click **Set Property**. Set the value for JAVA\_HOME.
- 7 Modify the configuration using the configuration editor.
- ▶ When setting the configuration using configuration editor, note the following:
    - GRAPH\_SERVER property is no longer supported in the Oracle AS SPI. Instead, set the GRAPH\_URL property.
    - After you consolidate the UDMs on the management server, delete the old UDM files from the managed nodes and distribute the new UDM file to the managed nodes using the Deploy UDM tool.
- 8 Click **Next** to save any changes and exit the editor. The Confirm Operation window appears.
- 9 Click **OK**. Discovery is run successfully.

▶ If you click **Cancel** and made changes to the configuration, those changes remain in the configuration on the management server. To make the changes to the selected managed nodes' configuration, you must select those nodes, start the Discover or Configure OASSPI tool, launch the Discover tool, click **Next** from the configuration editor, and then click **OK**.

▶ Do not close the Discover or Configure OASSPI tool window until the discovery process completes. The discovery process might take several minutes to complete.

## JMX Discovery for Oracle AS

The Oracle AS SPI now supports JMX discovery for Oracle Application Server version 10gR3.

In your environment you may have different versions of Oracle Application Servers, for example, version 10gR3 or older, installed on the same node. In such a scenario, you may have to select whether you want to run classic discovery or the JMX discovery.

▶ For the older versions of Oracle Application Servers, the Oracle AS SPI uses DMS tool for Discovery. This is referred to as *classic discovery* in this document.

There can be three scenarios:



Scenario 1: If only Oracle Application Server version 10gR3 is installed on the node.

By default, the JMX Discovery runs.

Scenario 2: If Oracle Application Server versions older than 10gR3 (for example 10gR1 and 10gR2) are installed on the node.

By default, the classic system of discovery runs.

Scenario 3: If different versions of Oracle Application Server (10gR3 along with 10gR1 or 10gR2) are installed on the node.

You can choose the method of discovery.

In the `SPIDConfig` file, set the value of the **JMX\_DISCOVERY** flag to `true` or `false`. By default, the value is `true`.

- If **JMX\_DISCOVERY**=`true`, the JMX Discovery runs for Oracle AS 10gR3 version only and all the older versions are not discovered.
- If **JMX\_DISCOVERY**=`false`, the classic system of discovery is used for all the versions including 10gR3.

▶ If you set the **JMX\_DISCOVERY** flag to `false`, the collection of JMX Metrics (belonging to the OASSPI-Metrics (JMX) policy group) fails. All metrics belonging to the OASSPI Metrics group is collected with the exception of OASSPI\_0001, OASSPI\_0002, OASSPI\_0005, and OASSPI\_0245.

## Discovering HTTP (OHS) Server

▶ The new JMX discovery discovers the HTTP server *only* if it is a part of a cluster.

There can be two discovery scenarios for HTTP (OHS) servers:

Scenario 1: HTTP (OHS) and OC4J servers are on the same system and have a common Oracle HOME.


The HTTP server is automatically discovered.

Scenario 2: HTTP (OHS) and OC4J servers are on different systems and /or have different Oracle HOME.

To discover HTTP (OHS) server in this scenario:

- 1 In the cluster, identify the OC4J instance that is connected to the OHS server.
- 2 In the Configuration Editor (for more information on the configuration editor, see [Using the Configuration Editor](#) on page 107), right-click the node on which the OC4J server is installed and select **Add OC4J/OHS Server**. The OASSPI Discover Tool: Add App Server window appears.
- 3 Select the **HTTP Server** check box and click **OK**. The HTTP Server is added below the OC4J server.
- 4 Select the HTTP Server. In the Properties for OC4J/OHS Server: HTTP Server pane, the NAME and TYPE properties appear by default.
- 5 Set the following properties—to set a property select the property from the Select a Property to Set drop-down list and click **Set Property**. Double-click the empty space next to the property after the property appears in the list:

- HOME: Similar to the value set for the OC4J server.  
For example: **E:/product/10.1.3.1/OracleAS\_1**
- JAVA\_HOME: Similar to the value set for the OC4J server.  
For example: **E:/product/10.1.3.1/OracleAS\_1/jdk**
- LOGIN: Similar to the value set for the OC4J server.
- PASSWORD: Similar to the value set for the OC4J server.
- MAP\_KEY\_PREFIX: Any unique HTTP instance name
- URL\_PATH: Similar to the value set for the OC4J server. However, you must replace /home at the end of the URL with /cluster.  
For example: **/optmn://testsystem.com:6004/cluster**
- To get the port no. in the URL, type the following command from the command prompt: **<directory> /product/10.1.3/OracleAS\_1/opmn/bin> opmnctl status -port.**
- VERSION: 10.1 3

 There is a single space between 10.1 and 3 in the version.

- 6 Click **Next**. The OASSPI Discover Tool: Confirm Operation Window appears.
- 7 Click **OK**.

#### Limitations

There are two limitations in this scenario:

- 1 You must manually enter the information the SPI requires to monitor the HTTP server.
- 2 The information on the HTTP Server does not appear in the service map because this information was manually entered and not discovered.

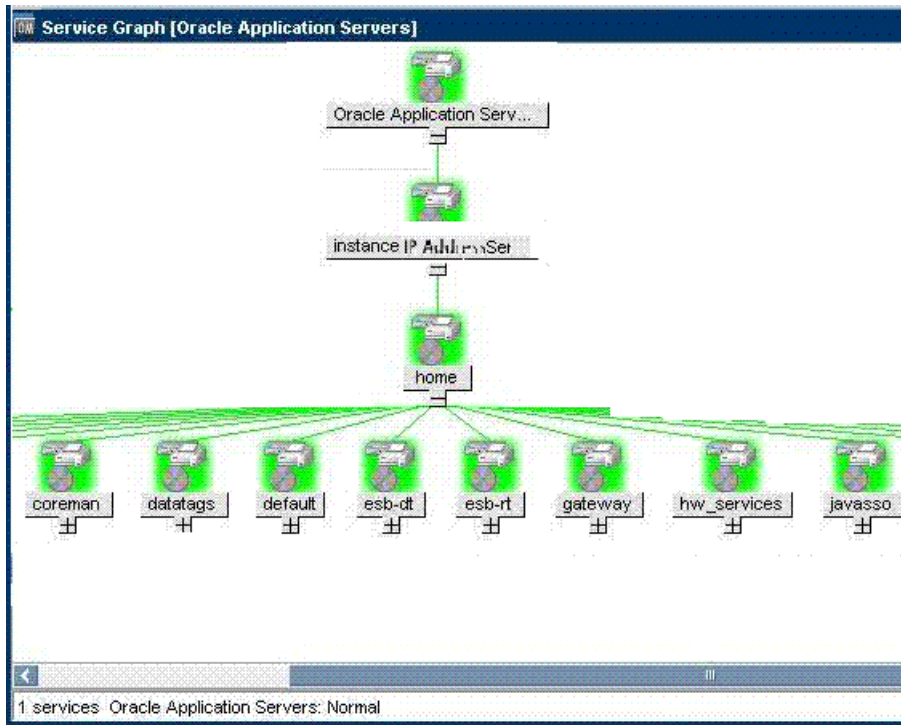
## Verify the Discovery Process

Depending on the number of managed nodes in your environment, verification takes several minutes to complete. To verify the discovery process:

- 1 Verify that the following message appears in the message browser for each managed node:  
WASSPI-602 - OASSPI Discovery is successful.

Depending on the number of managed nodes in your environment, it might take several minutes for these messages to appear for all managed nodes.

- 2 Select **File** → **Reload Configurations**. In the Services tree, open the Application node and look for the Oracle service. Click **Services** tab to view the service map in the Operational UI.



▶ If the service map is not displayed in the Operational UI, type the following command to assign the services to the operator:

```
opcservice -assign <operator> <service>
```


For example: **opcservice -assign opc\_adm <service>**

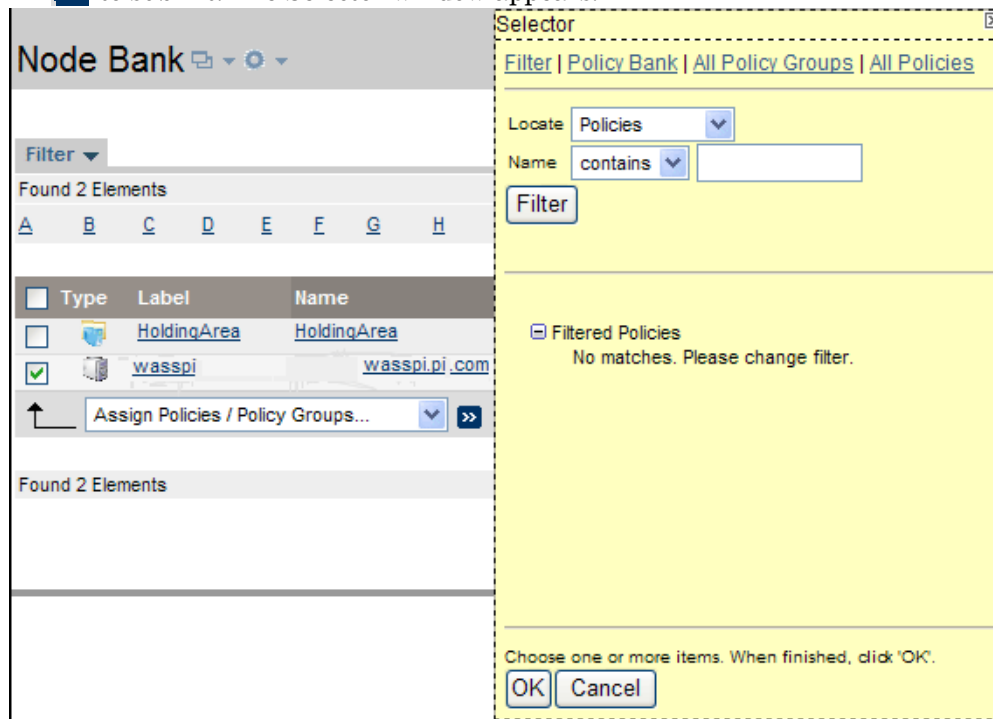
- 3 Run the Discover or Configure OASSPI tool to verify the properties set by the discovery process. For more information, see [Discover or Configure OASSPI](#) on page 50.

## Assign Policies to the Managed Node

To assign policies to the managed node:

- 1 Open the Node Bank window and select the managed nodes.


- 2 Select **Assign Policies / Policy Groups...** from the **Choose an Action** drop-down list and click  to submit. The Selector window appears.



- 3 Click **Policy Bank**.
- 4 Select the policies you want to assign to the managed node from the SPI for Oracle AS policy group.
- 5 Click **OK**. Policies are assigned to the managed node.

## Deploy the Oracle AS SPI Policies

To deploy the Oracle AS SPI policies:

- 1 Open the Node Group window and select the Oracle AS node group.
- 2 Select **Deploy Configuration...** from the **Choose an Action** drop-down list and click  to submit.
- 3 Select **Distribute Policies**.
- 4 Click **OK**. The Oracle AS SPI policies are now distributed to the Oracle AS node group. The Oracle AS SPI monitors can now begin running according to their specific collection interval.

► If you use HP Reporter, see [Chapter 6, Integrating HPOM Reporting and Graphing Products with the Oracle AS SPI](#), for information on integrating the Oracle AS SPI with Reporter. Use Reporter to generate Oracle Application Server reports that show more consolidated information.

## Run Configuration

To run configuration:

- 1 From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
- 2 Select one or more nodes on which you want to launch Discover or Configure OASSPI tool. To launch Oracle AS GUIs, see [Launching GUIs](#) on page 57.
- 3 Right-click a node and select **Start** → **SPI for Oracle AS** → **SPI Admin** → **Discover or Configure OASSPI**. The Tool Selector window appears.
- 4 Click **OK**. By default, the Launch Configure Tool button is selected. The Introduction window appears.
- 5 Click **Next**. The Configuration Editor appears.
  - ▶ Make sure that the LOGIN, PASSWORD, JAVA\_HOME, and HOME or HOME\_LIST properties are set. You cannot proceed to the next window if the required properties are not set. For information on how to set the properties, see [Run Discovery](#) on page 39.
- 6 Set the configuration properties at the global or server specific level by selecting the property from the **Select a Property to Set...** drop-down list, click **Set Property**, and set the value for the property. For more information on the usage of configuration editor, see [Appendix B, The Configuration](#).
- 7 Click **Save** to save any changes made to the configuration. You cannot undo the changes after you save them.
- 8 Click **Finish** to exit the editor and start configuring the Oracle AS SPI on the managed node.
  - ▶ If you click **Cancel**, the changes made are not saved to the selected managed nodes' configuration and remain in the configuration on the management server.

For more information on the configuration structure, see [Structure](#) on page 105.

## Verify the Oracle AS SPI Configuration

Run the Verify tool to verify that all the instrumentation files are properly deployed. For more information on this tool, see [Verify](#) on page 53.

- 1 From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
- 2 Select one or more nodes on which you want to launch Verify tool.
- 3 Right-click a node and select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **Verify**. The Oracle AS SPI configuration is verified.

## Additional Configuration

You must finish the Oracle AS SPI configuration, based on your Oracle Application Server configuration and tool needs, by setting additional configuration properties and/or installing and configuring additional components. Setting additional properties and configuring additional components depends on your environment.

## Conditional Properties

You might need to set one or more conditional properties based on your Oracle Application Server configuration and tool needs. If you meet a condition, set the properties listed to the right of the condition (these properties are not automatically discovered by the discovery process). For more information on the properties, see [Configuration Properties](#) on page 115.

**Table 4 Conditional Properties**

Condition	Property to Set
Start or stop an Oracle Application Server using the Start/Stop Oracle AS tool from the HPOM console.	START_CMD, STOP_CMD, and USER
Use the View Graphs tool from the HPOM console (HP Performance Manager must be installed).	GRAPH_URL

## Setting Conditional Properties

To set the conditional properties, perform the steps in [Run Configuration](#) on page 45.

If you have added an application server or added/edited the HOME or PORT properties, run the Discover or Configure OASSSPI tool ([Run Discovery](#) on page 39) on the managed nodes on which the application server/properties were added or edited. Running Discovery updates the service map.

## Configuring a Non-Root HTTPS Agent on a UNIX Managed Node

If you are running or planning to run a non-root HTTPS agent on a UNIX managed node:



You must install the OS-dependent Sudo software package on the UNIX managed node. Sudo is free software available from <http://www.sudo.ws>. The OS-dependent software packages are located at the bottom of the download page (<http://www.sudo.ws/sudo/download.html>). See the release notes for more installation information.

- 1 Switch the HTTPS agent to a non-root user. For more information, see the *HP Operations Manager HTTPS Agent Concepts and Configuration Guide*. This document is available at <http://h20230.www2.hp.com/selfsolve/manuals> under the product Operations for UNIX, version 8.x.
- 2 Add the agent user account to the local Oracle Application Server user group on the managed node. This enables the HP Operations agent user to access the files in the Oracle Application Server installation directories. Use the system administration tool or modify the `/etc/group` file to add the user.
- 3 On the managed node, set the `OV_SUDO` variable. As root or with HP Operations agent user privileges:
  - a Stop all HP Operations agents. Run the following command:

```
opcagt -kill
```
  - b Set the `OV_SUDO` variable. Run the following command:

```
ovconfchg -ns ctrl.sudo -set OV_SUDO <sudo_program>
```

where `<sudo_program>` is the location (including the absolute pathname) where sudo is installed (for example, `/usr/local/bin/sudo`).

- c Start the HP Operations agents and run the following command:
 

```
opcagt -start
```
  - d Verify that OV\_SUDO is set and run the following command:
 

```
ovdeploy -cmd set | grep SUDO
```

 The following message appears:
 

```
OV_SUDO=<sudo_program>
```
- 4 Configure the managed node. These steps *must* be completed to successfully run the SPI in a non-root HTTPS agent environment.
    - a From the HPOM management server, deploy actions, commands, and monitors to the managed node.
    - b From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
    - c Select one or more nodes on which you want to launch Init Non-Root tool.
    - d Right-click a node and select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **Init Non-Root**.  
The Init Non-Root Output window appears.
  - 5 Edit the `/etc/sudoers` file using the visudo editor (installed with sudo):
    - a On the managed node, log in as root.
    - b Open the `<SPI_Config_DIR>/wasspi_oas_sudoers` file  
where `<SPI_Config_DIR>` is the location of the SPI's configuration files on a managed node. For more information, see [Managed Node File Locations](#) on page 103.
  - 6 In a separate window, run the visudo command (for example, type: `/usr/local/sbin/visudo`).
    - c From the `wasspi_oas_sudoers` file, copy and append the following lines to the `sudoers` file:
 

```

          Cmnd_Alias OASSPI_ADMN = /opt/OV/nonOV/perl/a/bin/perl -S \
          wasspi_admin *
          Cmnd_Alias OASSPI_COLL = /opt/OV/nonOV/perl/a/bin/perl -S \
          wasspi_ca *
          Cmnd_Alias OASSPI_DISC = /opt/OV/nonOV/perl/a/bin/perl \
          wasspi_oas_discovery.pl
          Cmnd_Alias OASSPI_LFEN = /opt/OV/nonOV/perl/a/bin/perl -S \
          wasspi_oas_le *
          Cmnd_Alias OASSPI_SHSC = /opt/OV/nonOV/perl/a/bin/perl -S \
          shs_collector.pl *

          Cmnd_Alias OASSPI_ADMNP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_admin *
          Cmnd_Alias OASSPI_COLLP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_ca *
          Cmnd_Alias OASSPI_DISCP = /opt/OV/nonOV/perl/a/bin/perl \
          /var/opt/OV/bin/instrumentation/wasspi_oas_discovery.pl
          Cmnd_Alias OASSPI_LFENP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_oas_le *
          Cmnd_Alias OASSPI_SHSCP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/shs_collector.pl *
          
```

```
<OV_Agent_username> <nodename> = NOPASSWD: OASSPI_ADMN, \  
OASSPI_COLL, OASSPI_DISC, OASSPI_LFEN, OASSPI_SHSC, \  
OASSPI_ADMNP, OASSPI_COLLP, OASSPI_DISCP, OASSPI_LFENP, \  
OASSPI_SHSCP
```

In this instance, *<OV\_Agent\_username>* is the HP Operations agent user account and *<nodename>* is the name of the managed node.

- d Save the file and exit the visudo editor. Type **wq**



Steps 3 and 4 must be performed every time the agent user is switched.



# 4 Using Tools




The Oracle SPI offers centralized tools that help you to monitor and manage systems using the Oracle Application Server. The Oracle SPI tools enable you to configure the management server's connection to selected server instances on specific managed nodes. The Oracle SPI tools include configuration, troubleshooting, and report-generating utilities.

## Overview

In the Tool Bank window, the OASSPI:TOOLS group contains the following Oracle SPI tool groups:



- Oracle Admin (OASSPI:ADMIN)
- SPI Admin (OASSPI:SPI\_ADMIN)
- Reports (OASSPI:REPORTS)
- JMX Metric Builder (OASSPI:REPORTS\_JMX): This tool group is available *only* if you install the SPIJMB software bundle.

**Figure 8 Elements in Tool Group “SPI for Oracle AS”**














Elements in Tool Group "SPI for Oracle AS"   




[/ Tool Bank / OASSPI:TOOLS](#)

Administrative and Operator Tools for the SPI for Oracle Application Server.

Details SPI for Oracle AS  Filter 

Found 4 Elements

<input type="checkbox"/>	Type	Label	Name		Contents	Target
<input type="checkbox"/>		Oracle AS SPI	<a href="#">OASSPI:ADMIN</a>	 	0 / 5	OASSPI SPI Admin tool group
<input type="checkbox"/>		OASSPI Reports	<a href="#">OASSPI:REPORTS</a>	 	0 / 19	Ascii metric reports for Oracle Application Server
<input type="checkbox"/>		OASSPI Reports (JMX)	<a href="#">OASSPI:REPORTS_JMX</a>	 	0 / 18	Ascii metric reports for Oracle Application Server (JMX)
<input type="checkbox"/>		OASSPI Admin	<a href="#">OASSPI:SPI_ADMIN</a>	 	0 / 10	OASSPI SPI Admin tool group

 Choose an action  



## SPI Admin Tools Group

The SPI Admin tools group contains tools that enable you to configure, control, and troubleshoot the Oracle SPI. These tools require the `root` user permission, therefore it is recommended that this group is assigned to the HPOM administrator.

Additional SPI Admin tools for user defined metrics (UDMs) are available with the SPIJMB software bundle. For more information about how to install the software bundle and the additional tools, see the *HP Operations Smart Plug-in for User Defined Metrics User Guide*.



To access the SPI Admin tools, in the Tool Bank window, click **OASSPI:TOOLS**  
 →**OASSPI:SPI\_ADMIN**.

**Figure 9 Oracle SPI Admin Tool Group**

Elements in Tool Group "SPI Admin"  



[/ Tool Bank / OASSPI:TOOLS / OASSPI:SPI\\_ADMIN](#)  
[/ Tool Bank / OASSPI:TOOLS / OASSPI:ADMIN / OASSPI:SPI\\_ADMIN](#)

OASSPI Admin tool group

Details SPI Admin  Filter 

Found 10 Elements

<input type="checkbox"/> Type	Label	Name	Target	Output mode	Description
<input type="checkbox"/>	<a href="#">Self-Healing Info</a>	<a href="#">OASSPI:DEBUG</a>	Selected Nodes	Output only	Gather Data Needed For Support
<input type="checkbox"/>	<a href="#">Discover or Configure OASSPI</a>	<a href="#">OASSPI:DISCOVER_OR_CONFIGURE_OASSPI</a>	SMGMTSV	X	Discover the Application server or on the option selected in the tool
<input type="checkbox"/>	<a href="#">Init Non-Root</a>	<a href="#">OASSPI:INIT_NON-ROOT</a>	Selected Nodes	Output only	Init Non-Root
<input type="checkbox"/>	<a href="#">Start Monitoring</a>	<a href="#">OASSPI:START_MONITORING</a>	SMGMTSV	X	Start Oracle Application Server SF
<input type="checkbox"/>	<a href="#">Stop Monitoring</a>	<a href="#">OASSPI:STOP_MONITORING</a>	SMGMTSV	X	Stop Oracle Application Server SF
<input type="checkbox"/>	<a href="#">Stop Tracing</a>	<a href="#">OASSPI:TRACE_OFF</a>	Selected Nodes	Output only	Stop Tracing
<input type="checkbox"/>	<a href="#">Start Tracing</a>	<a href="#">OASSPI:TRACE_ON</a>	Selected Nodes	Output only	Start Tracing
<input type="checkbox"/>	<a href="#">Verify</a>	<a href="#">OASSPI:VERIFY_INSTALLATION</a>	Selected Nodes	Output only	Verify OASSPI Installation
<input type="checkbox"/>	<a href="#">View Error Log</a>	<a href="#">OASSPI:VIEW_ERROR_FILE</a>	Selected Nodes	Output only	View OASSPI Internal Log
<input type="checkbox"/>	<a href="#">View Graphs</a>	<a href="#">OASSPI:VIEW_GRAPHs</a>	SMGMTSV	X	OASSPI Graph selection and view

↑ Choose an action  

The Oracle SPI Admin tool group contains the following tools:

- [Discover or Configure OASSPI](#)
- [Self-Healing Info](#)
- [Init Non-Root](#)
- [Start Monitoring](#)
- [Stop Monitoring](#)
- [Start Tracing](#)
- [Stop Tracing](#)
- [Verify](#)
- [View Error Log](#)
- [View Graphs](#)

## Discover or Configure OASSPI

You can run the discovery or configuration process using the Discover or Configure OASSPI tool. The Discover or Configure OASSPI tool launches the configuration editor. The tool Discover or Configure OASSPI enables you to either identify instances of a Oracle Application Server on a managed node from the HPOM console (on selecting Launch Discover Tool option) or maintain the Oracle SPI configuration by viewing, editing, or setting configuration properties in the configuration editor (on selecting Launch Configure Tool option).

## Function

The following functions are performed by the Configure Tool:

- Updates the configuration on the HPOM management server and selected managed nodes.
- Creates the directories and files required by the Oracle SPI on the selected managed nodes.
- Sets up data sources for reporting and graphing.
- Sets up the Oracle Server log files and the Oracle SPI error log file for monitoring.

The Discover Tool updates the configuration on the HPOM management server and selected managed nodes.

Configuration information for all Oracle instances on all HPOM managed nodes is maintained on the HPOM management server. In addition, every managed node maintains information about Oracle Application Servers running on that node.

When you make changes using the configuration editor, the changes are saved on the HPOM management server. However, when launching the Discover or Configure OASSPI tool if you select a node, the changes affecting the selected node are saved on that node itself.

To save any changes on a managed node, you must select that node before launching the Discover or Configure OASSPI tool otherwise the changes are saved on the management server by default.

## Init Non-Root

Updates the `/var/opt/OV/bin/instrumentation/wasspi_oas_platdef.pm` file and generates the `wasspi_sudoers` configuration file on the selected managed nodes.

This tool simplifies the configuration of a non-root HTTPS agent on a UNIX managed node. For all the steps necessary to configure a non-root HTTPS agent on a UNIX managed node, see [Configuring a Non-Root HTTPS Agent on a UNIX Managed Node](#) on page 46.

## Function

The Init Non-Root tool performs the following functions on the selected managed nodes:

- 1 Runs the `wasspi_perl -S wasspi_initnonroot.pl -prod oas force` command to set the proper SPI path.
- 2 Generates the `wasspi_perl_su` file.

## Self-Healing Info

The Self-Healing Info tool collects data that you can send to your HP support representative.

## Setup

If you are collecting data for a reproducible problem, follow these steps before running the Self-Healing Info tool:

- 1 Run the Start Tracing tool. For more information, see [Start Tracing](#) on page 52.
- 2 Reproduce the problem.

## Function

Self-Healing Info tool performs the following functions:

- Saves data in the following file:
  - on a UNIX or Linux managed node: `/tmp/wasspi_oas_support.tar`
  - on a Windows managed node: `wasspi_oas_support.zip` in `%TEMP%` directory.
- ▶ This file might be hidden on some Windows managed nodes. If you do not see the file, open Windows Explorer and, from the **Tools** menu, select **Folder Options**. Click the **View** tab. Under Hidden files and folders, select **Show hidden files and folders**.
- Launches and saves data using the Verify tool (for more information, see [Verify](#) on page 53).

## Start Monitoring

The Start Monitoring tool starts the Oracle AS SPI to collect metrics for OC4J/OHS server instances on a managed node. By default, monitoring is on.

### Function

The Start Monitoring tool starts the collection of metrics for OC4J/OHS server instances on a managed node.

## Stop Monitoring

When you launch the Stop Monitoring tool, the Oracle AS SPI stops collecting metrics for OC4J/OHS server instances on a managed node.

Typically, you might stop monitoring on a managed node if the node is not running for a known reason (for example, the node is down for maintenance). Stopping the monitoring prevents unnecessary alarms from being generated. By default, monitoring is on.

### Function

The Stop Monitoring tool stops the collection of metrics for OC4J/OHS server instances on a managed node.

## Start Tracing

The Start Tracing tool starts gathering information about the functioning of the SPI. Run this tool only when instructed by your HP support representative.

The Self-Healing Info tool collects the files created by this tool as a part of the data that the HP support representative can use.

### Function

The Start Tracing tool saves information about the functioning of the SPI in a file.

## Stop Tracing

The Stop Tracing tool stops gathering information about the functioning of the SPI.

The Self-Healing Info tool collects the files created by this tool as a part of the data that the HP support representative can use.

### Function

The Stop Tracing tool stops saving information about the functioning of the SPI in a file.

### Verify

The Verify tool enables you to verify if the files required for the functioning of the SPI (such as instrumentation, library and configuration) are deployed on the managed nodes.



Before you launch the Verify tool, make sure that you have installed the latest version of Self-Healing Service (SHS) component from the SPI DVD.

### Function

The Verify tool checks if the files (such as instrumentation, configuration and library) required for the functioning of the SPI, are deployed on the managed nodes.

### View Error Log

The View Error Log tool enables you to view the contents of the Oracle SPI error log file.

### Function

The View Error File tool enables you to view the contents of the Oracle SPI error log file `<OV_AGT_DIR>/wasspi/oas/log/wasspi_perl.log` where `<OV_AGT_DIR>` typically is:

- `/var/opt/OV` on UNIX and Linux managed nodes
- `\Documents and Settings\All Users\Application Data\HP\HP BTO Software\` on Windows managed nodes

### View Graphs

The View Graphs tool launches the Oracle SPI graphs, generated through HP Performance Manager, in a web browser.

### Setup

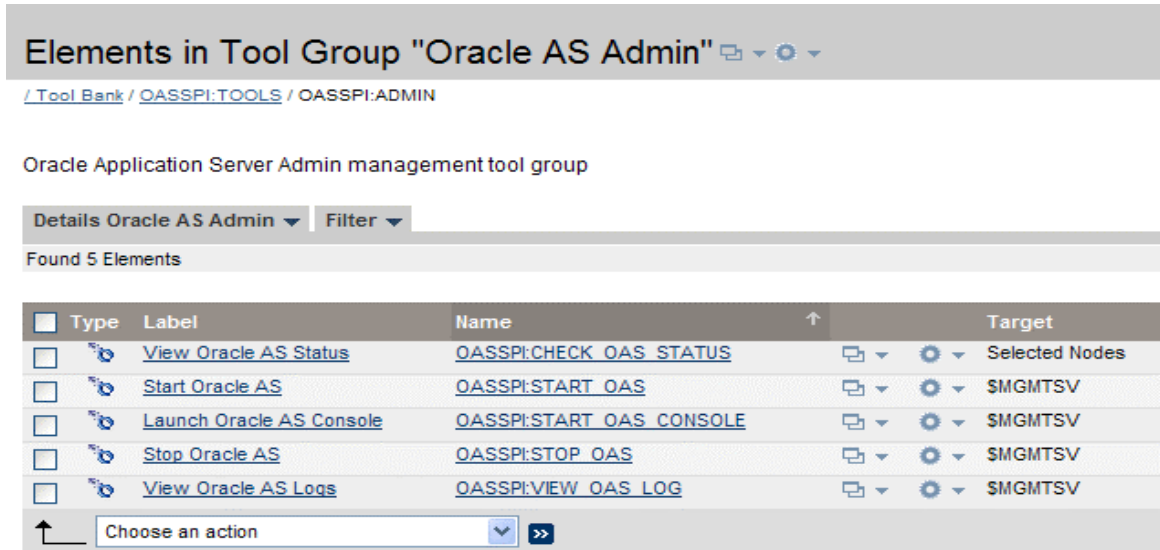
To run this tool successfully:

- Install the HP Performance Manager.
- Configure Mozilla or Netscape browser on the HP Operations Manager for UNIX or Linux. If your browser is Netscape Navigator, use version 6.0 or later.

## Oracle Admin Tools Group

To access the Oracle Admin tools, in the Tool Bank window click **OASSPI:TOOLS** → **OASSPI:ADMIN**.

**Figure 10 Oracle Admin Tool Group**



The Oracle Admin tool group contains the following tools:

- [Launch Oracle AS Console](#)
- [Start Oracle AS](#)
- [Stop Oracle AS](#)
- [View Oracle AS Logs](#)
- [View Oracle AS Status](#)

## Launch Oracle AS Console

By running the Launch Oracle AS Console tool you can bring up the Oracle Application Server Control Console.

### Setup

- Configure Mozilla or Netscape browser on the HP Operations Manager for UNIX or Linux before launching this tool.
- Install Oracle AS Enterprise Manager on the managed node to launch the Oracle
- Enterprise Manager Database Control

### Function

Launch Oracle AS Console brings up the Oracle Application Server Admin Console in a web browser for a single application server or all application servers on the selected node.

## Start Oracle AS

The Start Oracle AS tool starts a Oracle application server from the HPOM console. You can start one or more Oracle application servers on the selected managed nodes without logging on to each Oracle administration server.

### Setup

The START\_CMD, STOP\_CMD, and USER configuration properties *must* be set before launching this tool. To set this property, run the Configure tool and select Oracle application servers displayed in the left pane. Set the preceding configuration properties for each Oracle application server.

### Function

The Start Oracle tool starts one or all application servers on the selected managed nodes.

## Stop Oracle AS

The Stop Oracle AS tool stops a Oracle application server from the HPOM console. You can stop one or more Oracle application servers on the selected managed nodes without logging in to each Oracle administration server.

### Setup

The START\_CMD, STOP\_CMD, and USER configuration properties *must* be set before launching this tool. To set this property, run the Configure tool and select Oracle application servers displayed in the left pane. Set the preceding configuration properties for each Oracle application server.

### Function

The Stop Oracle tool stops one or all application servers on the selected managed nodes.

## View Oracle AS Logs

The View Oracle AS Logs tool enables you to select and view a Oracle Server log file without logging in to the system on which a Oracle Server is running.

### Function

The View Oracle Logs tool performs the following functions:

- When you launch the View Oracle Logs tool without a parameter, the tool returns a numbered list of available log files for the selected managed node.
- When you launch the View Oracle Logs tool with an invalid parameter (for example, a non-numeric value or a number that does not correspond to the list of available log files), the tool returns a numbered list of available log files for the selected managed node.
- When you launch the View Oracle Logs with a valid parameter, the tool returns the contents of the corresponding log file for the managed node.

You can enter only one numeric value in the parameter field. The log file designated to this number (for all managed nodes) will appear. Select one log file for one managed node to view each time you launch the tool.

If you keep the Tool Status window open and re-launch the tool, the output in the Tool Status window accumulates.

## View Oracle AS Status

The View Oracle AS Status tool displays a status report of the Oracle Application Servers running on a selected managed node. You can use this tool to check the status of each application server running on the node.

### Function

View Oracle AS Status displays the Oracle Application Server instance name, hostname, Oracle home, and processes (component, type, process ID, and status) for each application server instance.

## Reports Tool Group

The Reports tool group helps to generate reports that show information on Oracle Application Server conditions in the server. Each report shows the condition of all configured server instances on the managed node in relation to the metric.

### Function

Reports tool group helps to generate reports on Oracle Application Server conditions in the server.

## Reports JMX Tool Group

Reports JMX tool group helps to generate ASCII metric reports that display information about the condition of the Oracle Application Server (JMX). These reports are only available for Oracle Application Server version 10gR3.

### Function

Reports JMX tool group helps to generate ASCII metric reports on Oracle Application Server (JMX) conditions in the server.

## Tool Bank Reports Generated from Alarms

An alarm condition can generate a report. These reports are generated automatically and are context sensitive, relating only to a single server on the managed node. These reports appear within the Annotations tab in Message Properties window.

If you configure the message browser to display the **SUIAONE** columns, a flag appears under the **S** column (adjacent to the message) when a report is generated.

## Launching Tools

This section describes how you can launch the tools for the Oracle SPI. The steps in [Launching Discover or Configure OASSPI tool](#) describe how you can launch the Discover or Configure OASSPI tool. The steps in [Launching All Tools](#) describe how you can launch all the tools (excluding the Discover or Configure OASSPI) tool.



## Launching GUIs

To launch the GUIs related to the Oracle SPI:

- 1 Install X-windows client software on the machine from which you will launch the HPOM for UNIX 9.0x server Operator GUI.
- 2 Start the X-windows client software.

## Launching Discover or Configure OASSPI tool

See [Run Discovery](#) on page 39 and [Run Configuration](#) on page 45 to know how to launch Discover or Configure OASSPI tool.

## Launching All Tools

To launch all tools:

- 1 From the Administration UI, select **Integrations** → **HPOM for Unix Operational UI**.
- 2 Select the nodes on which you want to launch the tool.
- 3 Right-click a node and select **Start** → **SPI for Oracle** → **<Tool Group>** → **<Name of the Tool>**.  
The *<Name of the Tool>* Output window appears.



# 5 Customizing the Oracle AS SPI Policies

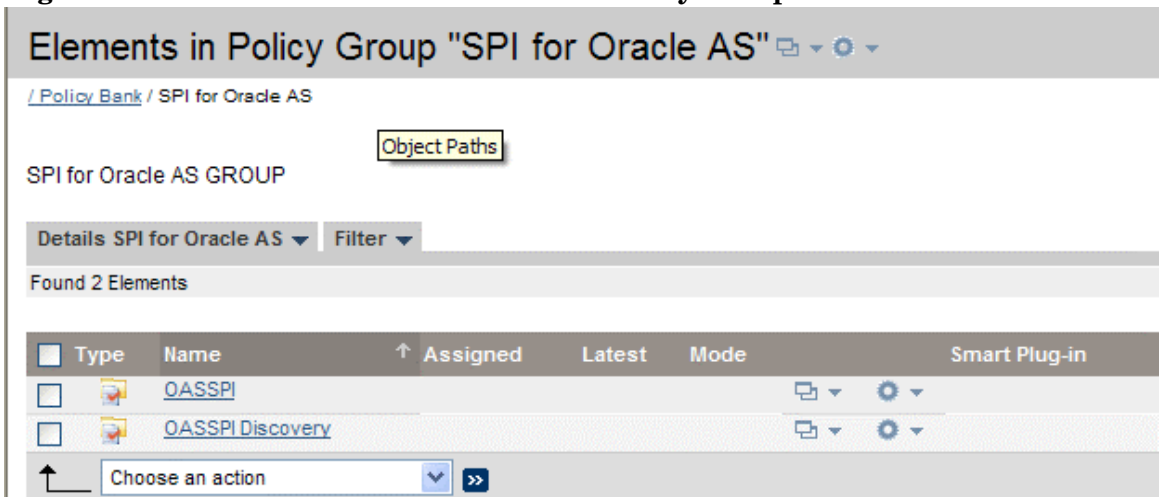
The Oracle AS SPI consists of policies which monitor the Oracle Application Server. This chapter describes policy types and how to modify policies.

## Overview

The SPI for Oracle policy group contains policies divided into two groups:

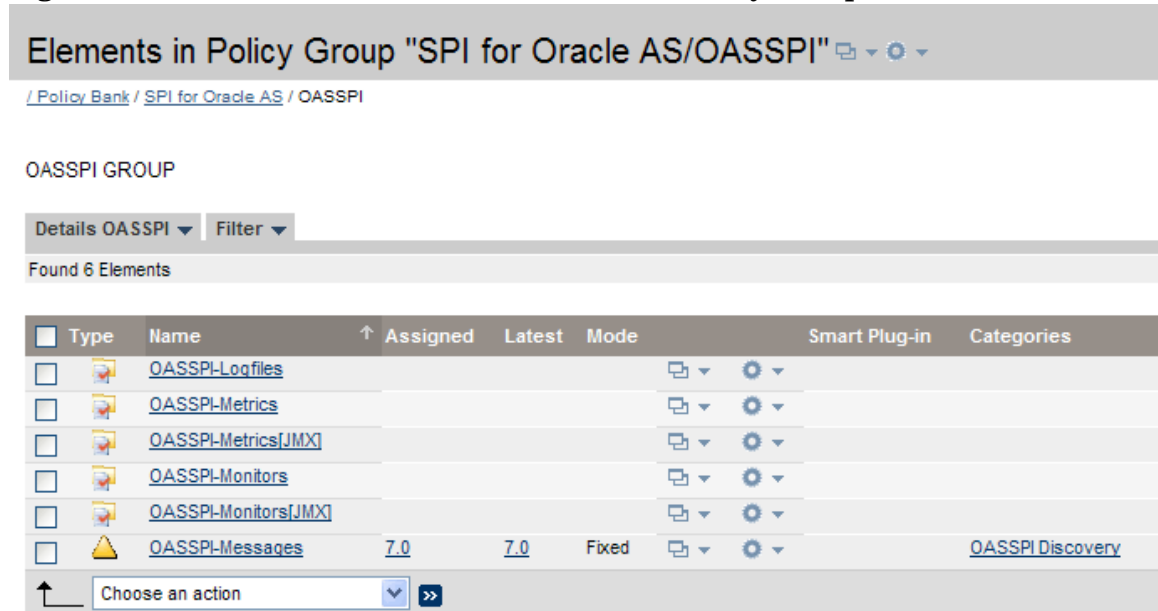
- OASSPI
- OASSPI Discovery

**Figure 11 Elements in “SPI for Oracle AS” Policy Group**



The OASSPI policy group contains the following policy subgroups and individual policies:

**Figure 12 Elements in “SPI for Oracle/OASSPI” Policy Group**



- **OASSPI-Logfiles** – Contains policies that generate messages based on log file and error text detected in both the Oracle Server log files and the Oracle SPI log files. The information captured from these log files includes errors that occur in the operation of the Oracle Application Server or the OAS SPI and changes made to Oracle Application Server configuration.

- **OASSPI-Metrics** – Contains metric policies that monitor the performance levels and availability of an Oracle Application Server.

Each metric policy determines the threshold conditions for the monitored metric. The message text that is sent to the HPOM message browser when the threshold is exceeded comprises the actions to execute, and instructions that appear.

- **OASSPI-Monitors** – Contains collector policies that specify the collection interval of the metric policies. Within the name of each collector policy is its collection interval. For example, the collection interval of the policy OASSPI-1h is one hour (where 1h represents one hour). Each collector policy is assigned a collection interval of 5 minutes, 15 minutes, or one hour.

When you open a collector policy, you can see the metrics collected within the interval (listed by number, following the `-m` option of the collector or analyzer command `wasspi_ca`).

Each collector policy controls which metrics are collected when. Specifically, the collector policy does the following:

- Runs the collector or analyzer at each collection interval
- Specifies which metrics are collected

- **OASSPI-Messages** – This is a single policy. It intercepts the OAS SPI messages for the HPOM message browser.
- **OASSPI-Metrics (JMX)** – Contains JMX metric templates that monitor the performance levels and availability of Oracle OC4J/OHS servers. Each JMX metric template determines the threshold conditions for the monitored JMX metric, the message text that is sent to the HPOM message browser when the threshold is exceeded, the actions to start, and instructions that appear.

- **OASSPI-Monitors (JMX)** – Contains JMX collector templates that specify the collection interval of the JMX metric templates. Within the name of each JMX collector template is its collection interval. For example, the collection interval of the template OASSPI-OHS-05min is 5 minutes (where 05min represents 5 minutes). Each JMX collector template is assigned a collection interval of 5 minutes, 15 minutes, or one hour. When you open a JMX collector template, you can see the metrics collected within the interval (listed by number, following the -m option of the collector/analyzer command wasspi\_oas\_ca). Each JMX collector template controls which metrics are collected when. Specifically, the collector template does the following:
  - Runs the collector/analyzer at each collection interval
  - Specifies which metrics are collected

The OASSPI Discovery policy group contains the following policy subgroups and individual policies:

Elements in Policy Group "SPI for Oracle AS/OASSPI Discovery"

/ Policy Bank / SPI for Oracle AS / OASSPI Discovery

OASSPI Discovery GROUP

Details OASSPI Discovery Filter

Found 2 Elements

Type	Name	Assigned	Latest	Mode	Smart Plug-in	Categories
	<a href="#">OASSPI-Messages</a>	7.0	7.0	Fixed		<a href="#">OASSPI Discovery</a>
	<a href="#">OASSPI Service Discovery</a>	7.0	7.0	Fixed		<a href="#">OASSPI Discovery</a>

Choose an action

Found 2 Elements

- **OASSPI-Messages** – This is a single policy. It intercepts the OAS SPI messages for the HPOM message browser.
- **OASSPI Service Discovery** – This is a single policy. It updates the configuration on the HPOM management server and managed nodes.

For information about creating UDM, see the *HP Operations Smart Plug-in for User Defined Metrics User Guide*.

## Basic Policy Customizations


After you begin using the Oracle AS SPI, you might decide that specific Oracle AS SPI policies need some modification. Basic customizations, such as changing a threshold (by modifying a metrics policy) or modifying alarm generation, are covered in this section.

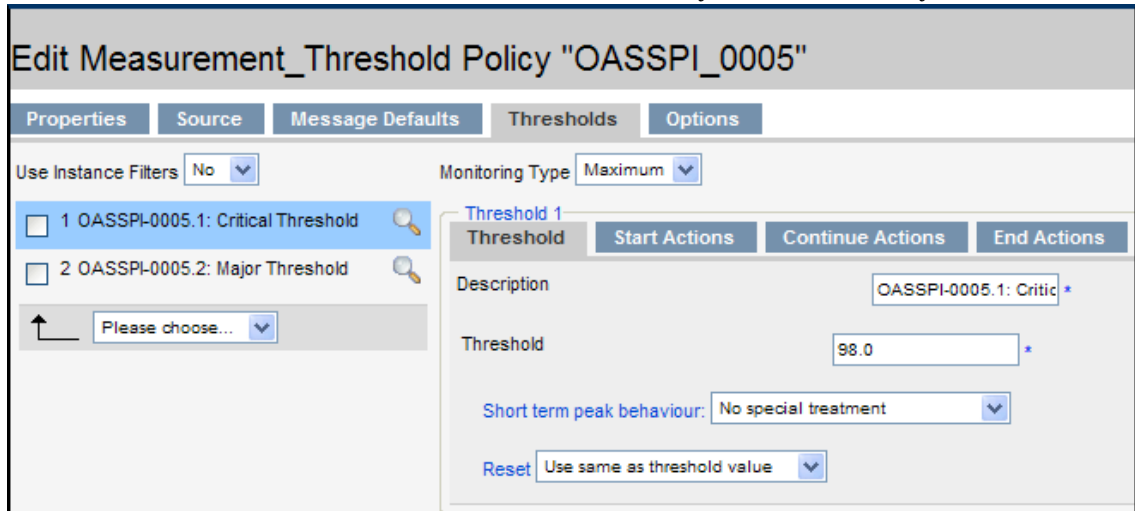


Make copies of the default policies so that they remain intact. Otherwise, your customizations are overwritten when you upgrade to the next version.

## Modifying Metrics Policies

Many metric attributes can be modified for all monitored instances of Oracle OC4J/OHS servers by following these steps:

- 1 Open the Policy Bank window and click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Metrics** policy group.
- 2 Select a metric and click **Edit...** from the drop-down list, which appears when you click .
- 3 The Edit Measurement\_Threshold Policy “Metric Name” window appears.
- 4 Click the **Thresholds** tab and then click the condition you want to modify.



The screenshot shows the 'Edit Measurement\_Threshold Policy "OASSPI\_0005"' window. It features a tabbed interface with 'Thresholds' selected. On the left, there are two threshold entries: '1 OASSPI-0005.1: Critical Threshold' and '2 OASSPI-0005.2: Major Threshold'. The right pane shows the configuration for 'Threshold 1', including a description, a threshold value of 98.0, and options for short-term peak behavior and reset.

- 5 Click the different tabs (**Threshold**, **Start Actions**, **Continue Actions**, and **End Actions**) and modify the attributes. See [Table 5](#) for a list of attributes that you can modify.
- 6 Click **Save** to save the changes.
- 7 Deploy the modified policy as described in [Deploy the Oracle AS SPI Policies](#) on page 44.

**Table 5 Metric Attributes**

Attributes	Description
<b>Threshold</b>	Enter a value for the metric data that, when exceeded, would signify a problem either about to occur or already occurring.
<b>Duration</b>	The length of time that the established threshold can be exceeded by the incoming data values for a metric before an alarm is generated.
<b>Severity</b>	The level assigned by the HPOM administrator to a message, based on its importance in a given operator’s environment. Click <b>Severity</b> to select the desired severity setting.
<b>Message Text</b>	Structured, readable piece of information about the status of a managed object, an event related to a managed object, or a problem with a managed object. Be careful not to modify any of the parameters—surrounded by <> brackets, beginning with \$—in a message.

**Table 5 Metric Attributes**

Attributes	Description
<b>Actions</b>	Response to a message that is assigned by a message source policy or condition. This response can be automatic or operator-initiated. This section provides the ability to generate Performance Manager graphs or reports, or to add custom programs.
<b>Automatic action</b>	Action triggered by an incoming event or message. No operator intervention is involved. The automatic action delivered with the Oracle AS SPI generates a snapshot report that shows the data values at the time the action was triggered from an exceeded threshold. You can view the report in the message Annotations.
<b>Operator-initiated action</b>	Action used to take corrective or preventive actions in response to a given message. Unlike automatic actions, these actions are triggered only when an operator clicks a button. The operator-initiated action delivered with the Oracle AS SPI enables you to view a graph of the metric whose exceeded threshold generated the message along with other related metric values (click <b>Perform Action</b> within a message's details window).


Figure 13 shows a threshold setting of 95 for metric OASSPI-0005.1. This metric monitors the percentage of heap space used in the JVM. A value of more than 95 (but less than 98) for 20 minutes would generate an alarm (a message of the severity major).

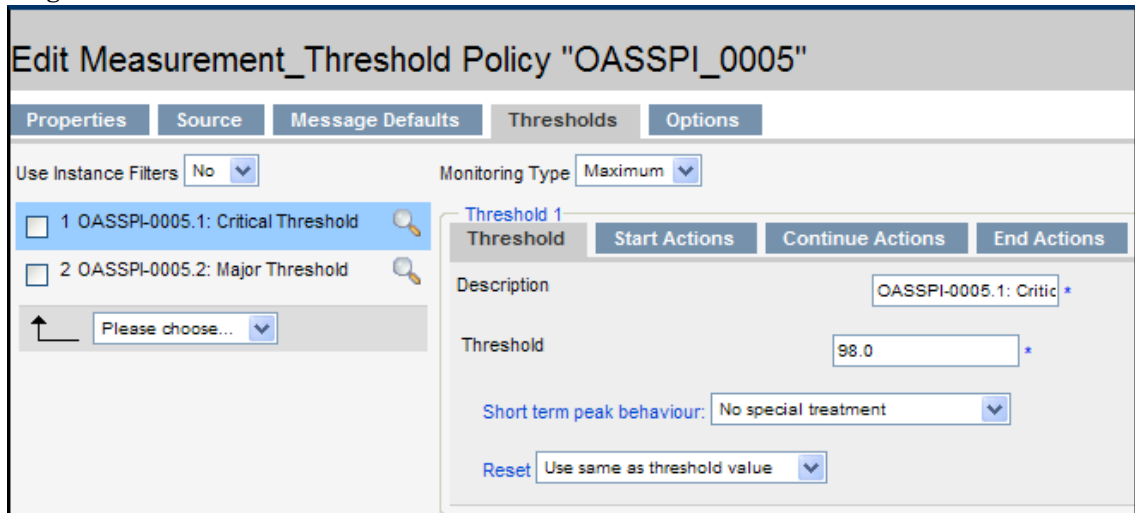
**Figure 13 Threshold Value for OASSPI 0005.1**

The screenshot displays the configuration for the data source OASSPI\_0005. It shows two conditions: a 'Critical Threshold' condition (OASSPI-0005.1) and a 'Major Threshold' condition (OASSPI-0005.2). The 'Critical Threshold' condition is selected, showing a threshold of 98, severity of 'critical', and an application of 'Oracle Application Server'. The 'Actions' section shows an operator-initiated action with a command to execute 'wasspi\_perl\_su' and a checkbox for 'Send message after automatic action finished' which is checked.

## Modifying Alarm Generation

An alarm can be generated once or multiple times, depending on its Message Generation setting in the Modify Threshold Monitor window. To change the Message Generation:

- 1 Open the Policy Bank window and click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Metrics** policy group.
- 2 Select a metric and click **Edit...** from the drop-down list, which appears when you click .
- 3 The Edit Measurement\_Threshold Policy “Metric Name” window appears.
- 4 Click the **Thresholds** tab and click the condition to modify the settings for message generation.



- 5 Modify the Message Generation settings by selecting the required option from the **Reset** drop-down list:
  - **Use Same as threshold level:** Alarms are generated once when the monitoring threshold value is exceeded. Alarms reset automatically when metric values are no longer in violation of the thresholds and are generated again when the threshold is exceeded.
  - **Specify a special reset value...:** Alarms are generated once when the threshold value is exceeded. At the same time, a reset threshold value is activated. Only when the reset threshold value is exceeded does the original threshold value become active again. Then, when the threshold value is again exceeded, another alarm is generated and the process starts all over again.
- 6 Click **Save**.
- 7 Re-distribute the modified policies as described in [Deploy the Oracle AS SPI Policies](#) on page 44.



## Advanced Policy Customizations

The policy changes suggested are about making copies of default policy groups in order to customize a few settings and deleting whole groups of metrics within a policy's command line. This section is considered advanced because all changes described here require some advanced knowledge of the Oracle AS SPI metrics.



## Choosing Metrics To Customize

Determine which metrics you want to customize and what policies within the group you want to use and then:

- 1 Open the **Policy Bank** window and click SPI for Oracle AS.
- 2 Select the policy group you want to use and click **Copy...** from the drop-down list, which appears when you click . The Copy Policy Group window appears.
- 3 Rename the group, select the parent group and click **Save**.
- 4 Within the renamed policy group, copy each original policy and rename it (follow the steps 2 and 3).
- 5 Delete the original policies within the renamed policy group by selecting **Delete...** from the **Choose an Action** drop-down list and click  to submit.
- 6 Customize the renamed policies within the group as necessary.

Creating a new policy group keeps custom policies separate from the original default policies, which you copy and place within the new group.

## Using the Oracle AS SPI Collector/Analyzer Command with Parameters

The `wasspi_ca` command is used in every collector policy and named according to its collection interval. You can view the default command line parameters within each collector policy in the Command box in the Modify Scheduled Action window.

## Using the Collector Command Parameters

The Oracle AS SPI data collections start with the `wasspi_ca` command, to which you can add other parameters, as identified in the following table.

Parameter	Function	Syntax with Example
-e	(exclude) Enables you to exclude specific servers. This option must not be used with the -i option.	-e <server_name> Example: -e server2,server4
-i	(include) Enables you to list specific servers to monitor. This option must not be used with the -e option.	-i <server_name> Example: -i server1,server3
-m	(metric) Specifies the metric numbers or number ranges on which to collect data.	-m <metric_number   metric_number_range> Example: -m 1,3-5,9-11,15

<b>Parameter</b>	<b>Function</b>	<b>Syntax with Example</b>
-matchver	(match version) Specifies the specific Oracle OC4J/OHS server version to monitor. This option must not be used with the -minver nor -maxver options. If no matching versions are found, the command does not start.	-matchver <version_number> Example: -matchver 10.1.2
-maxver	(maximum version) Specifies the highest Oracle OC4J/OHS server version to monitor. Use with -minver to specify a range of versions. If no versions are found, the command does not start.	-maxver <version_number> Example: -maxver 10.1.2
-minver	(minimum version) Specifies the lowest Oracle OC4J/OHS server version to monitor. Use with -maxver to specify a range of versions. If no versions are found, the command does not start.	-minver <version_number> Example: -minver 10.1.2
-r	(report) Generates an ASCII report for the specified metrics.	-r
-t	(tag) Creates a new policy group by adding a prefix to an existing collector policy and specifying the metric numbers.	-t <prefix>- Example: wasspi_ca -prod oas -m 220-223 -t DEV-
-prod	(product) Identifies the SPIs on which the command is run on the node.	-prod <name of the SPI>- Example: wasspi_ca -prod oas -m 220-223 -t DEV-

Parameter	Function	Syntax with Example
-x	Enables you to specify a property/value as follows:	-x <property>=<property_value>
	<b>alarm:</b> When off, overrides any alarming condition as set up in the metric monitor policy.	-x alarm=off
	<b>prefix:</b> Default: JMXUDM_. Specifies the prefix of the metric ID.	-x prefix=SALES_
	<b>print:</b> When on, prints the metric name, instance name, and metric value to STDOUT in addition to any configured alarming or logging.	-x print=on
	<b>log:</b> When off, prevents graphing or reporting functions.	-x log=off

### Syntax Examples

- To collect specific data on all configured servers:  


```
wasspi_ca -prod oas -m 1,2,10,11 -minver 10.0
```
- To collect data from specific servers only:  

```
wasspi_ca -prod oas -m 1,2,10,11 -minver 10.0 -i server1,server2
```
- To not collect data from specific servers:  

```
wasspi_ca -prod oas -m 1,2,10,11 -minver 10.0 -e server1,server2
```

## Changing the Collection Interval for All Metrics

To change the collection interval for all monitored metrics, change the Polling Interval in the appropriate collector policy. For example, to change the collection of default metrics from 5 minutes to 10 minutes for the OASSPI-OHS-05min collector policy:

- 1 Open the Policy Bank window.
- 2 Click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Monitors**.
- 3 Select the monitor policy **OASSPI-OHS-05min** and click **Edit...** from the drop-down list, which appears when you click .


- 4 The Edit Scheduled\_Task Policy “OASSPI-OHS-05min” window appears.

The screenshot shows a window titled "Edit Scheduled\_Task Policy 'OASSPI-OHS-05min'". It has three tabs: "Properties", "Scheduled Task", and "Message Failed". The "Scheduled Task" tab is selected. The "Name" field contains "OASSPI-OHS-05min". The "Type" field contains "schedule". The "Version" field contains "7.0" and there is a dropdown menu for "Auto-increment on save". The "Description" field contains "Runs the Oracle AS 10g SPI (HTTP\_Server) collector/analyzer every 5 minutes".

- 5 Change the Name to **OASSPI-OHS-10min** and the description accordingly.
- 6 Click the **Scheduled Task** tab.
- 7 In the Minute box, change the polling interval from 5 minute to 10 minutes. For example, 0, 10, 20....
- 8 Click the **Message Failed** tab and change the message text.
- 9 Click **Save** and distribute the new policies (for more information, see [Deploy the Oracle AS SPI Policies](#) on page 44).

## Changing the Collection Interval for Selected Metrics


To change the collection interval for selected metrics, copy the appropriate collector policy and rename with a name reflecting the new interval, deleting all, but the metrics you are changing. Set the new interval. Edit the original policy to remove the changing metrics. For example, to change the collection interval to 10 minutes for metrics 10 and 11, you would follow these steps:

- 1 Open the Policy Bank window.
- 2 Click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Monitors**.
- 3 Select the monitor policy **OASSPI-OHS-05min** and click **Copy...** from the drop-down list, which appears when you click . The Copy Policy “OASSPI-OHS-05min” window appears.
- 4 Change the Name to **OASSPI-OHS-10min** and the description accordingly.
- 5 Click the **Scheduled Task** tab.
- 6 In the Minute box, change the polling interval from 5 minute to 10 minutes. For example, 0, 10, 20....

- In the Command text box, delete all metrics after the `-m` except 10 and 11.

The screenshot shows a configuration window with the following fields:

- Task:** Command (dropdown menu)
- Command:** wasspi\_perl\_su -S wasspi\_ca -m 1,2,10,11 -type ohs
- Execute:** under Agent Account (\$AGENT\_USER) (dropdown menu)

- Click **Save** to save the changes.
- In the OASSPI-Monitors policy group, select the OASSPI-OHS-05min policy.
- Click **Edit...** from the drop-down list, which appears when you click . The Edit Scheduled\_Task Policy “OASSPI-OHS-05min” window appears.
- Click the **Scheduled Task** tab and delete 10 and 11 from the Command text box.
- Click **Save** and re-distribute the modified policies as described in [Deploy the Oracle AS SPI Policies](#) on page 44.

## Customize the Threshold for Different Servers

Customize the threshold as needed. For example, you might want to set the threshold to 90 for SERVER\_1 for metric 0220 and leave the threshold at 100 for all other servers. To do so, copy the existing condition and modify it to serve as the exception. Follow these steps:

- Double-click to open the metric for customization (for example, OASSPI-0220). The Message and Suppress Conditions window is displayed.
- Select the desired condition and click **Copy...** to make a copy of the condition.
- Name the condition OASSPI-0220.2.
- In the Object Pattern field, enter the following details:  
`<ServerName>:<ServerPort>:<NodeName>:<*>:<*>:<*>`  
 For Example: If you want to set threshold for the application server SERVER1, enter the following:  
`SERVER1 :<*>:<*>:<*>:<*>:<*>`
- Click the **Test Pattern Matching...** to test the pattern and verify pattern matching (you must set up a match file first).
- Change the value in the Threshold field from 100 to 90.


## Creating Custom, Tagged Policies

Another advanced customization option is to use the tag option (`-t` on the command line), which enables the collector/analyzer to recognize customized policies that have a tag attached to the name. This option provides you with the flexibility of using more than a single set of policies to define conditions pertaining to specific installations of Oracle Application Server.

When multiple nodes are managed by a number of groups, this option enables you to create specially tagged policies that are separate from your original setup. In such a case, you should make copies of the policies, rename them with the tag and re-work the collector policy to pick up the tagged names, and then assign them to the various groups.

For example, you can create a group of policies and change each policy name to include CLIENT01 in it. A metric monitor policy can be named CLIENT01-OASSPI\_0001 (retaining the metric number, which must be used). The collector policy name would be named FIRST\_CLIENT-OHS-05min. You could then set up another group for SECOND\_CLIENT and change all those policies to include the CLIENT02 in the name.

To create the new policy group:

- 1 Copy the original policy group. In the Policy bank window, select the group, and click **Copy...** from the drop-down list, which appears when you click . The Copy Policy Group window appears.
- 2 Name the new group according to how you plan to identify the new monitor and collector policies. For example, if you are including CLIENT01 in the policy names, include CLIENT01 within the new policy group name as well.
- 3 In the Policy bank window, click the policy groups to show all policies and select each policy you plan to use, click **Copy...** from the drop-down list (as given in step 1 and 2), and rename it according to your naming scheme.
  - The names you give the new metric monitor policies in the group would contain the new name followed by the original metric number. For example, a copy of OASSPI-0001 could be called CLIENT01-OASSPI\_0001.
  - The name you give the new collector monitor policy should also contain the identifying name. You can also modify the scheduled collection for the new group by inserting the `-t` property on the command line. For example:
 

```
wasspi_ca -m 16 -t CLIENT01-
```
- 4 Delete all original policies from the new group.

## Policy Variables

The following variables are used by the Oracle AS SPI policies. If you are creating your own policies, you can use these variables.

Name	Description
instancename	The instance for which the metric is being reported for multi-instance metrics. <b>Example:</b> /oc4j/Petstore/EJBs/shoppingcartEjb.jar/TheCart/ejbActivate
node	The node on which the OC4J/OHS server is running. <b>Example:</b> mool.hp.com
servername	The OC4J/OHS server name. Corresponds to the NAME configuration property. <b>Example:</b> my server
service_key	The service ID used to light up the nodes in the service map.

## Re-install the Oracle AS SPI Policies

When the Oracle AS SPI policies are installed in HPOM, the following commands automatically upload them when `swinstall` is run. Any customized policy settings you did for the previous installation are overwritten.

To restore the default SPI for Oracle AS policy group you had originally installed, delete all current policies first, then run the command:

```
/opt/OV/bin/OpC/opccfgupld -silent -replace  
-subentity /var/opt/OV/share/tmp/OpC_appl/wasspi/oas/oas_set
```

Alternatively, you can use the `-verbose` option instead of the `-silent` option.

## Use Policies/Tools to View Annotation Reports and Graphs

Some policies have actions defined with threshold violations or error conditions that automatically cause reports to appear under the Annotations tab in the Message Properties window. These reports are snapshots of data values collected from the server around the time that the alarm occurred.

Other policies have operator actions associated with them that enable you to generate a graph.



The reports discussed in this section should not be confused with those generated by HP Reporter, which show more consolidated, historical data generated as web pages in management-ready presentation format.

You can access the data as follows:

- To view the Message Properties, double-click a message text in the HPOM message browser. You can access Annotations by clicking the **Annotations** tab. Reports are available there, showing data values on a single server.
- To view reports:
  - From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  - Select a node for which you want to generate a metric report.
  - Right-click on the node and select **Start** → **SPI for Oracle AS** → **OASSPI Metrics** → **<Name of the Metric Report>**.

These reports show all server data on a node.

- To view graphs:
  - From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  - Select a node for which you want to generate a metric report.
  - Right-click on the node and select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **View Graphs**.

The web browser is launched, which appears the graphing feature available in HP Performance Manager (which must be purchased separately).

## Automatic Action Reports

Many metrics generate Automatic Action Reports. These reports are generated as soon as an alarm is triggered in HPOM. Automatic Action reports show the state of the system moments after the alarm occurred.

### Viewing an Automatic Action Report

When an Automatic Action Report is run from HPOM, the server is queried for additional data. If your message browser is set to display the SUIAONE columns, You will see an **S** under the **A** column (see illustration), which indicates that a generated report is available under the Annotations tab in the Message Properties window.

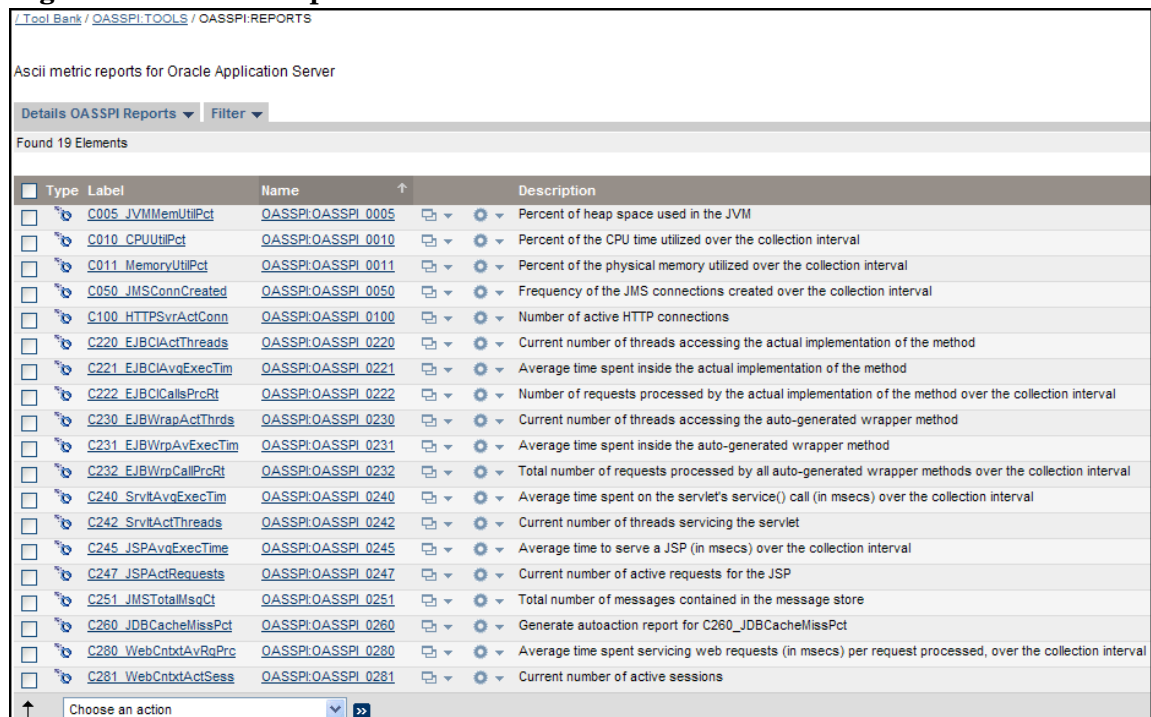
To view the report, double-click the message text in the Message Browser and then click the **Annotations** tab. Column descriptions provide further clarification.

## Tool Bank Reports

You can use Tool Bank Reports to manually generate a report similar to an Automatic Action report.

Tool Bank reports run for all Oracle OC4J/OHS server instances configured on the managed node, in contrast to Automatic Action Reports which are generated for a single Oracle OC4J/OHS server instance. The reports generated from the Tool Bank reflect the current state of Oracle OC4J/OHS server on the managed node.

**Figure 14 OASSPI Reports**



The screenshot shows the 'Tool Bank / OASSPI:TOOLS / OASSPI:REPORTS' interface. It displays 'Ascii metric reports for Oracle Application Server' with a 'Details OASSPI Reports' dropdown and a 'Filter' button. Below this, it states 'Found 19 Elements'. A table lists 19 reports with columns for Type, Label, Name, and Description. At the bottom, there is a 'Choose an action' dropdown and a 'Go' button.

Type	Label	Name	Description
<input type="checkbox"/>	<a href="#">C005 JVMMemUtilPct</a>	QASSPI.OASSPI_0005	Percent of heap space used in the JVM
<input type="checkbox"/>	<a href="#">C010 CPUUtilPct</a>	QASSPI.OASSPI_0010	Percent of the CPU time utilized over the collection interval
<input type="checkbox"/>	<a href="#">C011 MemoryUtilPct</a>	QASSPI.OASSPI_0011	Percent of the physical memory utilized over the collection interval
<input type="checkbox"/>	<a href="#">C050 JMSConnCreated</a>	QASSPI.OASSPI_0050	Frequency of the JMS connections created over the collection interval
<input type="checkbox"/>	<a href="#">C100 HTTPSVrActConn</a>	QASSPI.OASSPI_0100	Number of active HTTP connections
<input type="checkbox"/>	<a href="#">C220 EJBCIActThreads</a>	QASSPI.OASSPI_0220	Current number of threads accessing the actual implementation of the method
<input type="checkbox"/>	<a href="#">C221 EJBCIAvgExecTim</a>	QASSPI.OASSPI_0221	Average time spent inside the actual implementation of the method
<input type="checkbox"/>	<a href="#">C222 EJBCICallsPrcRt</a>	QASSPI.OASSPI_0222	Number of requests processed by the actual implementation of the method over the collection interval
<input type="checkbox"/>	<a href="#">C230 EJWWrapActThrds</a>	QASSPI.OASSPI_0230	Current number of threads accessing the auto-generated wrapper method
<input type="checkbox"/>	<a href="#">C231 EJWWrapAvExecTim</a>	QASSPI.OASSPI_0231	Average time spent inside the auto-generated wrapper method
<input type="checkbox"/>	<a href="#">C232 EJWWrapCallPrcRt</a>	QASSPI.OASSPI_0232	Total number of requests processed by all auto-generated wrapper methods over the collection interval
<input type="checkbox"/>	<a href="#">C240 SrvtAvExecTim</a>	QASSPI.OASSPI_0240	Average time spent on the servlet's service() call (in msec) over the collection interval
<input type="checkbox"/>	<a href="#">C242 SrvtActThreads</a>	QASSPI.OASSPI_0242	Current number of threads servicing the servlet
<input type="checkbox"/>	<a href="#">C245 JSPAvgExecTime</a>	QASSPI.OASSPI_0245	Average time to serve a JSP (in msec) over the collection interval
<input type="checkbox"/>	<a href="#">C247 JSPActRequests</a>	QASSPI.OASSPI_0247	Current number of active requests for the JSP
<input type="checkbox"/>	<a href="#">C251 JMSTotalMsgCt</a>	QASSPI.OASSPI_0251	Total number of messages contained in the message store
<input type="checkbox"/>	<a href="#">C260 JDBCahelMissPct</a>	QASSPI.OASSPI_0260	Generate autoaction report for C260_JDBCahelMissPct
<input type="checkbox"/>	<a href="#">C280 WebCntAvRqPrc</a>	QASSPI.OASSPI_0280	Average time spent servicing web requests (in msec) per request processed, over the collection interval
<input type="checkbox"/>	<a href="#">C281 WebCntActSess</a>	QASSPI.OASSPI_0281	Current number of active sessions

- To generate a report in HPOM:
  - From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  - Select a node for which you want to generate a metric report.



- Right-click on the node.
- Select **Start** → **SPI for Oracle AS** → **OASSPI Metrics** → **<Name of the Metric Report>**.

## Sample Report

The following example shows the format of a Oracle AS SPI report. This report is automatically generated (automatic action report) for metric C280.

```

Report for Application Server OC4J_SECURITY
Sep 29, 2005 5:23:49 PM
Metric C280_WebCntxtAvRqPrc

Web Context Request          Active Service Threads      Average Service Time (msec)
-----
/oc4j/default/WEBS/dms      1                            5.55
/oc4j/ssso/WEBS/web         0                            1.93

Web Context Session          Active Sessions              Total Active Time (msecs)    Com
-----
/oc4j/default/WEBS/dms      0                            0                            0
/oc4j/ssso/WEBS/web         0                            0                            0

No data available for server HTTP_Server+appsrv.ovrsunr2.rose.hp.com.

Report for Application Server OC4J_Portal
Sep 29, 2005 5:23:54 PM
Metric C280_WebCntxtAvRqPrc

Web Context Request          Active Service Threads      Average Service
-----
/oc4j/default/WEBS/dms      1                            8.15
/oc4j/UltrasearchAdmin/WEBS/admin  0                            356.77
/oc4j/portal/WEBS/portal    0                            18.94

Web Context Session          Active Sessions              Total Active Time (msec)
-----
/oc4j/default/WEBS/dms      0                            0
/oc4j/UltrasearchAdmin/WEBS/admin  2                            179,932,834
/oc4j/portal/WEBS/portal    0                            0

```

## Check the Oracle AS SPI Nodes for License Count

You can use an HPOM reporting utility to check the number of policies installed on your managed nodes. In reviewing the number of policies per managed node, you can see if you have consistently installed policies across your managed systems. In addition, by running this report, you can also make sure that the number of licenses you purchased is in compliance with the report results.

To run the report:

- 1 At the HPOM console, select the node or node group that you want to check.

- 2 From the Actions menu select **Utilities → Reports...**
- 3 In the Reports window, among the reports listed, select **OASSPI License Check**.
- 4 Select an output destination and click **OK**.

# 6 Integrating HPOM Reporting and Graphing Products with the Oracle AS SPI

The Oracle AS SPI can be integrated with the following HP reporting and graphing products. These products must be purchased separately.

- **HP Reporter.** Reporter produces management-ready, web page reports, showing historical and trending information. This is *not* the version of Reporter that is included with HP Operations Manager.

Working in conjunction with Reporter, the Oracle AS SPI produces a variety of reports showing consolidated information on the Oracle Application Server.

For more information on how to integrate the Oracle AS SPI with HP Reporter, see [Integrating with HP Reporter](#) on page 76. After integrating the Oracle AS SPI with Reporter, every night, Reporter generates reports that show the performance and availability of an Oracle Application Server on configured managed nodes.

- **HP Performance Agent.** HP Performance Agent collects, summarizes, time stamps, and detects alarm conditions on current and historical resource data across your system. It provides performance, resource, and end-to-end transaction response time measurements, and supports network and database measurement information. For more information on HP Performance Agent, see the *HP Performance Agent for UNIX User's Manual*.
- **HP Performance Manager.** HP Performance Manager provides graphing capability of the Oracle AS SPI metrics.

For more information on how to integrate the Oracle AS SPI with HP Performance Manager, see [Integrating with HP Performance Manager](#) on page 78. After integrating the Oracle AS SPI with HP Performance Manager, graphs are available the following day.

## Integrating with CODA

The Oracle AS SPI can detect if you are using HP Performance Agent. If you are, the Oracle AS SPI installation automatically uses it.

If you want to use the HP Operations subagent (CODA) included with OVO for UNIX 8.28, 8.29, and 8.30, you must configure the managed nodes to do so. Note that there are no advantages to using CODA instead of HP Performance Agent.

To use CODA, set up an empty file named `nocoda.opt` and store it on the managed node:

- 1 On the managed node, create a `nocoda.opt` file in the following directory:

Operating System	File Location
HP-UX, Linux, Solaris	<code>/var/opt/OV/conf/dsi2ddf/</code>
Windows	<code>\usr\ov\conf\dsi2ddf\</code>

If the directory `dsi2ddf` does not exist, create it.

- 2 Save the empty file.

## Integrating with HP Reporter

The Oracle AS SPI must be configured (see [Chapter 3, Configuring the Oracle AS SPI](#)) before it can be integrated with Reporter. The Oracle AS SPI report package must be installed on the Windows system running Reporter:

- 1 On the Windows client system, insert the Smart Plug-ins DVD-ROM (that contains the reporting packages) into the DVD-ROM drive, and in Windows Explorer, double-click:  
**WINDOWS\OV\_REPORTER\ORACLEAS\_SPI\OASSPI-Reporter.msi**
- 2 Follow the instructions as they appear.
- 3 Check the Reporter status pane (see the illustration that follows) to note changes to the Reporter configuration.



For Windows 2000 managed nodes, during the installation an error message might appear that indicates the installer has detected an older version of the installer on your system. You can safely ignore the message and continue.

The status pane (at the bottom of the Reporter window) shows you information on the programs running and any errors occurring. You can check the status pane to see that Reporter has been updated with the Oracle AS SPI reports.

You can find instructions in the Reporter Help for assigning the Oracle AS SPI reports to the targeted nodes. To access Help, select Reports or Discovered Systems in the left panel of the Reporter main window and right-click. Select Report Help or Discovered Systems Help from the submenu that appears and see the topic “To assign a report definition to a Discovered Systems Group.”

- 4 Add group and single system reports by assigning reports as desired. (For complete information, see the Reporter Help and the online Concepts Guide.)



Group and single system Oracle AS SPI reports require that you identify systems by their full name. For example, `abc.xyz.com` is acceptable while `abc` is not.



The browser crashes when the report is huge and the user hence is unable to view the report (in HTML). The workaround is that the reports should be viewed in pdf.

## Oracle AS SPI Reports

The reports available through the integration of HP Reporter and the Oracle AS SPI show consolidated data on server performance and availability on Oracle Application Server systems. These reports are available the day following your installation of the Oracle AS SPI report package on the Reporter Windows system.

The following tables show all pre-defined reports for groups (one or more managed nodes on which an Oracle Application Server is installed) and single systems.

**Table 6 Group Reports**

<b>Title</b>	<b>Description</b>	<b>Oracle AS Version</b>	<b>Metric</b>
Availability	The percentage of up time of all Oracle Application Servers by day.	9.04, 10.1.2, 10.1.3	2
EJB Method Calls Process Rate - Top 20	The number of all EJB method calls processed per minute for the top 20 OC4J servers.	9.04, 10.1.2, 10.1.3	22
Servlet Active Threads - Top 20	The number of servlet active threads for the top 20 OC4J servers.	9.04, 10.1.2, 10.1.3	42
Servlet Average Execution Time - Top 20	The servlet average execution time for the top 20 OC4J servers.	9.04, 10.1.2, 10.1.3	240

**Table 7 Single System Reports**

<b>Title</b>	<b>Description</b>	<b>Oracle AS Version</b>	<b>Metric</b>
HTTP Server and OC4J Availability Details	The percentage of hourly up time per day during the reporting period	9.04, 10.1.2, 10.1.3	2
HTTP Server and OC4J System Resource Utilization	The hourly average of the percentage of CPU utilization and the percentage of system memory utilization per day during the reporting period	9.04, 10.1.2, 10.1.3	10, 11
HTTP Server Connections	The average number of HTTP server connections per day for each application server on the selected system	9.04, 10.1.2, 10.1.3	100
DB Connection Cache Utilization	The hourly average of the percentage of database connection cache utilization per day during the reporting period	9.04, 10.1.2, 10.1.3	260
OC4J WebContext Sessions	The average number of WebContext sessions per day for each OC4J instance	9.04, 10.1.2, 10.1.3	281

# Integrating with HP Performance Manager

To integrate the Oracle AS SPI with HP Performance Manager:

- 1 Install and configure the Oracle AS SPI. Verify that you have set the `GRAPH_URL` property. For more information about the `GRAPH_URL` property, see [Property Definitions](#) on page 117.
- 2 If you are upgrading the Oracle AS SPI graph package, remove the old version before installing the new version. For information on removing the Oracle AS SPI graph package see [To Install the New Graph Package \(Optional\)](#).
- 3 Install the graph package.

On a Windows system running HP Performance Manager:

- a Insert the Smart Plug-ins DVD-ROM (that contains the reporting packages) into the DVD-ROM drive, and in Windows Explorer, double-click:

```
\WINDOWS\HP_PM\ORACLEAS_SPI\HPOvSpiOasG.msi.
```

- b Follow the instructions as they appear.

On an HP-UX system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are already installed using the `swinstall` command):

- a Mount the Smart Plug-ins DVD-ROM (that contains the packages) and type:

```
swinstall -s <mount_point>/HPUX/  
HP_Operations_Smart_Plug-ins_HPUX.depot OASSPI-GRAPHS
```

On a Solaris system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are already installed):

- a Mount the Smart Plug-ins DVD-ROM (that contains the packages) and type:

```
/usr/sbin/pkgadd -d <mount_point>/SOLARIS/  
HP_Operations_Smart_Plug-ins_Solaris_setup.bin HPOvSpiOasG
```

- 4 To graph any Oracle Application Server metric, use the data source name `OASSPI_METRICS`

See the HP Performance Manager documentation for information on how to view the graphs. Graphs are available the day following integration.

Allow sufficient collection intervals to occur before attempting to view graphs (using HP Performance Manager).

## Data Source Description

Metrics collected by the Oracle AS SPI are stored in the data sources named `OASSPI_METRICS` and `OASSPI_RPT_METRICS`. The values can be viewed for trend analysis.

Class	OASSPI_METRICS
-------	----------------

<b>Column</b>	<b>Attribute</b>
1	C005_JVMMEMUTILPCT
2	C010_CPUUTILPCT
3	C011_MEMORYUTILPCT
4	C012_CPUUTILPCTHTTP (for OAS version 10gR3 only)
5	C014_THREADPOOLUTIL (for OAS version 10gR3 only)
6	C015_THRDPOOLWAITCNT (for OAS version 10gR3 only)
7	C100_HTTPSVRACTCONN
8	C108_HTTPAVGRESPSZRQ
9	C109_HTTPVHAVRSPSZRQ
10	C020_EJBCLACTTHREADS
11	C021_EJBCLAVGEXECTIM
12	C022_EJBCLCALLSPRCRT
13	C030_EJBWRAPACTTHRDS
14	C031_EJBWRPAVEXECTIM
15	C032_EJBWRPCALLPRCRT
16	J233_STLESSSNBNPLUTL (for OAS version 10gR3 only)
17	J234_STFULSSNBNPLUTL (for OAS version 10gR3 only)
18	J235_ENTITYBNPLUTL (for OAS version 10gR3 only)
19	C042_SRVLTACTTHREADS
20	C047_JSPACTREQUESTS
21	C050_JMSCONNCREATED
22	C280_WEBCNTXTAVRQPRC
23	C281_WEBCNTXTACTSESS

Class OASSPI\_RPT\_METRICS

<b>Column</b>	<b>Attribute</b>
1	METRICID
2	VALUE
3	SERVERNAME
4	OBJECTNAME
5	INSTALLATION
6	APPLICATION

## Viewing Graphs that Show Alarm Conditions

For graphing purposes, the Oracle AS SPI organizes metrics according to type. When a message is generated for any metric (listed in [Table 8](#) on page 80), you can view a chart of its and other metric values.

To view a graph associated with an alarm condition (Operator-initiated action has been defined with the Oracle AS SPI monitor policy):

- 1 In the HPOM Message Browser double-click the message.
- 2 In the Message Properties window, click **Perform Action** under the Actions tab.

The resulting action displays the metric's Oracle AS SPI graph, which charts its values along with the values of other metrics in the same group.

## Viewing Graphs that Show Past and Current Conditions

You can also generate any of the graphs manually by using the View Graphs tool.

To manually generate a graph:

- 1 From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
- 2 Select a node for which you want to generate a metric report.
- 3 Right-click on the node and select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **View Graphs**.

## Oracle AS SPI Metrics Available for Graphs

The following tables show the graphs available for mapping collected metric values. If you are interested in viewing any one of the metrics included in any of these tables, you can use the View Graphs tool to launch the graph, which appears in your web browser.

**Table 8 Metrics for Graphs**

<b>Title</b>	<b>Description</b>	<b>Oracle AS Version</b>	<b>Metric</b>
JVM Memory Utilization	JVM heap memory utilization	9.04, 10.1.2, 10.1.3	5
CPU and Memory Utilization	Percentage of server CPU time utilization and server memory size utilization	9.04, 10.1.2, 10.1.3	11
CPU Utilization	Percentage of server CPU time utilization	9.04, 10.1.2	10
HTTP Server Active Connections	Number of active connections to the HTTP server	9.04, 10.1.2, 10.1.3	100
HTTP Server Response Data	HTTP server average response data size processed and HTTP server average response data size processed for the virtual host	9.04, 10.1.2, 10.1.3	108, 109



**Table 8 Metrics for Graphs**

<b>Title</b>	<b>Description</b>	<b>Oracle AS Version</b>	<b>Metric</b>
HTTP Server CPU Utilization	Percentage of the CPU time utilized by HTTP server over the collection interval	10.1.3	12
OC4J EJB Threads	EJB method client and EJB method wrappers active threads count	9.04, 10.1.2, 10.1.3	20, 30
OC4J EJB Execution Time	Average execution time of the EJB method client and EJB method wrappers	9.04, 10.1.2, 10.1.3	21, 31
OC4J EJB Calls Process Rate	EJB method client calls and EJB method wrappers calls process rate for the interval	9.04, 10.1.2, 10.1.3	22, 32
Servlet Threads	Total number of threads servicing all servlets	9.04, 10.1.2	42
JSP Requests	Number of active JSP requests	9.04, 10.1.2, 10.1.3	47
JMS Metrics	Number of JMX connections (local and remote) created by the JMS server during the interval and number of messages in the destination store	9.04, 10.1.2, 10.1.3	50, 51
JDBC Connection Pool	Percentage of JDBC connection pool utilization	9.04, 10.1.2, 10.1.3	260
OC4J Web Context Requests	OC4J web context average request processing time and number of active sessions	9.04, 10.1.2, 10.1.3	280, 281
Thread pool Utilization	Percentage utilization of available connections in thread pool	10.1.3	14
Thread pool Wait Count	Number of task(s) waiting in the queue for a thread to become available	10.1.3	15
Stateless Session Bean pool Utilization	Stateless Session Bean pool utilization	10.1.3	233
Stateful Session Bean pool Utilization	Stateful Session Bean pool utilization	10.1.3	234
Entity Bean pool Utilization	Entity Bean pool utilization	10.1.3	235

## Launching the Web Page Display with an Operator Action that Generates Graphs

Performance Manager graphs can be generated from most Oracle AS SPI alarm messages by clicking **Perform Action** from the message details, Properties, or the Message Browser. The operator action launches your web browser, which displays a graph of the metric that generated the message, as well as other related metrics.

## Specifying a Date Range

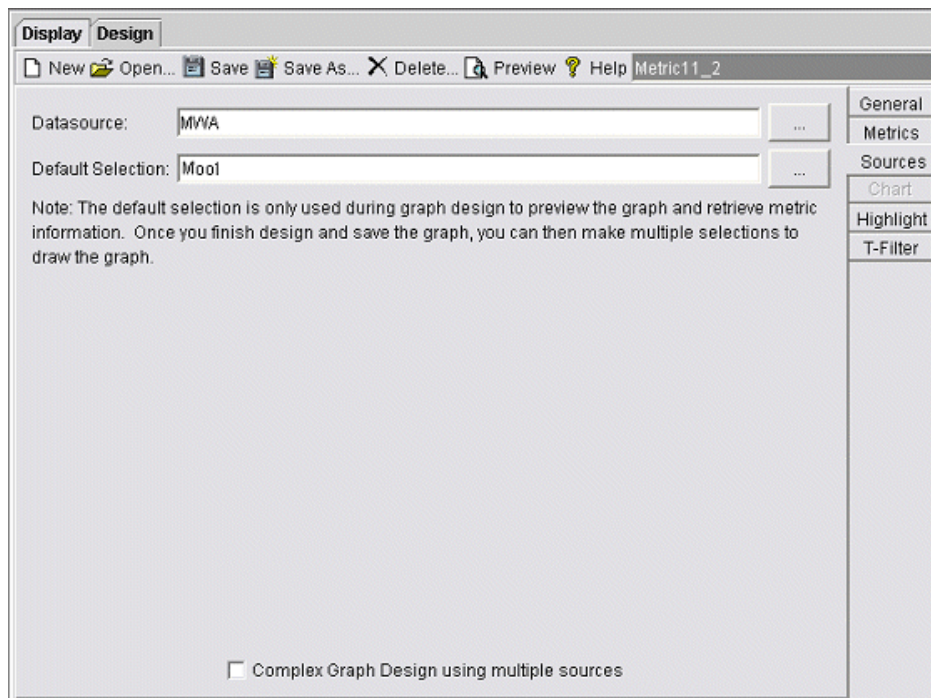
Within the web page display, you can specify a date range of one day, one week, one month, or one year. See the Online Help for instructions on changing display settings.


## Integration Example


The following is an example of how to graph multi-instance data stored in a data source by reporting each OBJECTNAME for the METRICID for each SERVERNAME. The result is all data for all instances are reported in one graph. The data for each SERVERNAME can also be displayed in a separate graph.

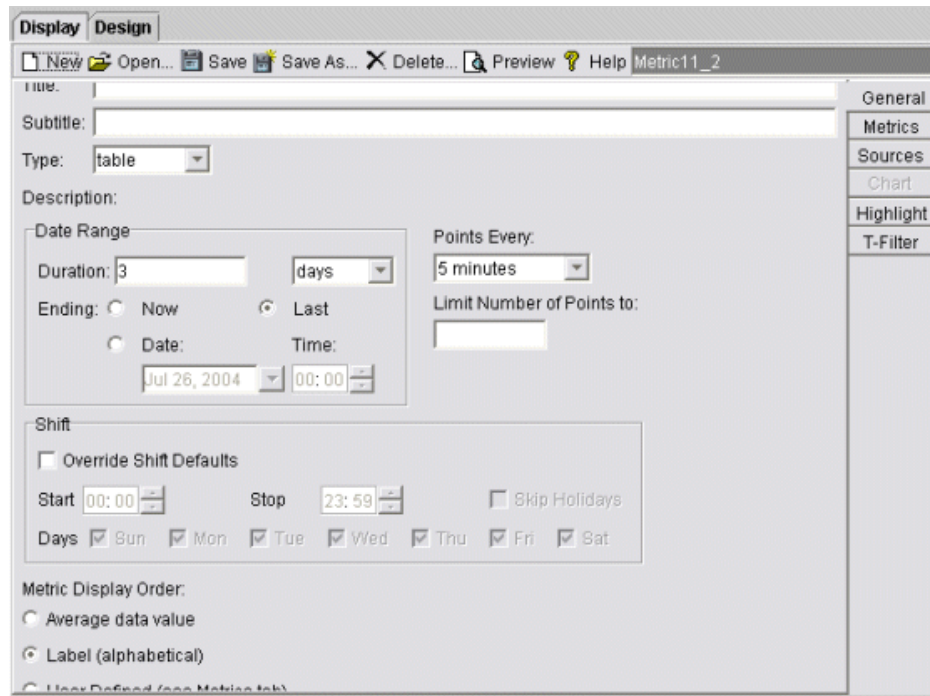
This example also uses the Java interface option of HP Performance Manager.

- 1 Start the Java Interface option of HP Performance Manager. The Performance Manager Java Interface window appears.



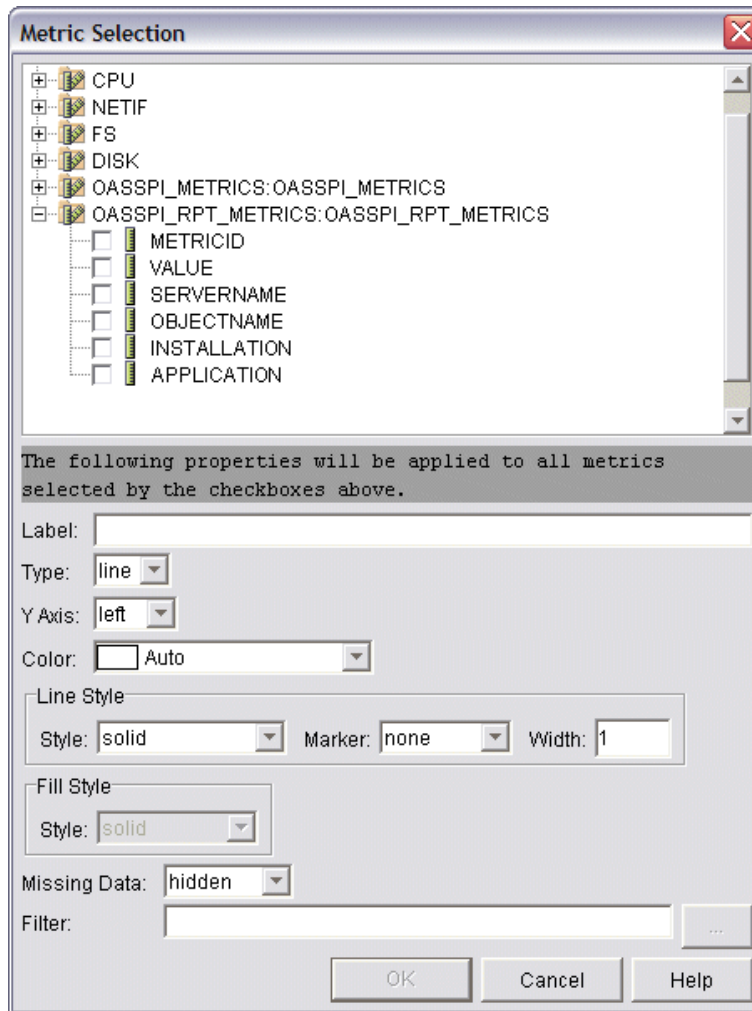
- 2 From the Performance Manager Java Interface window,
  - a Click the **Display** tab at the top of the window, and then the **Sources** tab at the right of the window.
  - b Click  next to the Datasource text box and select a data source (OASSPI\_RPT\_METRICS).

- c Click  next to the Default Selection text box and select the node on which the data source resides.
- 3 Click the **General** tab at the right of the window.



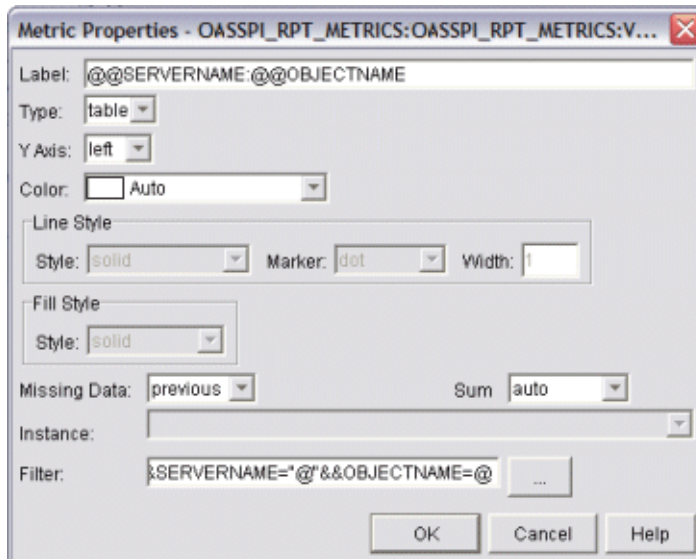
- 4 From this window,
- a Select **line** from the Type drop-down list. This generates a line graph.
  - b Enter a Date Range.
  - c Enter an interval using the Points Every drop-down list.
  - d Click **Label (alphabetical)** if you want the graph key sorted alphabetically.

- 5 Click the **Metrics** tab at the right of the window and click **Add**. The Metric Selection window appears.

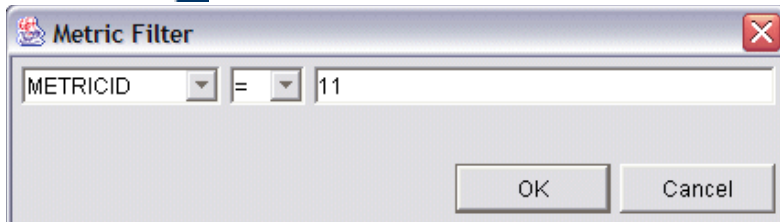


- 6 From the Metric Selection window,
  - a Next to the OASSPI\_RPT\_METRICS data source, click + to expand it in the tree.
  - b Select the VALUE check box.
  - c Click **OK**.

- 7 In the window with the Metrics tab selected, VALUE is displayed. Select the line on which VALUE is displayed and click **Properties**. The Metric Properties window appears.



- 8 From the Metric Properties window,
  - a In the Label text box, enter:
    - **@@SERVERNAME: @@OBJECTNAME** if you are creating one graph with all SERVERNAMEs
    - **@@OBJECTNAME** if you are creating one graph with one SERVERNAME
  - b In the Marker drop-down list, select any marker other than none.
  - c In the Missing Data drop-down list, select:
    - **previous** to use the previous value if data is missing from the data source
    - **zero** to use the value zero if data is missing from the data source
  - d Click **>>** next to the Filter text box. The Metric Filter window appears.

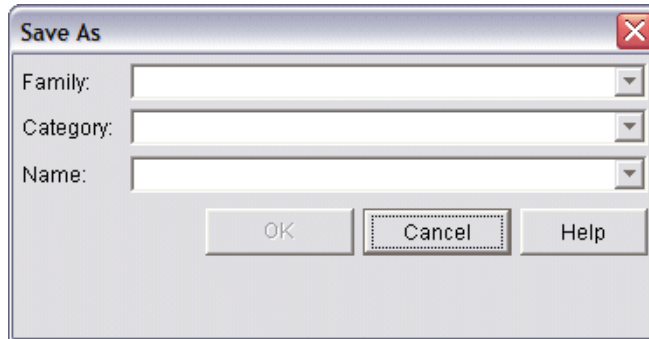


- 9 From the Metric Filter window,
  - a Select **METRICID** from the first drop-down list.
  - b Select **=** from the second drop-down list (if it is not already selected).
  - c Enter a metric number (for example, 11) in the text box.
  - d Click **OK**.
- 10 From the Metric Properties window,
  - a In the Filter text box, append the following:
    - **&&SERVERNAME=@&&OBJECTNAME=@@** if you want one graph to display all SERVERNAME/OBJECTNAME combinations.

- `&&SERVERNAME=<server_name>&&OBJECTNAME=@` if you want one graph to display one SERVERNAME and all OBJECTNAMEs associated with the multi-instance metric.

If you cannot edit the Filter text box, you can edit this item in the graph template file. For more information, see [step 13](#) on page 86.

- b Click **OK**.
- 11 Click **Save As** at the top of the window. The Save As window appears.



- 12 From the Save As window,
- a Enter a family (for example, OASSPI\_Graphs) in the Family text box. The family name serves as a group to organize the graphs.
  - b Enter a name (for example, metric\_11) in the Name text box to uniquely identify the graph.
  - c Entering text into the Category text box is optional.
  - d Click **OK**. The information is saved in a graph template file named `VPI_GraphsUser<family>.txt` (for example, `VPI_GraphsUserOASSPI_Graphs.txt`).
- For more information about this window, see the online help.
- 13 Edit the graph template file. The file is located in the HPOM data directory on the system of the HP Performance Manager instance on which you are working. The graph file might look similar to [Figure 15](#).

**Figure 15 Graph File**

```
*****
#* OpenView Performance Manager
#* user Defined Graph Templates
#* Last Updated: 07/25/05 04:31_30 AM by [1.2.3.4] moo1
*****
FAMILY: OASSPI_Graphs
GRAPH: Metric11
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: moo1

CLASS: OASSPI_RPT_METRICS:OASSPI_RPT_METRICS
METRIC: VALUE
FILTER: METRICID=11&&SERVERNAME=@&&OBJECTNAME=@
LABEL: @@SERVERNAME:@@OBJECTNAME
COLOR: Auto
MARKER: rectangle
MISSINGDATA: previous
END_GRAPH:

#*-----
GRAPH: Metric11_2
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: moo1

CLASS: OASSPI_RPT_METRICS:OASSPI_RPT_METRICS
METRIC: VALUE
FILTER: METRICID=11
LABEL: @@SERVERNAME:@@OBJECTNAME
COLOR:Auto
MARKER: rectangle
MISSINGDATA: previous
END_GRAPH:
```

There can be more than one set of data for a graph in the graph template file.

- a Add **SUMFROMRAW**: to the end of the first section of each graph (in the example above, add **SUMFROMRAW**: after `SYSTEMNAME: moo1`). This enables HP Performance Manager to summarized data from the data source and cannot be added using the GUI.
- b If you were unable to edit the Filter text box in the Metrics Properties window in step step 10 on page 85, edit the `FILTER` field.
- c Save the file. The graph file now contains the following (see [Figure 16](#)):

**Figure 16 Graph File**

```
*****
#* OpenView Performance Manager
#* user Defined Graph Templates
#* Last Updated: 07/25/05 04:31_30 AM by [1.2.3.4] mool
*****
FAMILY: OASSPI_Graphs
GRAPH: Metric11
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: mool
SUMFROMRAW:

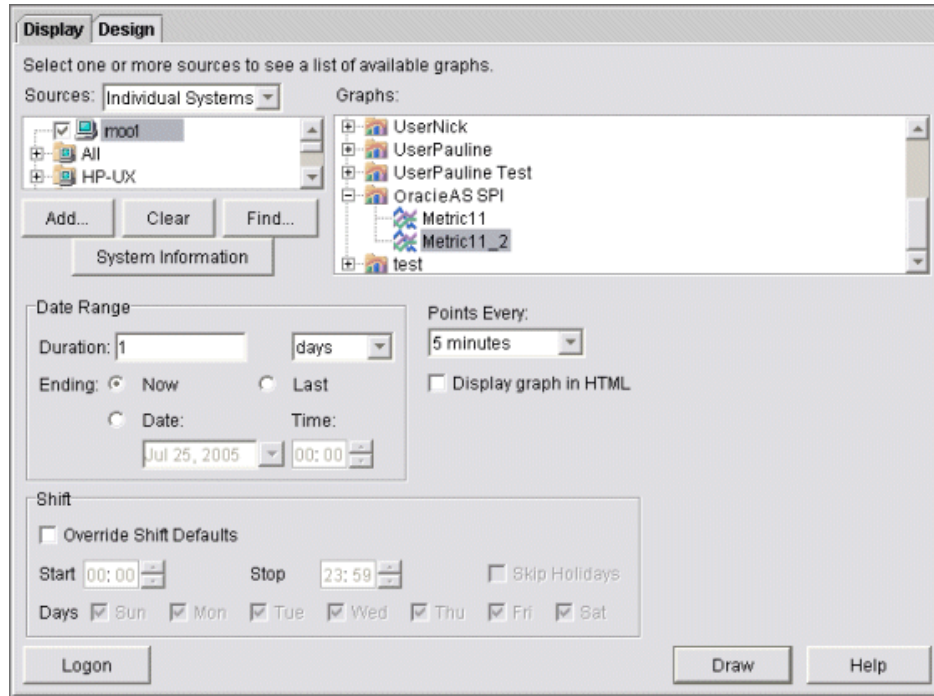
CLASS: OASSPI_RPT_METRICS:OASSPI_RPT_METRICS
METRIC: VALUE
FILTER: METRICID=11&&SERVERNAME=@&&OBJECTNAME=@
LABEL: @@SERVERNAME: @@OBJECTNAME
COLOR: Auto
MARKER: rectangle
MISSINGDATA: previous
END_GRAPH:

#*-----
GRAPH: Metric11_2
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: mool
SUMFROMRAW:

CLASS: OASSPI_RPT_METRICS:OASSPI_RPT_METRICS
METRIC: VALUE
FILTER: METRICID=11&&SERVERNAME=@&&OBJECTNAME=@
LABEL: @@SERVERNAME: @@OBJECTNAME
COLOR: Auto
MARKER: rectangle
MISSINGDATA: previous
END_GRAPH:
```



14 From the Performance Manager Java Interface window, click the **Display** tab.



15 In this window:

- a In the window below the Sources text box, navigate to the server on which the data source resides.
- b In the Graphs window, navigate to the family of graphs and select the graph you created.
- c Enter information into the Date Range dialog box and Points Every text box.
- d Click **Draw**. The graph appears.

➤ If you edit the graph from the Design tab, the `SUMFROMRAW:` entry is deleted from the graph template file. You must edit the graph template file and re-enter this entry.

16 From the SPI, to enable graphing:

- a From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
- b Select the nodes which you want to enable for graphing.
- c Right-click on the nodes and select **Start** → **JMX Metric Builder** → **OASSPI** → **UDM Graph Enable**.



# 7 Basic Troubleshooting and Error Messages

This chapter provides basic troubleshooting information on the self healing tool, logging, discovery process, configuration, collection and tools.

## Self-Healing Info tool

Self-Healing Info tool gathers SPI troubleshooting data and stores it in a file that you can submit to HP support for assistance. For more information on this tool, see [Self-Healing Info](#) on page 51.

- ▶ The file created by the Self-Healing Info tool might be hidden on some Windows managed nodes. If you do not see the file, open Windows Explorer and, from the Tools menu, select **Folder Options**. Click the **View** tab. Under Hidden files and folders, select **Show hidden files and folders**.

## Logging

### Management Server

The following log file is found on the management server (typically, `<%OvInstallDir%>/opt/OV`)

<b>File Type</b>	Log
<b>Filename</b>	<code>&lt;%OvInstallDir%&gt;/WASSPI/oas/log/ &lt;managed_node&gt;_disc_server.log</code>
<b>Description</b>	Records the updates done by the OASSPI Discovery policy to the management server's configuration for each managed node. Log files are overwritten each time the discovery policy is run on the managed node. Logging to this file is always enabled.

### Managed Nodes

The following files for logging are found on the managed nodes running on UNIX or Windows (typically, `<Agent_Dir>/is /var/opt/OV/` for UNIX and `\Documents and Settings\All Users\Application Data\HP\HP BTO Software\` for Windows):

<b>Directory</b>	<Agent_Dir>/wasspi/oas/log/wasspi_perl.log (archived files have a one digit number appended to the filename)
<b>Description</b>	File used by your HP support representative for debugging. This file gives you information about the Perl logging (configuration, discovery, and collection). By default, you can only view the error messages. To view all types of messages (info, warn, and error), run the Start Tracing tool. To stop tracing, run the Stop Tracing tool. For more information on how to run these tools, see <a href="#">Start Tracing</a> on page 52 and <a href="#">Stop Tracing</a> on page 52. By default, the log file size is 10 MB and three archived versions are maintained.
<b>Directory</b>	<Agent_Dir>/wasspi/oas/log/Discovery.log (archived files have a one digit number appended to the filename)
<b>Description</b>	File used by your HP support representative for debugging. This file gives you information about the Java discovery logging. By default, you can only view the error messages. To view all types of messages (info, warn, and error), run the Start Tracing tool. To stop the tracing, run the Stop Tracing tool. For more information on how to run these tools, see <a href="#">Start Tracing</a> on page 52 and <a href="#">Stop Tracing</a> on page 52. By default, the log file size is 10 MB and three archived versions are maintained.
<b>Directory</b>	<Agent_Dir>/wasspi/oas/log/Collector.log (archived files have a one digit number appended to the filename)
<b>Description</b>	File used by your HP support representative for debugging. This file gives you information about the Java Collector logging for the CollectorServer. By default, you can only view the error messages. To view all types of messages (info, warn, and error), run the Start Tracing tool. To stop the tracing, run the Stop Tracing tool. By default, the log file size is 10 MB and three archived versions are maintained.
<b>Directory</b>	<Agent_Dir>/wasspi/oas/log/CollectorClient.log (archived files have a one digit number appended to the filename)
<b>Description</b>	File used by your HP support representative for debugging. This file gives you information about the Java Collector logging for the CollectorClient. By default, you can only view the error messages. To view all types of messages (info, warn, and error), run the Start Tracing tool. To stop the tracing, run the Stop Tracing tool. For more information on how to run these tools, see <a href="#">Start Tracing</a> on page 52 and <a href="#">Stop Tracing</a> on page 52. By default, the log file size is 10 MB and three archived versions are maintained.

## Troubleshooting the Discovery Process

**Problem:** The OASSPI Service Discovery policy does not automatically discover and update the Oracle AS SPI configuration.

**Solutions:**

- 1 Check for errors in the message browser of the managed nodes not being discovered. Follow the instruction text of any error messages displayed.
- 2 Verify that an Oracle OC4J/OHS server is installed on the managed node. If an OC4J/OHS server is not installed, install an OC4J/OHS server, and complete the configuration tasks listed in [Chapter 3, Configuring the Oracle AS SPI](#).
- 3 Verify the Oracle Application Server status. The application server must be running.
- 4 Verify the Java home directory (see [Verifying the Java Home Directory](#) on page 94).
- 5 Verify that the Discover or Configure OASSPI tool is not running. Only one process can access the configuration at a time. If Discover or Configure OASSPI is running, other processes that must access the configuration (like the discovery process) hang until the configuration becomes available.
- 6 Check if the HPOM management server is suppressing duplicate messages:
  - a From the HPOM console, select Actions Server Configure. The Configure Management Server window appears.
  - b Look for the “Suppress and count duplicate messages” check box. If this box is selected, unselect it.
- 7 Restart the HPOM management server:
  - a Stop all HPOM GUIs that are running by selecting **File** → **Exit**.
  - b Stop the HPOM management server processes. Enter:  
`/opt/OV/bin/ovstop opc ovoacomm`
  - c Delete all HPOM temporary files. All pending messages (messages not saved in the database) and all pending actions (automatic actions, operator-initiated actions, scheduled actions, and command broadcast) are lost. Enter:  
`rm -f /var/opt/OV/share/tmp/OpC/mgmt_sv/*`
  - d Restart the HPOM management server process. Enter:  
`/opt/OV/bin/OpC/opcsv -start`  
`/opt/OV/bin/OpC/opcsv -status`
  - e Restart the HPOM GUI. Enter: `opc`

**Problem:** The OASSPI Service Discovery policy is adding inaccurate information to the configuration.

**Solutions:**

- 1 Verify the Java home directory. For more information, see [Verifying the Java Home Directory](#) on page 94.
- 2 Update the configuration.

**Problem:** The following error messages display when the Discover or Configure OASSPI tool is run:

```
/usr/lib/dld.sl: Can't find path for shared library: libiconv.sl
/usr/lib/dld.sl: No such file or directory
sh: 25691 Abort (coredump)
```

**Solution:**

Install the `libiconv.sl` file on the HPOM management server. Download this file from: <http://hpux.connectis1.com/hppd/hpux/Development/Libraries/>

**Problem:** The service map is not getting displayed in the Operational UI

**Solution:**

Type the following command to assign the services to the operator:

```
opcservice -assign <operator> <service>
```

For example: **opcservice -assign opc\_adm <service>**

**Problem:** In the SiteConfig file for Windows managed nodes, the value for HOME and JAVA\_HOME appears as:

```
HOME=Cproduct10.1.3.1OracleAS_1
```

```
JAVA_HOME=Cproduct10.1.3.1OracleAS_1jdk
```

The "\" character is removed from the path.

**Solution:** Replace the character "\" with "/" or "\\\" in the path for HOME and JAVA\_HOME.

For example, HOME=C:/product/10.1.3.1/OracleAS\_1 or

```
HOME=C:\\product\\10.1.3.1\\OracleAS_1
```

## Verifying the Java Home Directory

To successfully use the OASSPI Service Discovery policy, the Java home directory (on both a Windows and UNIX managed node) must be configured correctly.

Although the discover policy searches for this information, if it cannot find this information or the information is not accurate, the discover policy does not function completely.

On each managed node on which you want to run the discover policy, verify one of the following (listed in the order of precedence used by the discover policy):

- JAVA\_HOME is correctly defined in the configuration. To edit or view the configuration, run the Discover or Configure OASSPI tool:
  - a From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  - b Select the nodes on which you want to launch Discover or Configure OASSPI tool.
  - c Right-click on the nodes and select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **Discover or Configure OASSPI**. The Tool Selector window appears.
  - d Click **OK**. By default, the Launch Configure Tool radio button is selected. The Introduction window appears.
  - e Click **Next**.
  - f From the configuration editor, set the JAVA\_HOME property. For more information about using the configuration editor, see [Using the Configuration Editor](#) on page 107.
  - g Click **Save** to save the changes made to the configuration. Once you save your changes, you cannot automatically undo them.
  - h Click **Finish** or **Next** to save any changes and exit the editor.

If you selected **Next**, the Confirm Operation window appears. Click **OK**.



If you click **Cancel** and made changes to the configuration, those changes remain in the configuration on the management server. To make the changes to the selected managed nodes' configuration, you must select those nodes, start the Discover or Configure OASSPI tool, launch the Discover tool, click **Next** from the configuration editor, and then click **OK**.

- i Run discovery on the managed nodes on which the JAVA\_HOME property was added or edited. Running discovery updates the service map.
- The JAVA\_HOME system variable is correctly defined.

On a Windows manage node:

- a Select **Start** → **Settings** → **Control Panel**.
- b Double-click **System**.
- c Click the **Advanced** tab.
- d Select **Environment Variables...**
- e Scroll through the System variables list. Verify the JAVA\_HOME value. If JAVA\_HOME does not exist, it is not defined.

On a UNIX manage node:

- a Type `echo $JAVA_HOME`
- b Verify the output. If no output is returned, JAVA\_HOME is not defined.

## Troubleshooting the Configuration

**Problem:** The OASSPI Service Discovery policy overwrites the configuration with inaccurate information.

**Solution:** Update the configuration.

## Troubleshooting the Collection

- **Problem:** No alarms are received for a metric

**Solution:**

- Verify that the monitor policy corresponding to the metric is deployed on the node.
- Verify that `alarm=yes` is specified in the `<Agent_Dir>/wasspi/oas/conf/MetricDefinitions.xml` file for the metric.

- **Problem:** On manually running the collector command on the managed node, the value of the metric is printed as `No instance, No data on STDOUT`.

**Solution:** Check the Admin Console for the presence of corresponding MBeans.

- **Problem:** Data is not getting logged

**Solution:**

- Verify that the SPIDataCollector instrumentation category is deployed on the managed node. This is required to create the datasource OASSPI\_METRICS.

- Verify that the OASSPI-Performance policy is deployed on the node.
  - Check if the <servername>.dat file is created in <Agent\_Dir>/wasspi/oas/datalog.
  - Check if the datasource OASSPI\_METRICS is created.
  - Verify that **graph=yes** is specified in the <Agent\_Dir>/wasspi/oas/conf/MetricDefinitions.xml for the metrics which are being monitored. Only the metrics which are specified as **graph=yes** in the MetricDefinitions.xml get logged. The default value is **no**.
- **Problem:** Collection fails for Oracle Application Server version 10.1.2.  
**Solution:** Set the value of JSR160 to false in SPIConfig file. By default it is set to true. For example, set the value as: JSR160=False

## Troubleshooting the Tools

- **Problem:** Configuration variable SERVER<n>\_START\_CMD is missing for the 'Default Server'.  
**Solution:** You must set the START\_CMD and USER properties, before you can successfully run the Start Oracle AS tool. Set these properties using the Discover or Configure OASSPI tool. For more information on this tool, see [Discover or Configure OASSPI](#) on page 50.
- **Problem:** When launched, the Verify tool gives an improper output.  
**Solution:** Ensure that you have installed the latest version of Self-Healing Service (SHS) component from the SPI DVD, before you launch the Verify tool.
- **Problem:** When launched, the Self-Healing Info tool gives improper output.  
**Solution:** Ensure that you have installed the latest version of Self-Healing Service (SHS) component from the SPI DVD.
- **Problem:** When launching the tools, the tools hang or there is no output.  
**Solution:** The tools will not work if the memory is low. Check the performance of the node and the management server. The physical memory available must be more than 500 MB.
- **Problem:** View Status tool shows a wrong status for a server instance or does not give any output.  
**Solution:** If a server is up and running but View Status tool returns the server status as NOT\_RUNNING (or does not give any output), then turn ON the monitoring for that particular server by using the Start Monitoring tool.
- **Problem:** Datasource is not created on RHEL 4.0 platform.  
**Solution:** Ensure that you have installed the latest version of DSI2DDF component from the SPI DVD.



## Troubleshooting Miscellaneous

- **Problem:** For a managed node running Red Hat Linux 4 or Suse Linux 9.1 or 9.2, discovery and/or metric threshold monitor alarming is not functioning, and the following error message is found in the SPI error log:

```
*** glibc detected *** double free or corruption: 0x0937d008 ***
```

**Solution:** On the HPOM agent, set the `MALLOC_CHECK_` environment variable to 0 (zero) and restart the agent.

- **Problem:** In a non-English environment, the message browser does not display error messages correctly.

**Solution:** Change the character set of the OASSPI Error Log template and redeploy the template. For example, change the character set from “Shift-JIS” to “Japanese EUC.”

- **Problem:** Metric 100 returns an incorrect value for total service time, because of a defect in the Oracle Application Server.

**Solution:** Go to <http://metalink.oracle.com/> and track bug number 4690429. If a patch is available, install it so that the metric returns the correct value. Otherwise, continue to track this bug until a patch becomes available.

- **Problem:** The Java versions shipped with HPOM 7.1 and 8.0 are not complete, and, when running the JMB, Java errors occur.

**Solution:** Set the `JMB_JAVA_HOME` property in the SPI configuration to the home directory of a version of Java 1.41 or higher on the management server.

# Error Messages

The WebLogic SPI error messages contain the following information:

- Error Message Number
- Description
- Severity
- Help Text (Probable Cause and Suggested Action)

Error messages can be viewed from the HPOM Message Browser. Double-click the error message to open the message. The Message Properties Window appears. Click the Message Text tab to view the error message. For more information on error messages, see [Appendix C, Error Messages](#).

# 8 Removing the Oracle SPI

This chapter provides details on how to remove the Oracle SPI components from different environments.

## Removing the SPI Components

To completely uninstall the SPI, remove the SPI components by following the tasks:

- 1 Remove the Oracle AS SPI Software from the Management Server
- 2 Delete the Oracle AS SPI Message Groups
- 3 Delete the Oracle AS SPI User Profiles
- 4 Remove the Report Package (Optional)
- 5 Remove the Graph Package (Optional)

## Remove the Oracle AS SPI Software from the Management Server

To remove the Oracle SPI from the management server:

### HP-UX

- 1 Open a terminal window and log on as root.
- 2 In the terminal window type:

```
/usr/sbin/swremove OASSPI  
/usr/sbin/swremove OASSPI-GRAPHS
```

The `swremove` command removes the files from the software list, directories in `/var/opt/OV/share/databases/OpC/mgd_node/instrumentation/`, directories in `/opt/OV/wasspi/oas`, node groups, categories, tools, and policies.

### Linux and Solaris

To remove the Oracle SPI through the Graphical User Interface from the Linux or Solaris Management Server, use X-Windows client software:

- 1 Log on as a `root` user.
- 2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.
- 3 Start the X-windows client software and export the `DISPLAY` variable by typing the following command:

```
export DISPLAY=<ip address>:0.0
```

- 4 To start the removal of the SPI, type one of the following commands, according to your management server:

```
./HP_Operations_Smart_Plug-ins_Linux_setup.bin
```

or

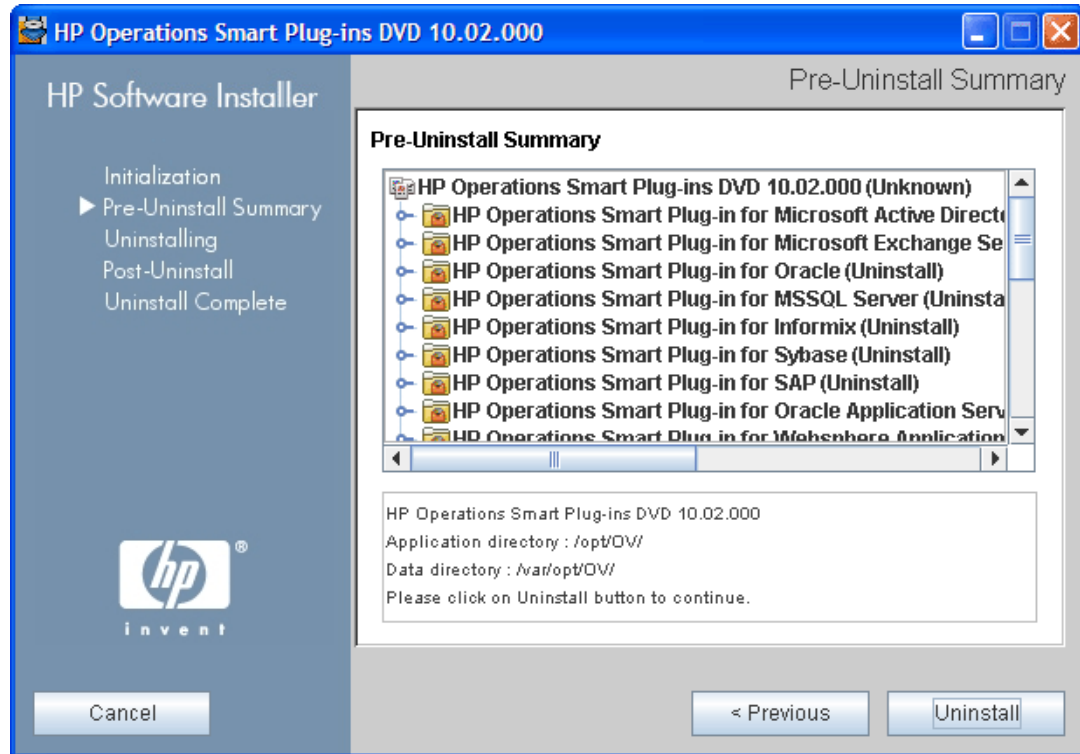
```
./HP_Operations_Smart_Plug-ins_Solaris_setup.bin
```

The introductory window appears.

- 5 Select the language from the drop-down list and click **OK**.

The Application Maintenance window appears.

- 6 Select **Uninstall** button and click **Next**. The Pre-Uninstall Summary window appears.



▶ When you have two SPIs installed on the Linux or Solaris management server and you want to remove one SPI out of the two installed SPIs, select Modify option and then the SPI you want to retain. Do not select the SPI which you want to remove.

- 7 Click **Uninstall**. The Uninstalling window appears. The Uninstall Complete window appears once the SPI is uninstalled.

- 8 Click **Done** to complete the removal of the SPI.

To remove the Oracle SPI through the Command Line Interface:

- 1 Log on as a **root** user.
- 2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.
- 3 To start the removal of the SPI, type one of the following commands, according to your management server:

```
./HP_Operations_Smart_Plug-ins_Linux_setup.bin -i console
```

or

```
./HP_Operations_Smart_Plug-ins_Solaris_setup.bin -i console
```


- 4 When the prompt, 'Choose Locale...' appears, press the number corresponding to the language you want to choose.
- 5 Press **Enter** to continue. The Maintenance Selection screen appears.
- 6 Press the appropriate option (number) to start the removal of the SPI.




When you have two SPIs installed on the Linux or Solaris management server and you want to remove one SPI out of the two installed SPIs, select Modify (1) option and then the SPI you want to retain. Do not select the SPI which you want to remove.

- 7 Press **Enter** to continue. When the removal is complete, you will receive a message which states that the removal is completed successfully.

## Delete the Oracle AS SPI Message Groups

- 1 From the Administration UI, open the All Message Groups window.
- 2 Select OASSPI and OracleAS message groups check boxes.
- 3 Select **Delete...** from the **Choose an Action** drop-down list and click  to submit. The Oracle AS SPI message groups are deleted.

## Delete the Oracle AS SPI User Profiles

- 1 From the Administration UI, open the All User Profiles window.
- 2 Select the user profiles for the Oracle AS SPI by selecting the check box.
- 3 Select **Delete...** from the **Choose an Action** drop-down list and click  to submit. The Oracle AS SPI user profiles are deleted.

## Remove the Report Package (Optional)

If you installed the Oracle AS SPI report package (on your Windows system running Reporter), remove it by following these steps:

- 1 On the Windows system running Reporter, from the Control Panel, double-click the **Add/Remove Programs** icon.
- 2 Select the Oracle AS SPI report package and click **Remove**.

## Remove the Graph Package (Optional)

If you installed the Oracle AS SPI graph packages (on the system running HP Performance Manager), remove them.

- On a Windows system running HP Performance Manager:
  - a From the Control Panel, double-click the **Add/Remove Programs** icon.
  - b Select the Oracle AS SPI graph package and click **Remove**.

- On an HP-UX system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are removed in [Remove the Oracle AS SPI Software from the Management Server](#) on page 99):
  - a Verify that the graph package is installed. Type  
`swlist | grep OASSPI-GRAPHS`
  - b Type `swremove OASSPI-GRAPHS`
- On a Solaris system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are removed in [Remove the Oracle AS SPI Software from the Management Server](#) on page 99):
  - a Verify that the graph package is installed. Type  
`/usr/bin/pkginfo HPOvSpiOasG`
  - b Type `/usr/sbin/pkgrm HPOvSpiOasG`

## Removing the Oracle AS SPI in a Cluster Environment

To remove the Oracle AS SPI from each system in the cluster, follow the steps in [Removing the SPI Components](#) on page 99.

# A File Locations

This chapter details the Oracle AS SPI configuration files and error logs in specific directories.

## HPOM Management Server File Locations

Operating System	File	File Location
HP-UX	Configuration	/opt/OV/wasspi/oas/conf
Solaris	Configuration	/opt/OV/wasspi/oas/conf
Linux	Configuration	/opt/OV/wasspi/oas/conf

## Managed Node File Locations

These file locations are valid if you are migrating the UNIX or Windows node, on which Oracle SPI is running, to non-root HTTPS agent environment. (UNIX only: if these directories do not exist, see the table in [Non-Root HTTPS Agent Environment](#) on page 103 for file locations):

Operating System	File	File Location
HP-UX, Solaris, Linux	Configuration	/var/opt/OV/wasspi/oas/conf
HP-UX, Solaris, Linux	Error Logs	/var/opt/OV/wasspi/oas/log
Windows (HTTPS)	Configuration	\Documents and Settings\All Users\Application Data\HP\HP BTO Software\wasspi\oas\conf
Windows (HTTPS)	Error Logs	\Documents and Settings\All Users\Application Data\HP\HP BTO Software\wasspi\oas\log

## Non-Root HTTPS Agent Environment

On newly configured the Oracle AS SPI managed nodes in the non-root HTTPS agent environment (UNIX only):

Operating System	File	File Location
HP-UX, Solaris, Linux	Configuration	/var/opt/OV/conf/oasspi
HP-UX, Solaris, Linux	Error Logs	/var/opt/OV/log/oasspi





# B The Configuration

This appendix explains how to use the configuration editor, describes the configuration properties, and provides samples of the configuration.

## Structure

See [Sample Configurations for the Oracle AS SPI](#) on page 120 for examples of the configuration. The basic structure of the configuration is (lines preceded by # are treated as comments and are ignored):

```
# Global Properties
property=<value> ...

# GROUP Block
GROUP <group_name>
{
<node_name> ...
}

# NODE Block
NODE <node_name | group_name>
{
property=<value> ...
}
```

## Global Properties

```
# Global Properties
<property>=<value> ...
```

Properties defined at the global level apply to all nodes. However, these global properties can be overridden by properties set within a GROUP or NODE block or by server-specific properties.

## GROUP Block

```
# GROUP Block
GROUP <group_name>
{
<node_name> ...
}
```

GROUP blocks are used to group nodes together that have common properties.

<group\_name> identifies the group of nodes with common properties. If a GROUP block <group\_name> is repeated within the configuration, the last definition takes precedence.

<node\_name> lists the nodes in the group and is the primary node name configured in HPOM.



The node name specified in a GROUP block matches the value returned by the HPOM variable \$OPC\_NODES, which is the primary node name configured in HPOM.

Set the common properties of the group using the NODE block.

Using the configuration editor, view, set, or edit GROUP block properties by selecting the Default Properties item in the <Group\_Name> folder.

## NODE Block

```
# NODE Block
NODE <node_name | group_name>
{
  <property>=<value> ...
}
```

Properties set in a NODE block apply to nodes belonging to the group defined by <group\_name> (to set common properties for a group) or to the specified <node\_name> (to set properties for a single node).

For a group, enter the <group\_name> defined by the GROUP block and define the group's common properties.

For a single node, enter the <node\_name> and define the properties.

If a property definition is repeated within the NODE block, the last definition takes precedence.

Using the configuration editor, view, set, or edit NODE block properties by selecting the Default Properties item in the <Node\_Name> folder.

## Server-Specific Properties

Each property specified as SERVER<n>\_property refers to a specific Oracle OC4J/OHS server instance. When more than one Oracle OC4J/OHS server instance is running on a given managed node, the number <n> differentiates the servers. Numbering begins at “1” and each Oracle OC4J/OHS server instance is assigned a unique number.

## Property Precedence

The order of precedence (highest to lowest) of properties defined in the configuration are:

- 1 SERVER<n>\_property (server-specific)
- 2 NODE <node\_name> {<property>} (property defined for a node)
- 3 GROUP <group\_name> {<property>} (property defined for a group)
- 4 <property> (global property)

# Using the Configuration Editor

Use the configuration editor to view and edit the configuration. You must update the configuration using this editor only. The main features of the configuration editor are:

- Tree
- Buttons
- Actions

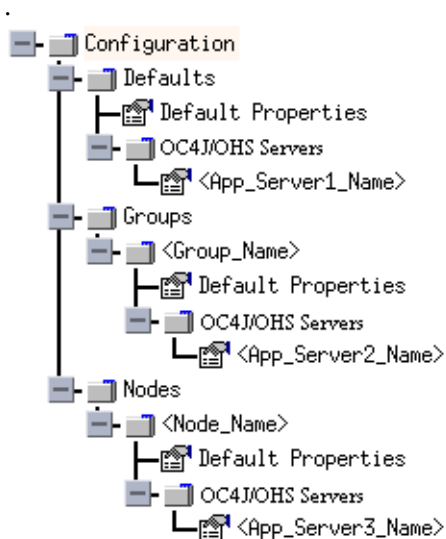
## Configuration Editor – Tree

The Configuration Editor tree, displayed in the left pane of the Discover or Configure OASSPI tool’s main window, displays the Oracle AS SPI configuration in a tree structure.

The following is an example of the tree.



If no OC4J/OHS servers or groups are configured, the “OC4J/OHS Servers” and “Groups” folders are not displayed. If you are running the Discover or Configure OASSPI tool for the first time and you did not select any nodes before you launched the tool, the “Nodes” folder is not listed.



The icons are defined as follows:



The configuration properties can be viewed.



The configuration properties can be viewed and set.

The following table lists each item in the tree and a brief description of the item.

<b>Item Name</b>	<b>Description</b>
OC4J/OHS Servers	A folder that contains a list of all the OC4J/OHS servers. This folder can appear under Defaults (global properties), Group_Name(s) (GROUP block), or Node_Name(s) (NODE block).
<OC4J/OHS_Server_Name>	The name of the OC4J/OHS server.
Configuration	A folder that contains all the Oracle AS SPI configuration information for the Oracle Application Server environment.
Default Properties	Lists the configuration properties that are set. This item appears under Defaults (global properties), Group_Name(s) (GROUP block), or Node_Name(s) (NODE block).
Defaults	A folder that represents the global properties. Default properties set at this level apply to all nodes. However, these properties can be overridden by properties set under the Group_Name and Node_Name folders (for more information, see <a href="#">Property Precedence</a> on page 106).
Groups	A folder that represents the GROUP block.
<Group_Name>	A folder that identifies the name of a group of nodes with common properties. Default properties set at this level apply to all nodes that belong to the specified group. These properties can be overridden by properties set under the Node_Name folders (for more information, see <a href="#">Property Precedence</a> on page 106).
Nodes	A folder that represents the NODE block.
<Node_Name>	A folder that represents a single node whose name matches the value returned by the HPOM variable \$OPC_NODES, which is the primary node name configured in HPOM. Default properties set at this level apply to the specified node only (for more information, see <a href="#">Property Precedence</a> on page 106).









## Configuration Editor – Buttons

The following buttons are available in Discover or Configure OASSPI- Configuration Editor window:

Button	Description
Cancel	Exit Discover or Configure OASSPI. If you set configuration properties without saving them, these changes are not saved. If you add or remove an OC4J/OHS server, node, or group without saving the change or if you modify a configuration property, a Confirm Cancel window appears. Click <b>Save and Exit</b> to save the changes before exiting, <b>Exit without Save</b> to exit without saving the changes, or <b>Return to Editing</b> to continue editing the configuration (changes are not saved).
Finish	Exit Discover or Configure OASSPI. Appears instead of <b>Next</b> if you launched Discover or Configure OASSPI without selecting any nodes.
Next	Exit Discover or Configure OASSPI. Takes you to the “Confirm Operation” window that lists the nodes you selected before you started Discover or Configure OASSPI. The selected managed nodes’ configurations are updated with your changes. If you made changes to nodes that were not selected (are not displayed in the “Confirm Operation” window), the changes are saved to the HPOM management server’s configuration, but to make the changes to those managed node’s configuration, you must select those managed nodes from the node bank, restart Discover or Configure OASSPI, and then exit.
Save	Save changes to the HPOM management server’s configuration and continue editing the configuration. You can also select <b>File</b> → <b>Save</b> to save your changes.

## Configuration Editor – Actions

Actions that you can perform depend upon the item that is selected in the tree and from where you access the action. The following actions can be accessed from the Actions menu, File menu, or by right-clicking on an item in the tree.

Action	Description	Selected Tree Item
Add OC4J/OHS Server	Add an OC4J/OHS server. For more information, see <a href="#">Add OC4J/OHS Server</a> on page 110.	<ul style="list-style-type: none"> <li> OC4J/OHS Servers</li> <li> Defaults</li> <li> &lt;Group_Name&gt;</li> <li> &lt;Node_Name&gt;</li> </ul>
Add Group	Create a group to which you can assign nodes that have common properties. For more information, see <a href="#">Add Group</a> on page 111.	<ul style="list-style-type: none"> <li> Any item in the tree</li> <li> Any item in the tree</li> </ul>
Add Node	Add a managed node to the Nodes folder. For more information, see <a href="#">Add Node</a> on page 111.	<ul style="list-style-type: none"> <li> Any item in the tree</li> <li> Any item in the tree</li> </ul>

Action	Description	Selected Tree Item
Exit	Exit the Discover or Configure OASSPI tool. This action is available from the File menu. If any changes were made that have not been saved, the Confirm Cancel window appears.	Any item in the tree Any item in the tree
Remove OC4J/OHS Server/Remove ALL OC4J/OHS Servers	Remove an OC4J/OHS server or all listed OC4J/OHS servers. For more information, see <a href="#">Remove OC4J/OHS Server/Remove ALL OC4J/OHS Servers</a> on page 112.	OC4J/OHS Servers <OC4J/OHS_Server_Name>
Remove Group/Remove ALL Groups	Remove a Oracle AS SPI group or all listed Oracle AS SPI groups. For more information, see <a href="#">Remove Group/Remove ALL Groups</a> on page 112.	Groups <Group_Name>
Remove Node/Remove ALL Nodes	Remove a managed node or remove all managed nodes. For more information, see <a href="#">Remove Node/Remove All Nodes</a> on page 113.	Nodes <Node_Name>
Save	Save changes to the configuration. This action is available from the File menu only if changes were made to the configuration.	Any item in the tree Any item in the tree
Set Configuration Properties tabs	Set the Oracle AS SPI configuration properties. For more information, see <a href="#">Set Configuration Settings Tab</a> on page 113.	<OC4J/OHS_Server_Name> Default Properties
View Configuration Settings tabs	View the Oracle AS SPI configuration properties. For more information, see <a href="#">View Configuration Settings Tab</a> on page 114.	Any item in the tree Any item in the tree

## Add OC4J/OHS Server

Add an Oracle OC4J/OHS Server instance at the global properties, GROUP, or NODE level in the Oracle AS SPI configuration.

To add an OC4J/OHS server:

- 1 Right-click one of the following items in the tree: Defaults (global properties level), OC4J/OHS Servers (global properties level), <Group\_Name> (GROUP level), or <Node\_Name> (NODE level) and select **Add OC4J/OHS Server**. The Configure OASSPI Tool: Add OC4J/OHS Server window appears.
- 2 Enter the “OC4J/OHS Server Name.” This is the name of the OC4J/OHS server as defined in the Oracle Application Server and is case-sensitive. The Oracle Application Server Control Console displays the server names of all configured OC4J/OHS servers in a domain. Use these names for the OC4J/OHS Server Name.
- 3 Click **OK**. The NAME property is set.

The OC4J/OHS server is added and its properties are displayed. You can also set additional configuration properties for this server. For more information, see [Set Configuration Settings Tab](#) on page 113.

- 4 Click **Save** to save your changes.

If you do not want to add this OC4J/OHS server, right-click the OC4J/OHS server name, select **Remove OC4J/OHS Server**, and click **Save**.

## Add Group

Assign nodes to a group that have common properties in the Oracle AS SPI configuration.

To add a group:

- 1 Right-click any item in the tree and select **Add Group**. The Configure OASSPI Tool: Add Group window appears.
- 2 Enter the Group Name. The group name identifies the group of nodes with common properties and is not case-sensitive.
- 3 Click **OK**. The group is added and the Set Configuration Properties tab for the group is selected.
- 4 Select **Add Node to Group**, select one node from the list to add to the group, and click **OK**. Repeat this step until all nodes are added to the group.
- 5 Set the configuration properties for this group using the **Select a Property to Set** pulldown list. For more information, see [Set Configuration Settings Tab](#) on page 113.
- 6 Click **Save** to save your changes.

If you do not want to add the group, right-click the group name, select **Remove Group**, and click **Save**.

## Add Node

Add a managed node to the Oracle AS SPI configuration.

To add a node:

- 1 Right-click any item in the tree and select **Add Node**. If no additional managed nodes are available to add to the configuration, the following message appears:  
  
All available managed nodes have been added to the configuration.  
  
Click **OK** to exit this action. Otherwise, the Configure OASSPI Tool: Add Node window appears.
- 2 From the pulldown menu, select a node to add.
- 3 Click **OK**. The node is added and the Set Configuration Properties tab for the node displays.
- 4 Set the configuration properties for this node using the **Select a Property to Set** drop-down list. For more information, see [Set Configuration Settings Tab](#) on page 113.
- 5 Click **Save** to save your changes.

If you do not want to add the node, right-click the node name, select **Remove Node**, and click **Save**.

## Remove OC4J/OHS Server/Remove ALL OC4J/OHS Servers

Remove an OC4J/OHS Server or all listed OC4J/OHS Servers from the Oracle AS SPI configuration.

To remove an OC4J/OHS server:

- 1 Right-click the OC4J/OHS server name and select **Remove OC4J/OHS Server**. The selected OC4J/OHS server name is removed from the list and its configuration properties are removed from the configuration.
- 2 Click **Save** to permanently remove the OC4J/OHS server. Or  
Click **Cancel** to cancel the removal of the OC4J/OHS server (the OC4J/OHS server name appears the next time you run Discover or Configure OASSPI). In the Confirm Cancel window, click **Exit without Save**.

To remove ALL OC4J/OHS servers:

- 1 Right-click the OC4J/OHS Servers folder and select **Remove ALL OC4J/OHS Servers**.  
The selected OC4J/OHS Servers folder and all OC4J/OHS servers listed in the selected folder are removed (all configuration properties for the listed OC4J/OHS servers are removed from the configuration).
- 2 Click **Save** to permanently remove the OC4J/OHS servers. Or  
Click **Cancel** to cancel the removal of all OC4J/OHS servers (the OC4J/OHS Servers folder and all OC4J/OHS server names listed in the folder appear the next time you run Discover or Configure OASSPI). In the Confirm Cancel window, click **Exit without Save**.

## Remove Group/Remove ALL Groups

Remove a Oracle AS SPI group or all listed Oracle AS SPI groups from the Oracle AS SPI configuration.

To remove a group:

- 1 Right-click the group server name and select **Remove Group**. The selected group is removed from the list and its configuration properties are removed from the configuration.
- 2 Click **Save** to permanently remove the group. Or  
Click **Cancel** to cancel the removal of the group (the group name appears the next time you run Discover or Configure OASSPI). In the Confirm Cancel window, click **Exit without Save**.



## Remove Node/Remove All Nodes

Remove a managed node or all listed managed nodes from the Oracle AS SPI configuration.

To remove a node:


- 1 Right-click the node name and select **Remove Node**. The selected node is removed from the list and its configuration properties are removed from the configuration.
- 2 Click **Save** to permanently remove the node. Or  
Click **Cancel** to cancel the removal of the node (the node name appears the next time you run Discover or Configure OASSPI). In the Confirm Cancel window, click **Exit without Save**.

To remove ALL nodes:

- 1 Right-click the Nodes folder and select **Remove ALL Nodes**.  
The selected Nodes folder and all nodes listed in the selected folder are removed (all configuration properties for the listed nodes are removed from the configuration).
- 2 Click **Save** to permanently remove the nodes. Or  
Click **Cancel** to cancel the removal of all nodes (the Nodes folder and all node names listed in the folder appear the next time you run Discover or Configure OASSPI). In the Confirm Cancel window, click **Exit without Save**.

## Set Configuration Settings Tab

Set the Oracle AS SPI configuration properties at the global properties level or for the selected OC4J/OHS server(s), group(s) (GROUP level), or node(s) (NODE level).

Items with the  icon are the only items for which you can set configuration properties (Default Properties and <OC4J/OHS\_Server\_Name>).

To set the configuration properties of an item, select the item and click the **Set Configuration Properties** tab in the right pane.

### Setting a Property

To set a property in the configuration:

- 1 Select a property from the **Select a Property to Set** pulldown menu.
- 2 Select **Set Property**. The property and an empty value field appear in the table.
- 3 Click the empty value field and enter a value.
- 4 Repeat steps 1 through 3 for each property to set.
- 5 Click **Save**.

### Modifying a Property

To modify a property in the configuration:

- 1 Select the property from the table.
- 2 Double-click the value field.
- 3 Edit the value.
- 4 Repeat steps 1 through 3 for each property to modify.
- 5 Click **Save**.

## Removing a Property

To remove a property from the configuration:

- 1 Select the property from the table.
- 2 Click **Remove Property**.
- 3 Repeat steps 1 and 2 for each property to remove.
- 4 Click **Save**.

For more information about individual properties, see [Configuration Properties](#) on page 115.

## View Configuration Settings Tab

The options under this tab enable you to view all the Oracle AS SPI configuration properties set in the configuration on the HPOM management server or the Oracle AS SPI configuration properties for the selected OC4J/OHS server(s), group(s), or node(s).

To view the configuration properties of an item, select the item and click the **View Configuration Settings** tab in the right pane.

The following table describes the view when the specified item is selected.

Item Name	Description of View
OC4J/OHS Servers	View all configuration properties set for all the listed OC4J/OHS servers.
<OC4J/OHS_Server_Name>	View all configuration properties set for the OC4J/OHS server (these properties can be modified by selecting the <b>Set Configuration Properties</b> tab).
Configurations	View all configuration properties saved in the configuration on the HPOM management server.
Default Properties	View all configuration properties that are set (these properties can be modified by selecting the <b>Set Configuration Properties</b> tab).
Defaults	View all configuration properties set at the global properties level.
Groups	View all configuration properties set for all the listed groups.
<Group_Name>	View all configuration properties set for the specific group.
Nodes	View all configuration properties set for the listed nodes.
<Node_Name>	View all configuration properties set for the specific node.

## View Inherited Properties

A View Inherited Properties check box appears near the bottom of the window. By selecting this check box, the view of the configuration properties changes to show all inherited properties (properties defined at a global properties level or GROUP level) that affect the selected item. Inherited properties are denoted by “<\*>” appearing after the property.

By clearing this check box, the view shows only the configuration properties set at that level for the selected item.

You can modify the inherited properties at the level they are set. If “<\*>” appears after the property, the property cannot be modified at that level. For example, if the property HOME is set at the global properties level (under the Defaults folder), it can only be modified in the Default Properties listed under the Defaults folder. Although HOME appears (with “<\*>” after it) in a <Group\_Name>'s Default Properties view, HOME cannot be modified at this level.

Properties set lower in the tree take precedence over those properties set higher in the tree. For example, if the property HOME is set at the global properties level (under the Defaults folder) and the property HOME is set at the GROUP level, the GROUP level property value takes precedence.

Configuration property precedence is as follows (listed from highest to lowest):

- 1 Server-specific
- 2 NODE level
- 3 GROUP level
- 4 Global properties level

## Configuration Properties

Table 9 on the following page lists all properties by the Oracle AS SPI requirements:

<b>Property</b>	Name of the property.
<b>Requirements</b>	Lists the property requirements for specific components:  <b>R -</b> Required: The property must be set. <b>C -</b> Conditional: The property might need to be set if certain conditions are met. <b>O -</b> Optional: The property is not required for the component to work. <b>blank -</b> Not Applicable: The property does not affect this component.
<b>Oracle AS SPI</b>	Configuration requirements for the Oracle AS SPI to work.
<b>Discovery Process</b>	Requirements for the discover process to work.
<b>Auto-Discovered</b>	The property is automatically set by the discover process.

<b>Level of Configuration</b>	The level at which this property can be set within the configuration structure.
<b>Default Properties</b>	The global, group, or node level within the configuration structure.
<b>Application Server</b>	The server-specific level within the configuration structure.

**Table 9 Properties Listed by the Oracle AS SPI Requirements**

Property	Requirements			Level of Configuration	
	Oracle AS SPI	Discovery Process	Auto-Discovered	Default Properties	Application Server
HOME	R	R	✓	✓	✓✓
HOME_LIST	R	R	✓	✓	✓
JAVA_HOME	R	R	✓	✓	✓
LOGIN	R	R		✓	✓
MAP_KEY_PREFIX	R	R	✓	✓	✓
NAME	R		✓		✓
PASSWORD	R	R		✓	✓
URL_PATH	R	R	✓	✓	✓
ALIAS	C				✓
GRAPH_URL	C			✓	
RMID_PORT	C			✓	
RMID_START_TIME	C			✓	
START_CMD	C			✓	✓
STOP_CMD	C			✓	✓
TYPE	C		✓		✓
USER	C			✓	✓
VERSION	C		✓		✓
TIMEOUT	O			✓	✓

## Property Definitions

**Table 10 Configuration Properties**

Property	Applicable OAS Version	Required/ Conditional/ Optional	Description
ALIAS	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if more than one OC4J/OHS server on a system share the same server name.	ALIAS is a unique name assigned to an OC4J/OHS server on a managed node if more than one OC4J/OHS server on the managed node share the same server name. The alias, if set, is the name used in messages, reports, and graphs (otherwise, SERVER <n>NAME is used).  If ALIAS is modified, the data for the old alias is saved but not mapped to the new alias.  <b>Example:</b> NODE petstore.hp.com {SERVER1_NAME=dog SERVER1_ALIAS=beagle SERVER2_NAME=dog SERVER2_ALIAS=dachshund }  NODE flying_ace.hp.com { SERVER1_NAME=snoopy SERVER1_ALIAS=beagle SERVER2_NAME=snoopy SERVER2_ALIAS=red_baron }
GRAPH_URL	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if you want to use the View Graphs tool (HP Performance Manager must be installed).	The fully-qualified URL used to launch HP Performance Manager. Set at the global level only.  <b>Examples:</b> GRAPH_URL = http://<server_name>:<port_no>/OVPM (HP PM 8.20 on Windows and UNIX), the default port number is 8081
HOME	9.04, 10.1.2, 10.1.3	<b>Required</b>	The directory where the Oracle Application Server is installed.  <b>Example:</b> HOME = /opt/oracle/infra
HOME_LIST	9.04, 10.1.2, 10.1.3	<b>Required</b>	The directory which contains all the locations for HOME separated by ;.
JAVA_HOME	9.04, 10.1.2, 10.1.3	<b>Required</b> Required by the discovery process if there is more than one directory where Java is installed.	The directory where Java is installed that is used by the collector. The java engine is expected to be \$JAVA_HOME/bin/java.  <b>Example:</b> JAVA_HOME = /opt/oracle/jdk

**Table 10 Configuration Properties**

<b>Property</b>	<b>Applicable OAS Version</b>	<b>Required/ Conditional/ Optional</b>	<b>Description</b>
LOGIN	10.1.3	<b>Required</b>	An Oracle AS defined user (not a system user) that is used to monitor an Oracle AS server. <b>Example:</b> SERVER1_LOGIN = janedoe
MAP_KEY_PREFIX	10.1.3	<b>Required</b>	Any unique HTTP instance name. <b>Example:</b> my_j2eeinstance1.system1.com
NAME	9.04, 10.1.2, 10.1.3	<b>Required</b>	The OC4J instance name. Use the <code>dcmctl listInstances</code> command to display all Oracle Application Server instances. This name is used in messages, reports, and graphs unless ALIAS is set. Set ALIAS to uniquely identify each server if more than one OC4J/OHS server on a system share the same name (NAME is the same within a NODE block). <b>Example:</b> SERVER1_NAME = exampleServer
PASSWORD	10.1.3	<b>Required</b>	The password for the LOGIN. If LOGIN is configured, a password must be defined. <b>Example:</b> SERVER1_PASSWORD = johndoe123
RMID_START_TIME	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if rmid takes longer than 30 seconds to start.	<b>Default:</b> 30 (seconds) The amount of time, in seconds, to wait for rmid to start before timing out. <b>Example:</b> RMID_START_TIME = 60
START_CMD	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if you want to start the Oracle Application Server from the HPOM console	A fully qualified system command that is run when the HPOM Tool Bank “Start Oracle AS” tool is used. This command is run by USER, which must be set in order for the “Start Oracle AS” tool to work. <b>NOTE:</b> This command must exit. That is, the Oracle Application Server process must run in the background or as a service and it must be protected from its parent process dying. <b>Example:</b> SERVER1_START_CMD = /sbin/init.d/oracle start
STOP_CMD	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if you want to stop the Oracle Application Server from the HPOM console	A fully qualified system command that is run when the HPOM Tool Bank “Stop Oracle AS” tool is used. This command is run by USER which must be configured in order for the “Stop Oracle AS” tool to work. <b>Example:</b> SERVER1_STOP_CMD = /sbin/init.d/oracle stop

**Table 10 Configuration Properties**

Property	Applicable OAS Version	Required/ Conditional/ Optional	Description
TIMEOUT	9.04, 10.1.2, 10.1.3	Optional	<b>Default:</b> 120 (seconds). The maximum amount of time, in seconds, the Oracle AS SPI tries to connect to the Oracle Application Server. When the specified time is exceeded, the Oracle AS SPI sends an alarm to the message browser indicating that the Oracle Application Server is unavailable. If metric C002_ServerStatusRep is being collected, the unavailability of the server is logged. If no time limit is desired, set this property to -1.
TYPE	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if you are configuring a connector	<b>Default:</b> ajp13. Set to ajp13 if this is an OC4J server. Set to OHS if this is an OHS (HTTP_Server) server. <b>Example:</b> SERVER1_TYPE=ajp13
URL_PATH	10.1.3	<b>Required</b>	Required for discovery and collection of metrics. It is a mandatory property that every server in the SiteConfig must have. <b>Example:</b> SERVER2_URL_PATH=/opmn://samplesystem:6005/my2_home
USER	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required if you want to start and/or stop the Oracle Application Server from the HPOM console	The system username for starting and stopping the Oracle Application Server from the HPOM Application Bank. The default is the username under which the HP Operations agent runs. <b>Example:</b> USER = ias_admin
VERSION	9.04, 10.1.2, 10.1.3	<i>Conditional</i> Required for Oracle Application Server version 10.1.2, 10.1.3	The version number of the Oracle Application Server in the format <i>Major# [Minor#]</i> where: <i>Major#</i> - The primary version number (for example, 10.1) <i>Minor#</i> - The service pack installed (for example, 1 for SP1). If <i>Minor#</i> is not specified, it defaults to 0 (no service pack installed). <b>Example:</b> SERVER1_VERSION = 10.1 2

# Sample Configurations for the Oracle AS SPI

## Example 1: Single Node/Two Servers

This example is for a single node running two servers: an OC4J and HTTP servers. The properties HOME, JAVA\_HOME, MAP\_KEY\_PREFIX, and VERSION are global defaults that apply to all servers and nodes.

```
HOME=C:/OraHome_1
JAVA_HOME=C:/OraHome/jdk
MAP_KEY_PREFIX=
VERSION=10.1 2
NUM_SERVERS=2
NODE some_node.hp.com
{
  SERVER1_NAME=HTTP_Server
  SERVER1_TYPE=ohs
  SERVER2_NAME=home
  SERVER2_TYPE=ajp13
}
```

## Example 2: Multiple Nodes/Repeated Properties

This example shows how you can configure a group of related systems that have numerous properties in common. Some nodes, however, might have one or two properties that you need to set differently. You can address these kinds of situations in three steps:

- 1 Use the Add Group action in the configuration editor to name the group, specify the nodes in it, and set the configuration properties. For more information, see [Add Group](#) on page 111.
- 2 Use the Add Node action in the configuration editor to define individual node properties (either for nodes not in the group or for nodes in the group that have some unique/separate properties). For more information, see [Add Node](#) on page 111.



Properties set for a node take precedence over the same properties set for a group. See [Property Precedence](#) on page 106 for the complete order of property precedence.

In the example, the global default properties HOME, JAVA\_HOME, and MAP\_KEY\_PREFIX are overridden for SERVER4 and SERVER5 of the node group “production” and for node europa.hp.com.

```
HOME = /opt/oracle/appsrv
JAVA_HOME = /opt/oracle/appsrv/jdk
MAP_KEY_PREFIX = /appsrv.hp.com
VERSION = 10.1 2
GROUP production
{
  mercury.hp.com
  venus.hp.com
  mars.hp.com
  jupiter.hp.com
}
```



```

NODE production
{
  SERVER1_NAME = HTTP_Server
  SERVER1_TYPE = ohs
  SERVER1_ALIAS = HTTP_Server+appsrv.hp.com
  SERVER2_NAME = OC4J_Portal
  SERVER2_TYPE = ajp13
  SERVER3_NAME = home
  SERVER3_TYPE = ajp13
  SERVER4_NAME = HTTP_Server
  SERVER4_TYPE = ohs
  SERVER4_ALIAS = HTTP_Server+infra.hp.com
  SERVER4_HOME = /opt/oracle/infra
  SERVER4_JAVA_HOME = /opt/oracle/infra/jdk
  SERVER4_MAP_KEY_PREFIX = /oasspi/infra.hp.com
  SERVER5_NAME = OC4J_SECURITY
  SERVER5_TYPE = ajp13
  SERVER5_HOME = /opt/oracle/infra
  SERVER5_JAVA_HOME = /opt/oracle/infra/jdk
  SERVER5_MAP_KEY_PREFIX = /oasspi/infra.hp.com
}
NODE europa.hp.com
{
  SERVER1_NAME = OC4J_SECURITY
  SERVER1_TYPE = ajp13
  SERVER1_HOME = /opt/oracle/infra
  SERVER1_JAVA_HOME = /opt/oracle/infra/jdk
  SERVER1_MAP_KEY_PREFIX = /oasspi/infra.hp.com
}

```



---

## C Error Messages

The Oracle SPI error messages contains the following information:

- Error Message Number
- Description
- Severity
- Help Text (Probable Cause and Suggested Action)

Error messages can be viewed from the HPOM Message Browser. Double-click the error message to open the message. The Message Properties Window appears. Click the **Message Text** tab to view the error message.

## WASSPI-1

<b>Description</b>	Unable to create the lock file <filename>. File already exists.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>Temporary lock files are used to avoid collisions if multiple Oracle AS SPI data collector processes attempt to access the same data file. This error occurs when the lock file cannot be created after several attempts because the file already exists.</p> <p><b>Suggested Action</b></p> <p>If a file by the same name already exists, it might not have been deleted by a previous run of the Oracle AS SPI data collector. You should delete this file manually.</p>

## WASSPI-2

<b>Description</b>	Cannot access the SPI configuration.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>A Oracle AS SPI configuration file could not be located or accessed. Either the file does not exist or there was a problem reading the file.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Verify that the Oracle AS SPI has been configured correctly by running the <b>OASSPI Admin</b> → <b>Verify</b> tool. If the configuration is not correct, run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li><li>2 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem, for example, an I/O exception. You can view the SPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li></ol>

## WASSPI-3

<b>Description</b>	Error parsing command line.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The Oracle AS SPI data collector command line is incorrectly specified in a collector policy.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem, for example, an I/O exception. You can view the SPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Correct the policy that contains the incorrect command line and redeploy. Refer to the <i>HP Operations Smart Plug-in for Oracle Application Server Configuration Guide</i> for more information on the Oracle AS SPI data collector command line.</li></ol>

## WASSPI-4

<b>Description</b>	Error getting the metric definitions.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The Oracle AS SPI data collector could not read the metric definitions XML document. This error can be caused by a missing configuration property, an I/O error, an XML parsing error, a missing file, or a corrupted serialized data file.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem, for example, an I/O exception. You can view the SPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 If the UDM_DEFINITIONS_FILE property is missing from the OASSPI configuration file, run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool and set the value for this property.</li><li>3 If the problem is with the metric definitions file (MetricDefinitions.xml) that is shipped with the SPI for Oracle AS, then reinstall the SPI for Oracle AS. Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool.</li><li>4 If the problem is with a user-defined metric definitions file that is not shipped with the SPI for Oracle AS, verify that this XML file adheres to the MetricDefinitions.dtd specification. For more information on writing user-defined metrics, refer to the <i>HP Operations Smart Plug-in for Oracle Application Server Configuration Guide</i>. Reinstall your user-defined metric definition file. Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool and verify that the UDM_DEFINITIONS_FILE property in the SPI configuration, is specified correctly.</li><li>5 If the underlying error is <code>ClassNotFoundException</code>, this is an internal error. Report this to HP Support.</li></ol>

## WASSPI-5

<b>Description</b>	Error processing metric <i>&lt;metric_number&gt;</i> .
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An error occurred while trying to collect data or perform calculations for the specified metric.</p> <p><b>Suggested Action</b></p> <p>Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem, for example, an I/O exception. The error messages previous to this one provide more information about the problem. You can view the SPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</p>

## WASSPI-6

<b>Description</b>	Required property <i>&lt;property_name&gt;</i> is missing from the Oracle AS SPI configuration.
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b> A required property is missing from the Oracle AS SPI configuration.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that you have specified the correct server information for the Oracle Application servers on this managed node.</li><li>2 Verify the property is specified correctly in the Oracle AS SPI configuration file (<code>/var/opt/OV/wasspi/oas/conf/SiteConfig</code> on UNIX platforms or <code>%OvAgentDir%\wasspi\oas\conf\SiteConfig</code> on Windows platforms) on the managed node in question.</li></ol>

## WASSPI-7

<b>Description</b>	Unable to contact server <i>&lt;server_name&gt;</i> at url= <i>&lt;URL&gt;</i> , port= <i>&lt;port&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b> The specified server is not running.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that you have specified the correct server information for the Oracle Application Servers on this managed node.</li><li>2 Verify that the properties, <code>SERVERx_NAME</code> and <code>SERVERx_PORT</code> are specified correctly in the Oracle AS SPI configuration file (<code>/var/opt/OV/wasspi/oas/conf/SiteConfig</code> on UNIX platforms or <code>%OvAgentDir%\wasspi/oas/conf/SiteConfig</code> on Windows platforms) on the managed node in question.</li><li>3 Verify that the Oracle AS is running on the managed node.</li></ol>

## WASSPI-8

<b>Description</b>	Error saving graphing or reporting data to file <i>&lt;file_name&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The specified graphing or reporting data file could not be found or an I/O error occurred when trying to access the file.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Identify the steps to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin → Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin → Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-9

<b>Description</b>	Unable to retrieve property <i>&lt;property_name&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>A required property is missing from one of the Oracle AS SPI configuration files.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that you have specified the correct information for the Oracle Application Servers on the managed node in question.</li><li>3 Verify that the missing property is now specified in the Oracle AS SPI configuration file (<code>/var/opt/OV/wasspi/oas/conf/SiteConfig</code> on UNIX platforms or <code>%OvAgentDir%\wasspi\oas\conf\SiteConfig</code> on Windows platforms) on the managed node in question.</li></ol>

## WASSPI-10

<b>Description</b>	Encountered problem accessing file <filename>.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The specified file could not be found, created, or accessed. This file could be a temporary file.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Verify that you have enough disk space to create temporary files.</li></ol>

## WASSPI-11

<b>Description</b>	No servers have been specified in the Oracle AS SPI configuration file.
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The number of Oracle Application Servers specified in the Oracle AS SPI configuration for the managed node in question is 0.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool. Verify that you have specified the correct server name and port information for the Oracle Application Servers on this managed node.</li><li>2 Verify that the property, NUM_SERVERS, in the Oracle AS SPI configuration file (/var/opt/OV/wasspi/oas/conf/SiteConfig on UNIX platforms or %OvAgentDir%\wasspi\oas\conf\SiteConfig on Windows platforms) is set to the number of Oracle Application Servers on this managed node.</li></ol>



## WASSPI-12

<b>Description</b>	Opcomon returned an error code of <i>&lt;error_number&gt;</i> for the command <i>&lt;opcomon_command&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The opcomon process started by the Oracle AS SPI collector has returned an error (non-zero) exit code.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Identify the steps to reproduce the problem.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing.</li><li>3 Reproduce the problem.</li><li>4 Run the <b>OASSPI Admin</b> → <b>Stop Tracing</b> tool to turn off tracing.</li><li>5 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-13

<b>Description</b>	Exception occurred while running an opcomon process.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The Oracle AS SPI data collector attempted to run a process to start an opcomon call. Either the process could not be created or was interrupted.</p> <p><b>Suggested Action</b></p> <p>For UNIX systems, make sure the kernel configurable parameters <code>NPROC</code> and <code>MAXUPRC</code> are set high enough to enable process creation.</p>

## WASSPI-14

<b>Description</b>	Unable to find file <i>&lt;filename&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>A file required by the Oracle AS SPI data collector could not be found.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool on this managed node.</li></ol>

## WASSPI-15

<b>Description</b>	Error parsing XML document <i>&lt;filename&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b> An error occurred while parsing the specified XML document.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 If the XML document was provided by the user, correct the document. For more information about the correct format for a user-defined metric definition document, refer the <i>HP Operations Manager Smart Plug-in for Oracle Application Server Configuration Guide</i>.</li><li>3 If the XML document is a document that is shipped with the Oracle AS SPI, run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool to reinstall the Oracle AS SPI configuration files.</li></ol>

## WASSPI-16

<b>Description</b>	A bad filter <i>&lt;filter value&gt;</i> was specified for metric <i>&lt;metric_number&gt;</i> .
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b> A metric filter is incorrectly specified in the metric definitions XML document.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>4 If the metric is specified in an XML document that was provided by the user, correct the document. For more information about the correct format for a user-defined metric definition document, refer the <i>HP Operations Manager Smart Plug-in for Oracle Application Server Configuration Guide</i>.</li><li>1 If the metric is a pre-defined metric that is shipped with the Oracle AS SPI, run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool to reinstall the Oracle AS SPI configuration files.</li></ol>

## WASSPI-18

<b>Description</b>	Error logging to datasource <i>&lt;datasource_class_name&gt;</i> . Logging process returned exit code <i>&lt;exit_code&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The ddflg process started by the Oracle AS SPI data collector returned a non-zero error code. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Identify the steps to reproduce the problem.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-19

<b>Description</b>	Encountered problem instantiating XSLT transformer with <i>&lt;filename&gt;</i> .
<b>Severity</b>	Major
<b>Help Text</b>	<b>Probable Cause</b> The XSL document that specifies the auto action report output contains errors. <b>Suggested Action</b> Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool on the selected managed node.

## WASSPI-20

<b>Description</b>	Encountered problem creating report for metric <i>&lt;metric_number&gt;</i> .
<b>Severity</b>	Major
<b>Help Text</b>	<b>Probable Cause</b> An error occurred while producing a text report for the specified metric. <b>Suggested Action</b> Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool on the selected managed node.

## WASSPI-21

<b>Description</b>	Encountered problem instantiating factory implementation. '<class name>'.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause:</b> The java property specifying the class name is incorrect or the class does not implement the AppServerFactory interface. <b>Suggested Action:</b> Verify that the java property <code>appserver.implementation</code> is set to the fully qualified name of the class which implements the AppServerFactory interface.

## WASSPI-23

<b>Description</b>	Error initializing collector analyzer for server <server_name>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> An exception was encountered while preparing to monitor the specified server. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Identify the steps to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-24

<b>Description</b>	Error logging in to server <server_name> with login <login>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> A security exception occurred while logging in to the specified server. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool on the managed node on which the error occurred and verify that you have specified the correct login and password properties.</li><li>2 Verify the login has appropriate permissions.</li></ol>

## WASSPI-26

<b>Description</b>	The data logging process for <code>&lt;server_name&gt;</code> timed out.
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>Depending on your configuration, either HP Performance Agent or CODA failed to exit before the time-out.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Restart CODA using the command <code>opcagt -start</code>.</li><li>2 Restart HP Performance Agent using the command <code>mwa restart</code>.</li></ol>

## WASSPI-27

<b>Description</b>	RMI collector unable to process <code>&lt;command&gt;</code> .
<b>Severity</b>	Warning
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An exception was encountered while performing an rmid related operation.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin</b> → <b>View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Identify the steps to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-28

<b>Description</b>	RMID on port <code>&lt;port&gt;</code> has been <code>&lt;status&gt;</code> .
<b>Severity</b>	Normal

## WASSPI-29

<b>Description</b>	Collector server <code>&lt;server id&gt;</code> for Java home <code>&lt;path&gt;</code> has been started.
<b>Severity</b>	Normal

## WASSPI-30

<b>Description</b>	Failed to start <code>&lt;rmid_path&gt;</code> on port <code>&lt;port&gt;</code> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The specified port is already in use. <b>Suggested Action</b> 1 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool. Set the <code>RMID_PORT</code> property to a port number, which is not currently in use.

## WASSPI-31

<b>Description</b>	Lost connection to RMI collector while processing <code>&lt;command&gt;</code> .
<b>Severity</b>	Warning

## WASSPI-32

<b>Description</b>	Unable to retrieve metadata for mbean <code>&lt;JMX-ObjectName&gt;</code> .
<b>Severity</b>	Warning

## WASSPI-33

<b>Description</b>	No actions matched server <code>&lt;server_name&gt;</code> , version <code>&lt;version&gt;</code> .
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause</b> JMXAction element(s) define <code>FromVersion</code> and <code>ToVersion</code> tags which do not match the server version. <b>Suggested Action</b> If the action is valid on the server, then either modify the JMXAction definition's <code>FromVersion/ToVersion</code> elements or modify the server's <code>VERSION</code> property.

## WASSPI-34

<b>Description</b>	Metric <code>&lt;metric_id&gt;</code> does not define any actions.
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause</b> The metric ID specified with the <code>-m</code> option does not define a <code>JMXActions</code> element. <b>Suggested Action</b> Correct the <code>-m</code> option if an incorrect metric ID was specified. Otherwise, add a <code>JMXActions</code> definition to the metric definition.

## WASSPI-35

<b>Description</b>	Error executing action <code>&lt;action_command-line&gt;</code> .
<b>Severity</b>	Major
<b>Help Text</b>	<b>Probable Cause</b> An unexpected error occurred while executing the action. <b>Suggested Action</b> View the managed node's error log to determine the cause (follows the error message).

## WASSPI-36

<b>Description</b>	MBean <code>&lt;JMX_objectname&gt;</code> on server <code>&lt;server_name&gt;</code> does not expose operation <code>&lt;operation_name&gt;</code> .
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause</b> An action's <code>JMXCalls</code> element defines an operation not exposed by the specified MBean. <b>Suggested Action</b> Correct the <code>JMXCalls</code> element or remove the operation from the element.

## WASSPI-37

<b>Description</b>	MBean <code>&lt;JMX_objectname&gt;</code> on server <code>&lt;server_name&gt;</code> does not expose attribute <code>&lt;attribute_name&gt;</code> for write.
<b>Severity</b>	Warning
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An action's JMXCalls element defines a write attribute exposed by the specified MBean as read-only.</p> <p><b>Suggested Action</b></p> <p>If the specified MBean is a custom MBean, update its management interface so that the attribute is writable. Otherwise, remove the attribute definition from the JMXCalls element.</p>

## WASSPI-38

<b>Description</b>	MBean <code>&lt;JMX_objectname&gt;</code> on server <code>&lt;server_name&gt;</code> does not expose attribute <code>&lt;attribute_name&gt;</code> .
<b>Severity</b>	Warning
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An action's JMXCalls element defines an attribute not exposed by the specified MBean ObjectName.</p> <p><b>Suggested Action</b></p> <p>Correct the JMXCalls element or remove the attribute from the element.</p>

## WASSPI-39

<b>Description</b>	Error invoking operation <code>&lt;operation_name&gt;</code> on MBean <code>&lt;JMX_objectname&gt;</code> .
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An unexpected error occurred while invoking an operation on the specified MBean. The managed resource might have thrown an exception.</p> <p><b>Suggested Action</b></p> <p>View the managed node's error log to determine the cause (follows the error message).</p>



## WASSPI-40

<b>Description</b>	Error setting attribute <code>&lt;attribute_name&gt;</code> on MBean <code>&lt;JMX_objectname&gt;</code> .
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An unexpected error occurred while setting an attribute on the specified MBean. The managed resource might have thrown an exception.</p> <p><b>Suggested Action</b></p> <p>View the managed node's error log to determine the cause (follows the error message).</p>

## WASSPI-41

<b>Description</b>	Error getting attribute <code>&lt;attribute_name&gt;</code> from MBean <code>&lt;JMX_objectname&gt;</code> .
<b>Severity</b>	Major
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An unexpected error occurred while getting an attribute from the specified MBean. The managed resource might have thrown an exception.</p> <p><b>Suggested Action</b></p> <p>View the managed node's error log to determine the cause (follows the error message).</p>

## WASSPI-42

<b>Description</b>	Error running command <code>&lt;command&gt;</code> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>A command started by the Oracle AS SPI collector reported an error.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Identify the steps to reproduce the problem.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing.</li><li>3 Reproduce the problem.</li><li>4 Run the <b>OASSPI Admin</b> → <b>Stop Tracing</b> tool to turn off tracing.</li><li>5 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-43

<b>Description</b>	Error publishing event <i>&lt;event-type&gt;</i> .
<b>Severity</b>	Major
<b>Help Text</b>	<b>Probable Cause</b> An unexpected error occurred while a publisher was handling a metric or collect event. <b>Suggested Action</b> View the managed node's error log to determine the cause (follows the error message).

## WASSPI-201

<b>Description</b>	File <i>&lt;filename&gt;</i> not found.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> A configuration file could not be found. <b>Suggested Action</b> Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that the correct information has been specified for the Oracle Application Servers on the managed node on which the error occurred.

## WASSPI-202

<b>Description</b>	Cannot read file <i>&lt;filename&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> <ol style="list-style-type: none"><li>1 A file could not be opened or it could not be found.</li><li>2 Permissions might be incorrect or a directory might be corrupt.</li></ol> <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that the correct information has been specified for the Oracle Application Servers on the managed node on which the error occurred.</li><li>2 Verify that the permissions are correct for the HP Operations agent user to read this file.</li></ol>

## WASSPI-203

<b>Description</b>	Cannot write file <i>&lt;filename&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b> Permissions might be incorrect, or a file or directory might be corrupt.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that the correct information has been specified for the Oracle Application Servers on the managed node on which the error occurred.</li><li>2 Verify that the permissions are correct for the HP Operations agent user to write this file.</li></ol>

## WASSPI-204

<b>Description</b>	Error sending opcmsg <i>&lt;message&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b> There was a problem running opcmsg. “opcmsg” might be missing or not have permissions to run (HPOM installation errors) or the system process table might be full.</p> <p><b>Suggested Action</b> Confirm that the OASSPI-Messages policy has been deployed on the managed node.</p>

## WASSPI-205

<b>Description</b>	Error sending opcmon <i>&lt;command&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b> There was a problem running opcmon. “opcmon” might be missing or not have permissions to run (HPOM installation errors) or the system process table might be full.</p> <p><b>Suggested Action</b> Confirm that HPOM is properly installed and deployed to the managed node. Make sure that the process table is not full. If it is, consider having the system administrator increase it.</p>

## WASSPI-206

<b>Description</b>	Cannot read directory <directory>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The permissions on the directory prevent the HP Operations agent user from reading it or the directory is corrupt. <b>Suggested Action</b> Verify that the permissions are correct for the HP Operations agent user for this directory.

## WASSPI-207

<b>Description</b>	Cannot move <filename> to <filename>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> <ol style="list-style-type: none"><li>1 Insufficient permissions.</li><li>2 Insufficient disk space.</li><li>3 File table problems.</li></ol> <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Verify that the permissions are correct for the HP Operations agent user.</li><li>2 Verify that there is enough disk space to create files.</li><li>3 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li></ol>

## WASSPI-208

<b>Description</b>	OASSPI must be configured before it can be used.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The Oracle AS SPI has not been configured on this node. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool. Verify that the correct information has been specified for the Oracle Application Servers on the managed node on which the error occurred.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Verify</b> tool on the managed node to confirm that the SPI has been successfully configured.</li></ol>

## WASSPI-209

<b>Description</b>	Cannot contact Oracle Application Server.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <ol style="list-style-type: none"><li>1 The server could be down or not responding.</li><li>2 The Oracle AS SPI might be configured incorrectly.</li></ol> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Verify that Oracle Application Server is up and running properly.</li><li>2 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool.</li><li>3 Run the <b>OASSPI Admin → Verify</b> tool on the managed node to confirm that the SPI has been successfully configured.</li></ol>

## WASSPI-210

<b>Description</b>	Cannot configure OASSPI.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The Oracle AS SPI configuration process failed.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. The error messages previous to this one may also provide more information about the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool.</li></ol>

## WASSPI-211

<b>Description</b>	Cannot create directory <i>&lt;directory&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>There are insufficient permissions for the HP Operations agent user to create the directory or there is insufficient disk space.</p> <p><b>Suggested Action</b></p> <p>Verify that the permissions are correct for the HP Operations agent user for this directory and verify that there is enough disk space.</p>

## WASSPI-213

<b>Description</b>	Improper parameters to program <i>&lt;name&gt;</i> . Usage: <i>&lt;usage&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The parameters to the program are incorrect. <b>Suggested Action</b> Correct the parameters.

## WASSPI-214

<b>Description</b>	Cannot run program <i>&lt;program_name&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The program failed to run. It might be missing, permissions might be incorrect, or the process table might be full. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Verify that the file exists. If it is a Oracle AS SPI program and the file is missing, run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool on the selected managed node.</li><li>2 Verify that the permissions are correct for the HP Operations agent user.</li></ol>

## WASSPI-216

<b>Description</b>	Configuration variable <i>&lt;name&gt;</i> missing for server <i>&lt;server_name&gt;</i> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> A required Oracle AS SPI configuration property was not found. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool.</li><li>2 Verify that the correct information has been specified in the configuration for the managed node on which the error occurred.</li></ol>

## WASSPI-218

<b>Description</b>	Oracle Application Server monitoring has been turned OFF for <server_name>.
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause</b> Collection has been turned off for the specified server. <b>Suggested Action</b> If desired, collection can be turned on by running the <b>OASSPI Admin</b> → <b>Start Monitoring</b> tool.

## WASSPI-219

<b>Description</b>	Oracle Application Server monitoring has been turned ON for <server_name>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> Collection has been turned on for the specified server. <b>Suggested Action</b> If desired, collection can be turned off by running the <b>OASSPI Admin</b> → <b>Stop Monitoring</b> tool.

## WASSPI-221

<b>Description</b>	<filename> does not exist.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The specified file does not exist. If it is a log file, no entries have ever been logged to it. If it is a property file, then it has not been configured. <b>Suggested Actions</b> <ul style="list-style-type: none"><li>• Log files - If there have never been any entries written to the file, no action is necessary. Otherwise, run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li><li>• Property files - Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li></ul>

## WASSPI-222

<b>Description</b>	<filename> is empty.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The specified file is empty. If it is a log file, no entries have ever been logged to it, or the entries have been cleaned out. If it is a property file, then it is not properly configured. <b>Suggested Action</b> If the file is a configuration file, run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool.

## WASSPI-223

<b>Description</b>	Cannot read <filename>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> <ol style="list-style-type: none"><li>1 A file could not be opened or it could not be found.</li><li>2 Permissions might be incorrect or a directory might be corrupt.</li></ol> <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin → Discover or Configure OASSPI</b> tool. Verify that the correct information has been specified for the Oracle Application Servers on the managed node on which the error occurred.</li><li>2 Verify that the permissions are correct for the HP Operations agent user to read this file.</li></ol>

## WASSPI-224

<b>Description</b>	ddfcomp returned an error configuring <name>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> ddfcomp returned an error. Neither HP Performance Agent nor CODA is installed on the system or HP Performance Agent or CODA is not configured correctly. <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 If the performance agent is not installed, this error can be ignored.</li><li>2 Otherwise, identify the steps to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin → Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin → Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>



## WASSPI-225

<b>Description</b>	No logfiles were found. Did you run OASSPI Config?
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The logfile list is empty. <b>Suggested Action</b> Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.

## WASSPI-226

<b>Description</b>	Cannot read file <filename>.
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> <ol style="list-style-type: none"><li>1 A file could not be opened or it could not be found.</li><li>2 Permissions might be incorrect or a directory might be corrupt.</li></ol> <b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li><li>2 Verify that you specified the correct information for the Oracle Application Servers on the managed node on which the error occurred.</li><li>3 Verify that the permissions are correct for the HP Operations agent user to read this file.</li></ol>

## WASSPI-227

<b>Description</b>	No HP performance agent is installed. Data source will not be configured.
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause:</b> If an HPOM is available, the SPI integrates with it. This warning indicates that none is available. <b>Suggested Action:</b> If you must have a performance agent installed, verify that it is installed correctly and is running; reinstall it if necessary. Otherwise, this message can be ignored.

## WASSPI-228

<b>Description</b>	ddflog returned an error logging <logfile-name>: <system-error-msg>
<b>Severity</b>	Warning
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>An error was returned by ddflog. This error could have been caused by the Oracle AS SPI not being properly configured to support logging performance data.</p> <p><b>Suggested Action</b></p> <ol style="list-style-type: none"><li>1 Redeploy SPI for Oracle Application Server and SPI Data Collector instrumentation on the node having the problem.</li><li>2 Otherwise, examine the system error message, if any, for clues to the problem.</li><li>3 Run the <b>OASSPI Admin</b> → <b>Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin</b> → <b>Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>

## WASSPI-229

<b>Description</b>	Cannot connect to directory <directory_name>
<b>Severity</b>	Warning
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The directory does not exist or the user the agent is running under does not have appropriate permissions to the directory.</p> <p><b>Suggested Action</b></p> <p>Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</p>

## WASSPI-230

<b>Description</b>	Cannot get lock <file> after <time>
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>A Oracle AS SPI process is hung or taking longer than expected. This could be due to a very slow running or hung SPI process. Possibly a SPI process that had a lock was killed before the lock it had open had been cleared.</p> <p><b>Suggested Action</b></p> <p>Make sure no SPI processes are running. Manually remove the lock file.</p>

## WASSPI-231

<b>Description</b>	Error starting JRE <JVM_file>: <message>
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause:</b> Some error occurred starting Java. This could be that the specified JVM does not exist, has bad permissions, or that there are system resource limitations such as process table entries or memory, or that the JAVA_HOME variable in the SPI SiteConfig file is not set correctly.</p> <p><b>Suggested Action:</b></p> <p>Check for other errors generated at the same time, they may indicate the real cause. If the specified file does not exist, check your JAVA_HOME or HOME variables in the SPI configuration.</p>

## WASSPI-232

<b>Description</b>	Server <name> specified on command line, but not in configuration.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>There was a -i or -e specified on the collector command line which specified a server name that was not listed in the SPI configuration. The collector only knows about servers listed in the configuration.</p> <p><b>Suggested Action:</b></p> <ol style="list-style-type: none"><li>1 Specify a correct server name on the command line.</li><li>2 Run the <b>OASSPI Admin</b> → <b>Discover or Configure OASSPI</b> tool.</li><li>3 Verify the Oracle AS names are correctly listed and spelled in the SPI configuration. Note that the server name is case-sensitive.</li></ol>

## WASSPI-234

<b>Description</b>	Error running program <file>, return value: <n>.
<b>Severity</b>	Critical
<b>Help Text</b>	<p><b>Probable Cause</b></p> <p>The SPI attempted to run the specified tool or auxiliary program and encountered an error (the return code is specified).</p> <p><b>Suggested Action</b></p> <p>If the tool is a SPI tool, make sure the SPI has been installed and configured correctly. If not, reinstall or reconfigure. If it is a system tool, make sure there are no system problems that prevent the tool from running.</p>

## WASSPI-235

<b>Description</b>	Restart of HP Performance agent failed.
<b>Severity</b>	Warning
<b>Help Text</b>	<b>Probable Cause</b> The SPI attempted to automatically restart the HP Performance agent and the automatic attempt failed. <b>Suggested Action</b> Restart the HP Performance agent manually using the command <code>mwa restart server</code> .

## WASSPI-236

<b>Description</b>	Failure when running XSLT on <code>&lt;xml&gt;</code> with stylesheet <code>&lt;xsl&gt;:&lt;message&gt;</code> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> As part of setting up graphing for user defined metrics, a translation of the UDM XML is done. This message indicated that the translation failed for some reason. <b>Suggested Action</b> Review the message shown. It is most likely that there is an error in the XML.

## WASSPI-237

<b>Description</b>	This is an informational message that an HP Performance Manager or HP Performance Agent datasource was set up.
<b>Severity</b>	Normal

## WASSPI-241

<b>Description</b>	Cannot delete file <code>&lt;file&gt;</code> .
<b>Severity</b>	Critical
<b>Help Text</b>	<b>Probable Cause</b> The SPI failed to delete the specified file. It might be that the protection of the file is set so that the HP Operations agent user cannot delete it, or that there is some system problem preventing the file from being deleted. <b>Suggested Action</b> Make sure the protection of the file is correct.

## All Other Errors

<b>Description</b>	An unknown error appears in the Oracle AS SPI error log.
<b>Severity</b>	Major
<b>Help Text</b>	<b>Suggested Action</b> <ol style="list-style-type: none"><li>1 Refer to the text following the error message in the OASSPI error log to help identify the underlying cause of the problem. The error messages previous to this one may also provide more information about the problem. You can view the OASSPI error log for a managed node by using the <b>OASSPI Admin → View Error File</b> tool. The error message can be identified by the date/time stamp.</li><li>2 Identify the steps to reproduce the problem.</li><li>3 Run the <b>OASSPI Admin → Start Tracing</b> tool to turn on tracing. Try to reproduce the problem.</li><li>4 Run the <b>OASSPI Admin → Self-Healing Info</b> tool. Contact HP support with the information gathered by this tool.</li></ol>



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# Glossary

**agent**

A program or process running on a remote device or computer system that responds to management requests, performs management operations, or sends performance and event notification. An agent can provide access to managed objects and MIB variables, interpret policy for resources and do configuration of resources.

**application**

Packaged software that provides functionality that is designed to accomplish a set of related tasks. An application is generally more complex than a tool.

**ASCII**

American Standard Code for Information Interchange.

**assigned policy**

A policy that has been assigned to one or more resources in the computing environment but which has not yet been deployed or installed on those resources.

**automatic action**

A pre-configured program or script that is run in response to an event, message, or a change in information in the management database. without operator intervention.

**client**

When the context is network systems, a computer system on a network that accesses a service from another computer (server). When the context is software, a program or executable process that requests a service from a server.

**client console**

An instance of the user interface that appears on the client system while the application runs on a server.

**command**

An instruction to a computer program that causes a specified operation to be carried out. Commands are typically typed by users on a command line.

**configuration**

In a network context, the complete set of inter-related systems, devices and programs that make up the network. For example the components of a network can include computer systems, routers, switches, hubs, operating systems and network software. The configuration of the network determines the way that it works and the way that it is used. In a software context, the combination of settings of software parameters and attributes that determine the way the software works, the way it is used, and how it appears.

**configuration file**

A file that contains specifications or information that can be used for determining how a software program should look and operate.

**configure**

To define and modify specified software settings to fulfill the requirements of a specified environment, application or usage.

**connection**

A representation of a logical or physical relationship between objects.

**console**

An instance of the user interface from which the user can control an application or set of applications.

**customization**

The process of designing, constructing or modifying software to meet the needs and preferences of a particular customer or user.

**customize**

To design, construct or modify software to meet the needs and preferences of a particular customer or user.

**data type**

A particular kind of data; for example database A repository of data that is electronically stored. Typically databases are organized so that data can be retrieved and updated.

**deploy**

To install and start software, hardware, capabilities, or services so that they work in the business environment.

**Deployed application**

An application and its components that are installed and started to work in the business environment.

**deployed policy**

A policy that is deployed on one or more resources in the computing environment.

**deployment**

The process of installing and activating software, hardware, capabilities or services so that they work in the business environment.

**Deployment package**

A software package that can be deployed automatically and installed on a managed node.

**error log**

An output file containing error messages.

**event**

An event is an unsolicited notification such as an SNMP trap or WMI notification generated by an agent or process in a managed object or by a user action. Events usually indicate a change in the state of a managed object or cause an action to occur.

**HP Operations Manager**

A family of network and system management products, and an architecture for those products. HP Operations Manager includes development environments and a wide variety of management applications.

**Hypertext Transfer Protocol (HTTP).**

The protocol that World Wide Web clients and servers use to communicate.

**HTTPS**

Hypertext Transfer Protocol Secure.

**icon**

An on-screen image that represents objects that can be monitored or manipulated by the user or actions that can be started by the user.

**managed object**

A network, system, software or service object that is both monitored for performance, status and messages and is manipulated by means of actions in the management software.

**management console**

An instance of the user interface from which the user can control the management application or set of management applications. The console might be on the system that contains the management software or it might be on another system in the management domain.

**management server**

A server that provides management services, processes, or a management user interface to clients. A management server is a type of management station.

**message**

A structured, readable notification that is generated as a result of an event, the evaluation of one or more events relative to specified conditions, or a change in application, system, network, or service status.

**message browser**

A graphical user interface that presents notifications that are generated as a result of an event, the evaluation of one or more events relative to specified conditions or a change in application, system, network, or service status.

**message description**

Detailed information about an event or message.

**message key**

A message attribute that is a string used to identify messages that were triggered from particular events. The string summarizes the important characteristics of the event. Message keys can be used to allow messages to acknowledge other messages, and allows for the identification of duplicate messages.

**message severity level**

A property of a message indicating the level of impact of the event or notification that initiated the message. See also severity level.

**metadata**

Data that defines data.

**metric**

A measurement that defines a specific operational or performance characteristic.

**Microsoft Management Console (MMC)**

A Microsoft product that provides a software framework for the management of IT environments. Management products are added or "snapped into" the management console and thus extend the management capability of the Microsoft Management Console.

**module**

A self-contained software component that performs a specific type of task or provides for the presentation of a specific type of data. Modules can interact with one another and with other software.

**node**

When the context is network, a computer system or device (for example, printer, router, bridge) in a network. When the context is a graphical point to point layout, a graphical element in a drawing that acts as a junction or connection point for other graphical elements.

**parameter**

A variable or attribute that might be given an arbitrary value for use during an execution of either a computer program or a procedure within a program.

**parameter type**

An abstraction or categorization of a parameter that determines the particular kind of data that is valid for the parameter. For example a parameter type could be IP Address which indicates that parameter values must have 4 numbers separated by decimals with the value for each number being in the range of 0 to 255.

**parameter value**

A value that is given to a variable.

**policies**

A set of one or more specifications rules and other information that help automate network, system, service, and process management. Policies can be deployed to various targets (for



example, managed systems, devices, network interfaces) providing consistent, automated administration across the network.

### **Policy management**

The process of controlling policies (for example, creating, editing, tracking, deploying, deleting) for the purposes of network, system or service management.

### **policy type**

An abstraction or categorization of policies based on the function of the policy or the services that the policy supports.

### **port**

If the context is hardware, a location for passing information into and out of a network device. If the context is ECS, a location for passing information into and out of a correlation node.

### **server**

If the context is hardware plus software, a computer system that provides a service (for example, management capabilities, file storage capabilities) to other computer systems (clients) on the network. If the context is a software component, a program or executable process that responds to and services requests issued by clients.

### **severity level**

A property of an object indicating the status of the object. Severity level is based on the impact of events or messages associated with the object.

### **SMART Plug-In (SPI)**

Prepackaged software that installs into a management console and provides management capabilities specific to a given type of business application, database, operating system, or service.

### **trace log**

An output file containing records of the execution of application software



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