

HP Operations Smart Plug-in for Oracle Application Server

for HP Operations Manager for UNIX®

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Installation and Configuration Guide

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1 Oracle AS SPI Concepts

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 otherwise unavailable to HPOM. For more information on HPOM, see *HP Operations Manager for UNIX Concepts Guide*.

Introducing the Oracle AS SPI

The Oracle AS SPI, used in conjunction with HPOM, offers centralized applications that help you monitor and manage systems using 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 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 5, 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 most 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. There are several pre-defined corrective actions for specific events or threshold violations. These corrective actions can be automatically triggered or operator-initiated. When you double-click a message, corrective actions appear under the **Instructions** tab and automatically generated metric reports appear under the **Annotations** tab in the Message Properties window.

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 described in the following sections:

Collecting and Interpreting Server Performance and Availability Information

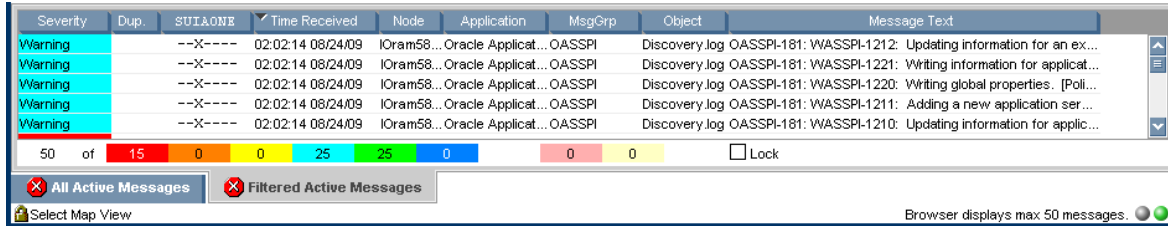
After you configure the Oracle AS SPI, and the policies are deployed to the managed nodes, the SPI starts gathering server performance and availability data. This data is compared with the settings within the deployed policies. The policies define conditions that can occur within the Oracle AS Server, 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:

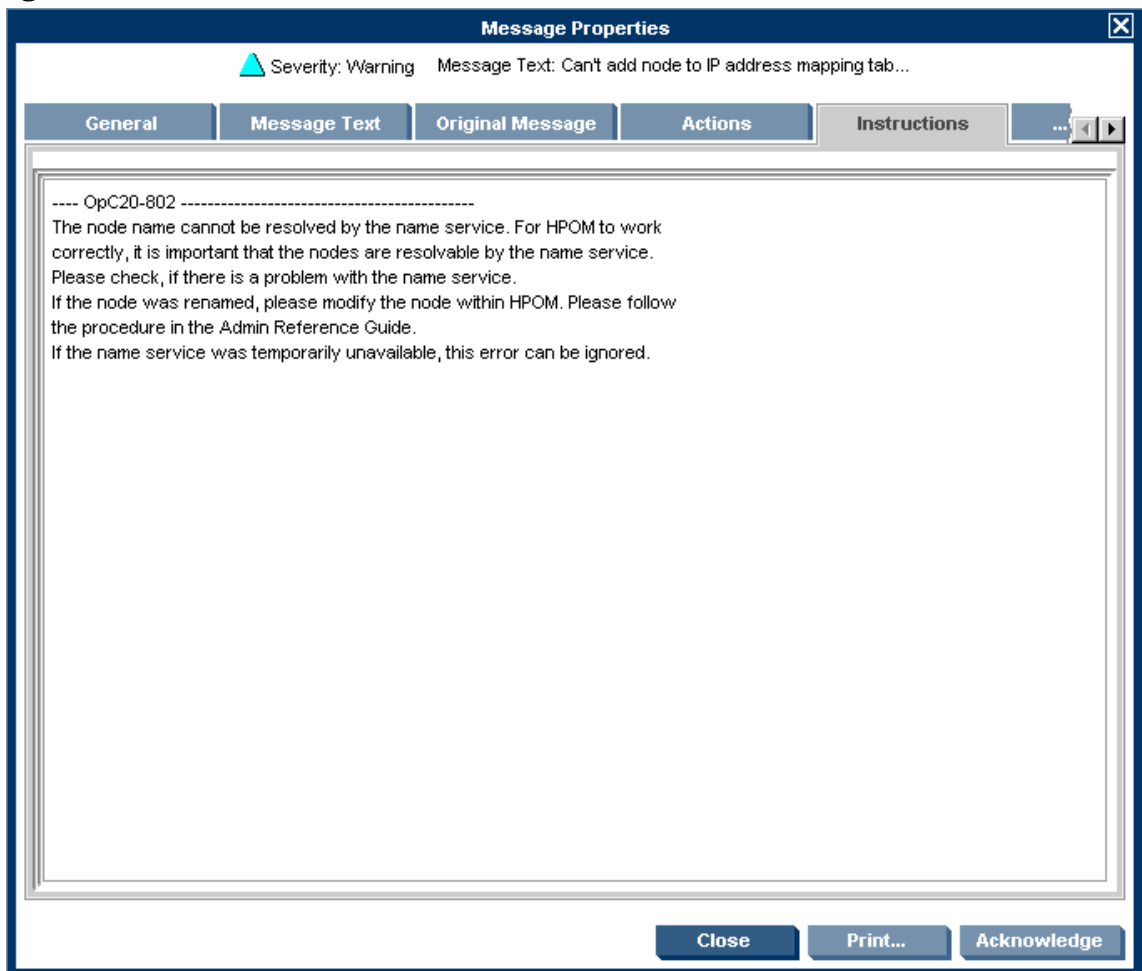
Messages in the Message Browser – HP Operations agent software compares the values gathered for Oracle AS Server performance and availability against the monitor policy settings related to those specific areas. The agent software then forwards appropriate messages to the HPOM console. These messages 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 1 Message Browser



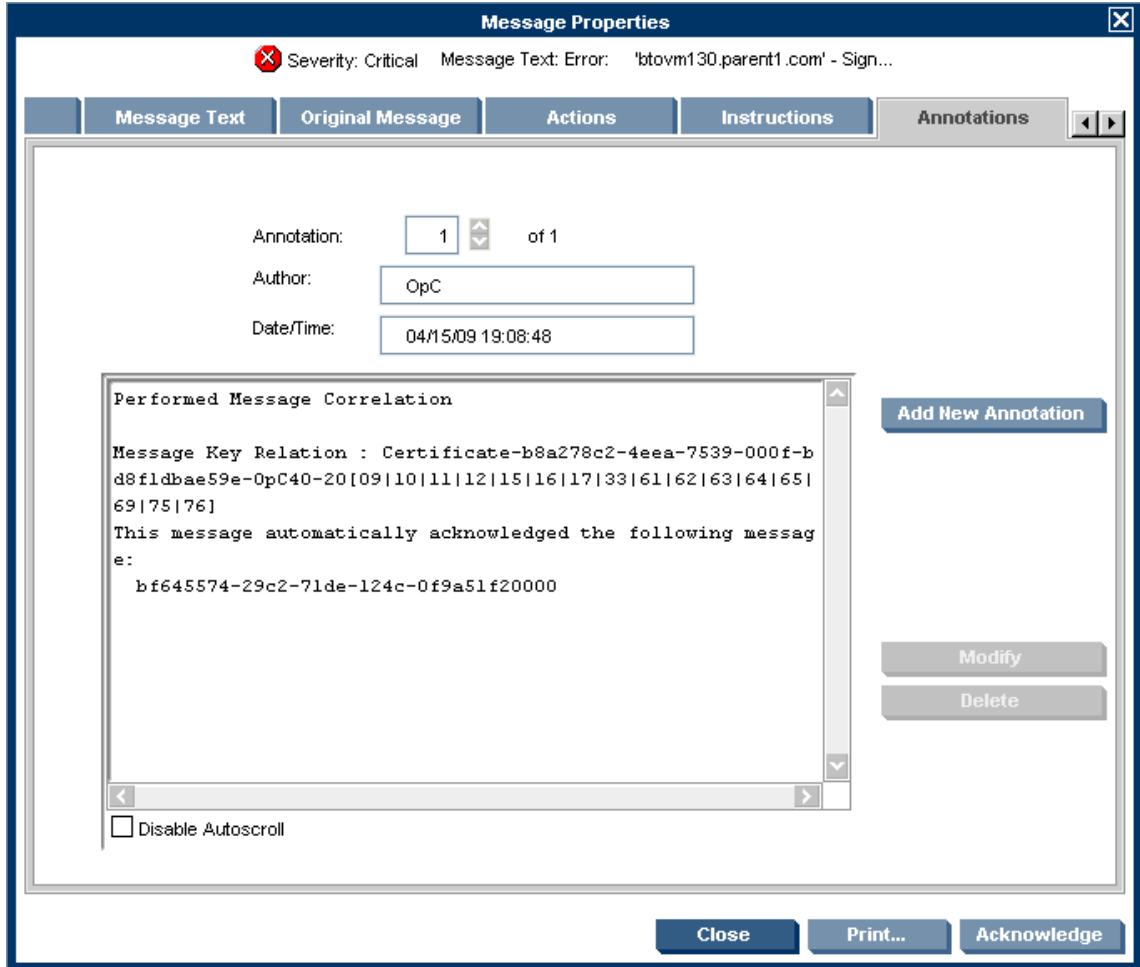
Instruction Text – Messages generated by the Oracle AS SPI programs contain instruction text to help analyze and solve problems. You can manually perform corrective actions preassigned to events or they can be triggered automatically. Instruction text is present in the Message Properties window. Double click the Message Text, the Message Properties window opens. 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 2 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 3 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. With the help of these reports you can assess how the Oracle OC4J/OHS server is performing over a period of time.

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 the following:

- 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 4, 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 about UDMs see the *HP Operations Smart Plug-in User Defined Metrics User Guide*.

Components of the Oracle AS SPI

The Oracle AS SPI has two main components:

- Tools (including reports)
- Policies

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

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. These groups are explained in detail in the following sections.

- [OASSPI Admin Tools Group](#)
- [Oracle AS SPI Tools Group](#)
- [OASSPI Reports Group](#)
- [OASSPI Reports \(JMX\) Group](#)
- [JMX Metric Builder Tools](#): This tool group is available *only if* you install the SPIJMB software.

Figure 4 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

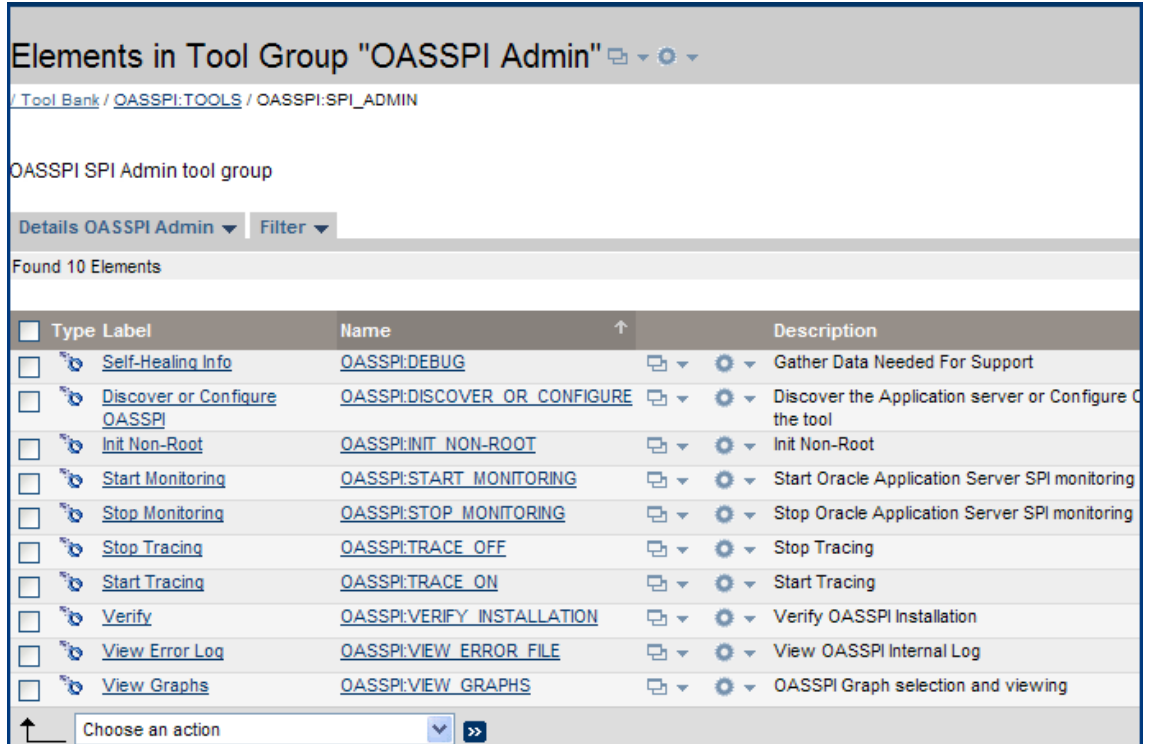
<input type="checkbox"/>	Type	Label	Name	↑	Contents	Description
<input type="checkbox"/>	📁	Oracle AS SPI	OASSPI:ADMIN	🗑️ ⚙️	0 / 5	OASSPI SPI Admin tool group
<input type="checkbox"/>	📁	OASSPI Reports	OASSPI:REPORTS	🗑️ ⚙️	0 / 19	Ascii metric reports for Oracle Application Server
<input type="checkbox"/>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

↑ Choose an action ⌵ ▶️

OASSPI Admin Tools Group

OASSPI Admin tools enable you to configure, control, and troubleshoot the Oracle AS SPI. You require `root` user permission to run OASSPI Admin tools.

Figure 5 OASSPI Admin Tool Group



The tool group contains the following tools:

- **Discover or Configure OASSPI**– Launches the configuration editor and maintains the Oracle AS SPI configuration or sets basic configuration properties needed for discovery.
- **Init Non-Root**– 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 45.
- **Self-Healing Info**– Collects data to be sent to your HP Support representative.
- **Start Monitoring**– Starts the collection of metrics for one or more OC4J/OHS servers on a managed node.

Launch the Verify tool to determine if monitoring is started or stopped. By default, monitoring is on.

- **Stop Monitoring**– Stops the collection of metrics for one or more OC4J/OHS servers on a managed node.
- **Start Tracing**– Starts logging the information about each of the activities performed by the SPI into a file. Run this tool only when instructed by your HP support representative.
- **Stop Tracing**– Stops saving the information about each of the activities performed by the SPI into a file. Run this tool only when instructed by your HP support representative.
- **Verify**– Verifies that the files required for the functioning of the Oracle AS SPI (instrumentation, configuration, library files, and so on) are properly deployed.
- **View Error Log**– Enables you to view the contents of the Oracle AS SPI error log file (`wasspi_perl.log`).
- **View Graphs**– Enables you to view the Oracle AS SPI graphs, generated by HP Performance Manager, in a web browser.

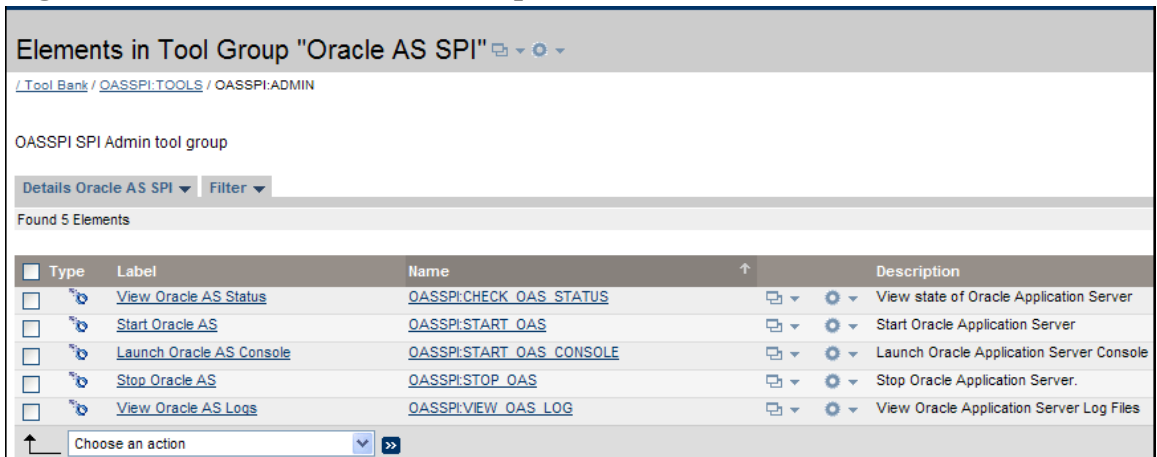
For more information about each of the above tools, see [Appendix C, Tools](#).

Oracle AS SPI Tools Group

You can manage the Oracle Application Server functions by using the tools in the Oracle AS SPI tools group.

To access the tools in the Oracle AS SPI group click **OASSPI:TOOLS** → **OASSPI:ADMIN** in the Tool Bank window.

Figure 6 Oracle AS SPI Tools Group



The screenshot displays the 'Elements in Tool Group "Oracle AS SPI"' interface. It shows a breadcrumb path: / Tool Bank / OASSPI:TOOLS / OASSPI:ADMIN. Below this, it identifies the 'OASSPI SPI Admin tool group' and provides options for 'Details Oracle AS SPI' and a 'Filter'. It states 'Found 5 Elements' and presents a table with the following data:

Type	Label	Name		Description
<input type="checkbox"/>	View Oracle AS Status	OASSPI:CHECK_OAS_STATUS		View state of Oracle Application Server
<input type="checkbox"/>	Start Oracle AS	OASSPI:START_OAS		Start Oracle Application Server
<input type="checkbox"/>	Launch Oracle AS Console	OASSPI:START_OAS_CONSOLE		Launch Oracle Application Server Console
<input type="checkbox"/>	Stop Oracle AS	OASSPI:STOP_OAS		Stop Oracle Application Server.
<input type="checkbox"/>	View Oracle AS Logs	OASSPI:VIEW_OAS_LOG		View Oracle Application Server Log Files

At the bottom, there is an action menu with the text 'Choose an action' and a right-pointing arrow icon.

The Oracle AS SPI tools group contains the following tools:

- **Launch Oracle AS Console**– Launches the Oracle Application Server Control Console, launch the AggreSPY servlet, or the Oracle Enterprise Manager Database Control (requires setup).
- **Start Oracle AS**– Enables you to start the Oracle Application Server (requires setup).
- **Stop Oracle AS**– Enables you to stop the Oracle Application Server (requires setup).
- **View OAS Logs**– Enables you to view the Oracle Application Server log files.
- **View Status**– Does an interactive status check of the Oracle Application Server.

OASSPI Reports Group

OASSPI Reports group contains reports that show information about the condition of the Oracle Application Server.

Figure 7 OASSPI Reports

Tool Bank / OASSPI TOOLS / OASSPI.REPORTS

Ascii metric reports for Oracle Application Server

Details OASSPI Reports Filter

Found 19 Elements

Type	Label	Name	Description
<input type="checkbox"/>	C005_JVMMemUtilPct	OASSPI.OASSPI_0005	Percent of heap space used in the JVM
<input type="checkbox"/>	C010_CPUUtilPct	OASSPI.OASSPI_0010	Percent of the CPU time utilized over the collection interval
<input type="checkbox"/>	C011_MemoryUtilPct	OASSPI.OASSPI_0011	Percent of the physical memory utilized over the collection interval
<input type="checkbox"/>	C050_JMSConnCreated	OASSPI.OASSPI_0050	Frequency of the JMS connections created over the collection interval
<input type="checkbox"/>	C100_HTTPSvrActConn	OASSPI.OASSPI_0100	Number of active HTTP connections
<input type="checkbox"/>	C220_EJBCLActThreads	OASSPI.OASSPI_0220	Current number of threads accessing the actual implementation of the method
<input type="checkbox"/>	C221_EJBCLAvExecTim	OASSPI.OASSPI_0221	Average time spent inside the actual implementation of the method
<input type="checkbox"/>	C222_EJBCLCallsPrRt	OASSPI.OASSPI_0222	Number of requests processed by the actual implementation of the method over the collection interval
<input type="checkbox"/>	C230_EJBWrapActThrs	OASSPI.OASSPI_0230	Current number of threads accessing the auto-generated wrapper method
<input type="checkbox"/>	C231_EJBWrapAvExecTim	OASSPI.OASSPI_0231	Average time spent inside the auto-generated wrapper method
<input type="checkbox"/>	C232_EJBWrapCallPrRt	OASSPI.OASSPI_0232	Total number of requests processed by all auto-generated wrapper methods over the collection interval
<input type="checkbox"/>	C240_SrvtAvExecTim	OASSPI.OASSPI_0240	Average time spent on the servlet's service() call (in msec) over the collection interval
<input type="checkbox"/>	C242_SrvtActThreads	OASSPI.OASSPI_0242	Current number of threads servicing the servlet
<input type="checkbox"/>	C245_JSPAvExecTime	OASSPI.OASSPI_0245	Average time to serve a JSP (in msec) over the collection interval
<input type="checkbox"/>	C247_JSPActRequests	OASSPI.OASSPI_0247	Current number of active requests for the JSP
<input type="checkbox"/>	C251_JMSTotalMsgCt	OASSPI.OASSPI_0251	Total number of messages contained in the message store
<input type="checkbox"/>	C260_JDBCachMissPct	OASSPI.OASSPI_0260	Generate autoaction report for C260_JDBCachMissPct
<input type="checkbox"/>	C280_WebCntxtAvRqPr	OASSPI.OASSPI_0280	Average time spent servicing web requests (in msec) per request processed, over the collection interval
<input type="checkbox"/>	C281_WebCntxtActSess	OASSPI.OASSPI_0281	Current number of active sessions

Choose an action

To generate a report, select **Integrations** → **HPOM for Unix Operational UI**. Right-click the managed node and select **Start** → **SPI for Oracle AS** → **OASSPI Reports** → **<Name of the Metric Report>**. Each report reflects shows the condition of all configured server instances on the managed node in relation to the metric for which the report is generated.

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 section of a message.

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.

OASSPI Reports (JMX) Group

The Oracle AS SPI Reports (JMX) group contains ASCII metric reports that display information about the condition of the Oracle Application Server 10gR3 using JMX standards.

Figure 8 OASSPI Reports (JMX) Group

Tool Bank / OASSPI_TOOLS / OASSPI.REPORTS_JMX

Ascii metric reports for Oracle Application Server (JMX)

Details OASSPI Reports (JMX) Filter

Found 18 Elements

Type	Label	Name	Description
<input type="checkbox"/>	C005_JVMMemUtilPct	OASSPI(JMX):OASSPI_0005	Percent of the heap space used in the JVM
<input type="checkbox"/>	C012_CPUUtilPctHTTP	OASSPI(JMX):OASSPI_0012	Percent of the CPU time utilized over the collection interval by HTTP_Server
<input type="checkbox"/>	C243_ServletReqRate	OASSPI(JMX):OASSPI_0243	Number of requests for a servlet per second
<input type="checkbox"/>	C245_JSPAvgExecTime	OASSPI(JMX):OASSPI_0245	Average time to serve a JSP (in msec) over the collection interval
<input type="checkbox"/>	C248_JSPReqRate	OASSPI(JMX):OASSPI_0248	Number of requests for a jsp per second
<input type="checkbox"/>	J272_TransRollbackResourceRt	OASSPI(JMX):OASSPI_0272	Number of transactions rolledback due to and error in an enlisted resource per second
<input type="checkbox"/>	J340_SrvtAvgExecTim	OASSPI(JMX):OASSPI_0340	Average response time of a servlet (in msec) over the collection interval
<input type="checkbox"/>	J352_JMSPendingMsgs	OASSPI(JMX):OASSPI_0352	The total number of pending messages over the collection interval
<input type="checkbox"/>	J353_JMSMsgExpired	OASSPI(JMX):OASSPI_0353	The total number of messages that have expired over the collection interval
<input type="checkbox"/>	J360_JDBCConnPoolUtil	OASSPI(JMX):OASSPI_0360	Percentage utilization of available JDBC connections in connection pool
<input type="checkbox"/>	J362_JDBCConnPwCntSm	OASSPI(JMX):OASSPI_0362	The total number of threads waiting for a connection
<input type="checkbox"/>	J363_JDBCConnUseTim	OASSPI(JMX):OASSPI_0363	Average time spend using a connection (in msec) over the collection interval
<input type="checkbox"/>	J364_JDBCAvgWaitTim	OASSPI(JMX):OASSPI_0364	Average time spend waiting for a connection (in msec) over the collection interval
<input type="checkbox"/>	J365_JCAConnPoolUtil	OASSPI(JMX):OASSPI_0365	Percentage utilization of available JDBC connections in connection pool
<input type="checkbox"/>	J367_JCACnPWtCntSm	OASSPI(JMX):OASSPI_0367	The total number of threads waiting for a connection
<input type="checkbox"/>	J368_JCAAvgUseTim	OASSPI(JMX):OASSPI_0368	Average time spend using a connection (in msec) over the collection interval
<input type="checkbox"/>	J369_JCAAvgWaitTim	OASSPI(JMX):OASSPI_0369	Average time spend waiting for a connection (in msec) over the collection interval
<input type="checkbox"/>	J371_TransRollbackRt	OASSPI(JMX):OASSPI_0371	Number of transactions rolledback per second

Choose an action

JMX Metric Builder Tools

The JMX Metric Builder Tools group contains the following tools:

- **Deploy UDM**– Deploys the UDM file.
- **Gather MBean Data**–Collects MBean information that is used with the JMX Metric Builder.
- **JMX Metric Builder**– Launches the JMX Metric Builder tool that is used to create UDMs and browse MBeans.
- **UDM Graph Enable/Disable**– Starts/stops data collection for UDM graphs. Also starts/stops the HP Operations subagent.

For more information about the JMX Metric Builder Tools group and steps to install the SPIJMB software, see the *HP Operations Smart Plug-in for User Defined Metrics User Guide*.

Oracle AS SPI Policy Groups and Policies

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

- OASSPI
- OASSPI Discovery

Figure 9 Elements in Policy Group “SPI for Oracle AS”

Type	Name	Assigned	Latest	Mode	Smart Plug-in	Categories	Contents	Description
	OASSPI						5 / 1	OASSPI GROUP
	OASSPI Discovery						0 / 2	OASSPI Discovery GROUP

The OASSPI policy group contains the following policy sub-groups and policies:

Figure 10 OASSPI Policy Group

Type	Name	Assigned	Latest	Mode	Smart Plug-in	Categories	Contents
	OASSPI-Logfiles						0 / 5
	OASSPI-Metrics						0 / 20
	OASSPI-Metrics[JMX]						0 / 17
	OASSPI-Monitors						0 / 7
	OASSPI-Monitors[JMX]						0 / 3
	OASSPI-Messages	7.0	7.0	Fixed		OASSPI Discovery	

- **OASSPI-Logfiles** – Contains policies that generate messages based on log file and error text detected in both the Oracle Application Server log files and the Oracle AS SPI log files. The information captured from these log files includes errors that occur in the operation of the Oracle Application Server or the Oracle AS SPI and changes made to Oracle Application Server configuration.
- **OASSPI-Metrics** – Contains metric policies that monitor the performance levels and availability of Oracle OC4J/OHS servers.

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, the actions to start, and instructions that appear.

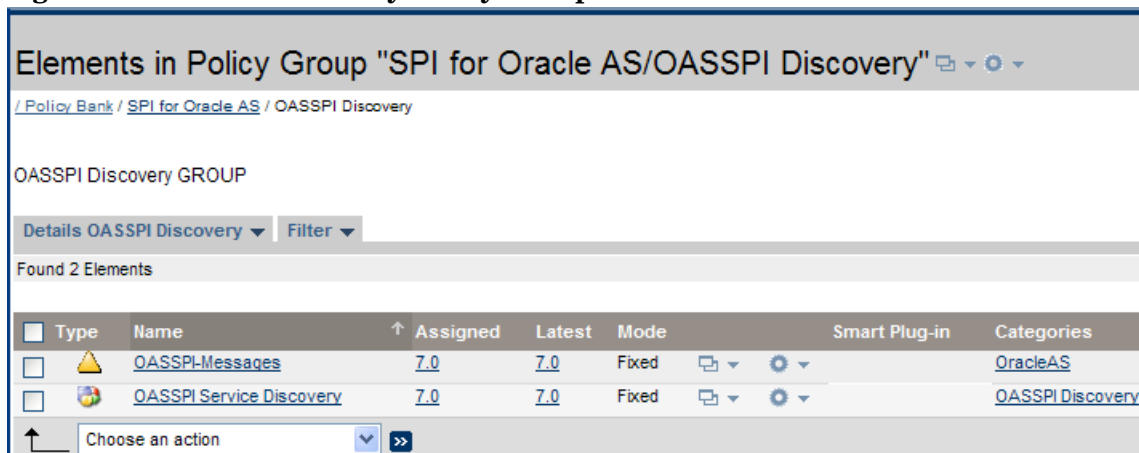
- **OASSPI-Metrics [JMX]** – Contains metric policies that monitor the performance levels and availability of Oracle OC4J/OHS servers. These metric policies are available only for Oracle Application Server version 10gR3.
- **OASSPI-Monitors** – Contains collector policies that specify the collection 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-10-OHS-15min is 15 minutes (where 15min represents 15 minutes). 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/analyzer command `wasspi_ca`).

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

- Runs the collector/analyzer at each collection interval
- Specifies which metrics are collected
- **OASSPI-Monitors [JMX]** – Contains JMX collector policies that specify the collection interval of the JMX metric policies. These policies are only for Oracle AS version 10gR3.
- **OASSPI-Messages** – This is a single policy. It intercepts the Oracle AS SPI messages for the HPOM message browser.
- The OASSPI Discovery policy group contains the following policy sub-groups and policies:

Figure 11 OASSPI Discovery Policy Group



- **OASSPI-Messages** – This is a single policy. It intercepts the Oracle AS 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.

Figure 12 Message Browser

Severity	Dup.	SUTAONE	Time Received	Node	Application	MsgGrp	Object	Message Text
Warning	--X----		02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log OASSPI-181: WASSPI-1212: Updating information for an ex...	
Warning	--X----		02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log OASSPI-181: WASSPI-1221: Writing information for applicat...	
Warning	--X----		02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log OASSPI-181: WASSPI-1220: Writing global properties. [Poli...	
Warning	--X----		02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log OASSPI-181: WASSPI-1211: Adding a new application ser...	
Warning	--X----		02:02:14 08/24/09	IOram58...	Oracle Applicat...	OASSPI	Discovery.log OASSPI-181: WASSPI-1210: Updating information for applic...	

50 of 15 0 0 25 25 0 0 0 0 Lock

All Active Messages Filtered Active Messages

Select Map View

Browser displays max 50 messages.

In the message browser shown above, all the messages are generated by the Oracle AS SPI policies that belong to the Oracle AS and OASSPI Message Groups (see the column titled MsgGroup), indicating their origins. The Oracle AS messages indicate conditions occurring in Oracle OC4J/OHS servers while the OASSPI message indicates a condition occurring in the Oracle AS SPI.

For Oracle AS SPI version 6.10, you will also see another policy group called **Generic JMX**. This group can be expanded into the following sub groups:

- **JMX-Metrics**
- **JMX-Monitors**

2 Installing, Upgrading, and Removing the Oracle AS SPI

This chapter provides the steps on how to install, upgrade, and remove the Oracle AS SPI. To successfully install the Oracle AS SPI, you must complete all installation prerequisites and complete the steps for install the SPI. The flowchart illustrated in [Figure 13](#) summarizes the steps for installing and configuring the Oracle AS SPI. See [Table 1](#) to locate any step by clicking on the hyperlink.

Figure 13 Flowchart on steps for installing and configuring the SPI

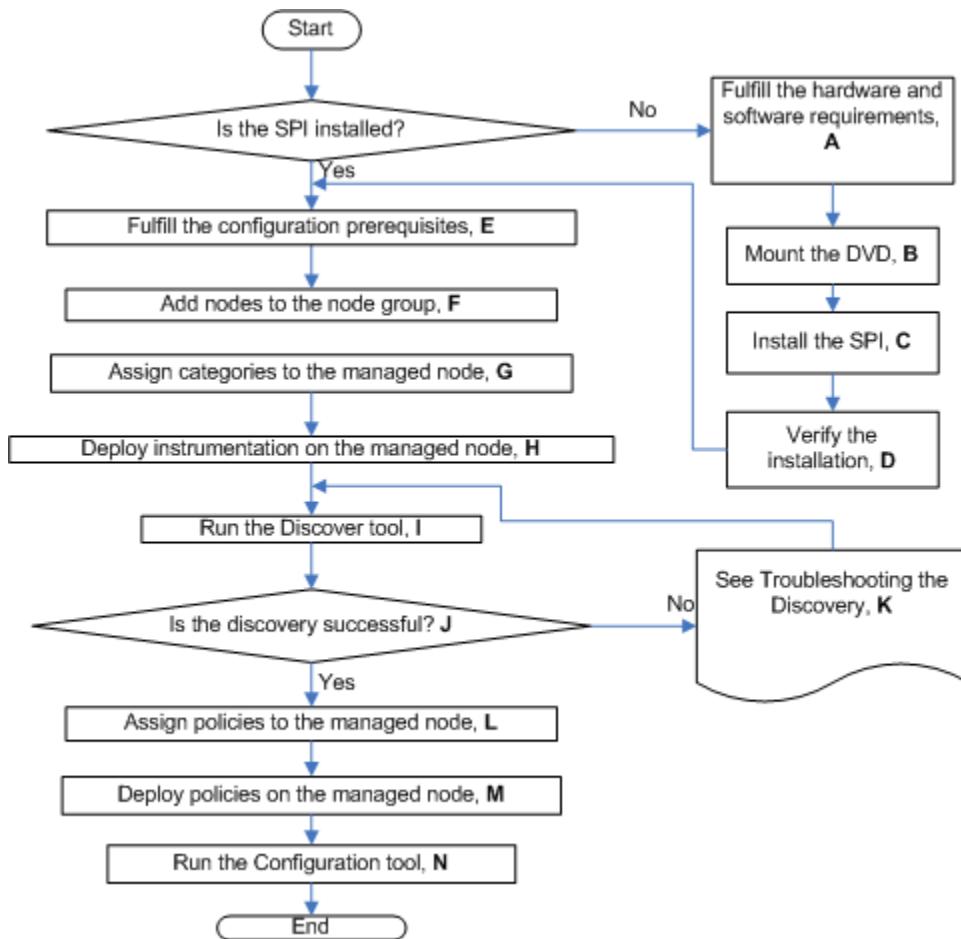


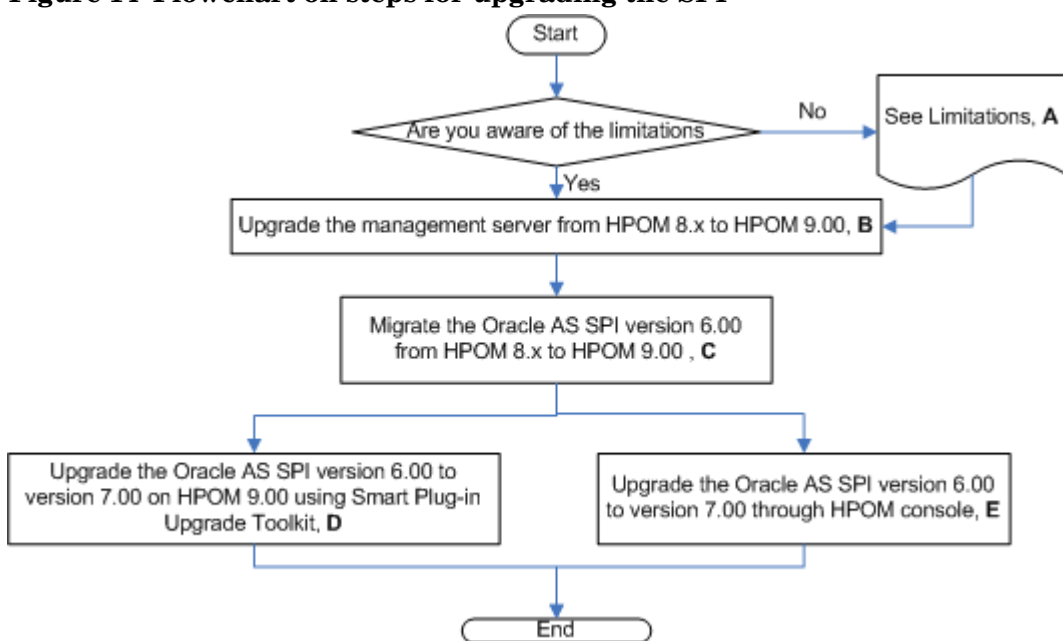
Table 1 References of the legends in the flowchart

A	Prerequisites on page 26
B	To Mount the DVD on HP-UX on page 26 and To Mount the DVD on Solaris on page 26
C	To Install the Oracle AS SPI on page 26

Table 1 References of the legends in the flowchart

D	Verifying Installation on page 27
E	Configuration Prerequisites on page 35
F	Task 1: To Add Nodes to the Oracle AS Node Group on page 38
G	Task 2: To Assign the Categories to the Managed Nodes on page 38
H	Task 3: To Deploy Instrumentation on the Managed Node on page 38
I	Task 4: To Run Discovery on page 39
J	Task 5: To Verify the Discovery Process on page 42
K	Troubleshooting the Discovery Process on page 83
L	Task 6: To Assign Policies to the Managed Node on page 43
M	Task 7: To Distribute the Oracle AS SPI Policies on page 43
N	Task 8: To Run Configuration on page 44

The flowchart illustrated in [Figure 14](#) summarizes the steps for installing and configuring the Oracle AS SPI. See [Table 2](#) to locate any step by clicking on the hyperlink.

Figure 14 Flowchart on steps for upgrading the SPI**Table 2 References of the legends in the flowchart**

A	Limitations on page 28
B	Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x on page 29

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

C	Migrate the Oracle AS SPI 6.00 from HPOM 8.xx to HPOM 9.0x on page 29
D	Upgrading the SPI using the HP Operations Smart Plug-in Upgrade Toolkit on page 30
E	Upgrading the Oracle AS SPI on a Standalone HPOM 9.0x Server through HPOM Console on page 30

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. For a complete list of software requirements, see the *HP Operations Smart Plug-in for Oracle Application Server Release Notes*.

Installing the Oracle AS SPI on a Local Management Server

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

To Mount the DVD on HP-UX

- 1 Log on as user root.
- 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 Mount the DVD on Solaris

Insert the DVD into the DVD drive. The DVD is automatically mounted (and unmounted) on Sun Solaris systems.

The discovery package and the Oracle AS SPI are available on the *HP Operations Smart Plug-ins DVD*.

The `HP_Operations_Smart_Plug-ins_HPUX.depot` file present under `<mount_point>/HPUX/` directory is used to install the Oracle AS SPI on HP-UX Management Server. The `HP_Operations_Smart_Plug-ins_SOLARIS.sparc` file present under `<mount_point>/SOLARIS/` directory are used to install the Oracle AS SPI on Solaris Management Server.

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), but the GUI method is not covered.



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
```

For a Solaris management server, type:

```
pkgadd -d /dvdrom/SOLARIS/HP_Operations_Smart_Plug-ins_SOLARIS.sparc  
HPOvSpiOas
```

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

Complete all the tasks in the section [Installing the Oracle AS SPI on a Local Management Server](#) on page 26 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

Type the command `swlist` to verify the installation of the Oracle AS SPI on the management server.

Upgrading the Oracle AS SPI

Be aware of the following limitations when you plan to install the Oracle AS SPI 7.00 from SPI DVD 2009 on a HPOM 9.0x, which has the Oracle AS SPI 6.00 installed from SPI DVD 2008.

Limitations

These are the following limitations for the Oracle AS SPI 6.00 support on HPOM for UNIX 9.0x:

- You must complete the migration process from HPOM 8.xx to HPOM 9.0x before upgrading the Oracle AS SPI to version 7.00. Once the Oracle AS SPI 7.00 is installed, migrating from HPOM 8.xx is not supported.
- Having the Oracle AS SPI version 6.00(migrated from HPOM 8.xx) and Oracle AS SPI version 7.00(newly installed from SPI DVD 2009) on HPOM 9.0x is an intermediate mode and you must move all managed nodes to the Oracle AS SPI version 7.00 as soon as possible.
- If you have multiple SPIs deployed on a managed node, the node can be monitored either by SPI DVD 2008 SPIs or SPI DVD 2009 SPIs. Monitoring a node by combination of SPIs from SPI DVD 2008 and SPI DVD 2009 is not supported.
- If you have the Oracle AS SPI 7.00 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 newly added managed nodes using the Oracle AS SPI 7.00.
 - 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 7.00 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 7.00 is installed, no patches or hot-fixes pertaining to the Oracle AS SPI version 6.00 could be installed on the HPOM server.
- To invoke the GUIs related to Oracle AS SPI 7.00, you must install X-windows client software on the machine from which you will launch the HPOM for UNIX 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 after migration. However, patch can be installed on the HPOM for UNIX 8.xx server and migrated to HPOM for UNIX 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>'. '
ERROR: (oprel-407) License status for 'SPI Name remote' 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, WebSphere 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 7.00, 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 7.00 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 7.00 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 2.0 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 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/data/log/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.

- 4 Install the Oracle AS SPI by performing the steps in [Installing the Oracle AS SPI on a Local Management Server](#) on page 26.
- 5 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, follow these steps:

- 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 66.

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, follow these steps:
 - 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 68.
- If HP Performance Manager is running on a HP-UX system (not the HPOM management server), follow these steps:
 - ▶ 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 68.
- If HP Performance Manager is running on a Solaris system (not the HPOM management server), follow these steps:
 - ▶ 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 68.

Removing the Oracle AS SPI

The complete removal of the Oracle AS SPI installation deletes all the Oracle AS SPI components.

Complete the following tasks:

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

Task 1: Remove the Oracle AS SPI Software from the Management Server


- 1 Open a terminal window and log on as root.
- 2 In the terminal window:
 - For an HP-UX 11.31 IA management server, type:

```
/usr/sbin/swremove OASSPI  
/usr/sbin/swremove OASSPI-GRAPHS
```
 - For a Solaris management server, type:


```
/usr/sbin/pkgrm HPOvSpiOas
```

The `swremove` and `pkgrm` 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.

Task 2: 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.

Task 3: 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.

Task 4: 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**.

Task 5: 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, follow these steps:
 - 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 [Task 1: Remove the Oracle AS SPI Software from the Management Server](#) on page 32):
 - 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 [Task 1: Remove the Oracle AS SPI Software from the Management Server](#) on page 32):
 - 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 Oracle AS SPI](#) on page 32.

3 Configuring the Oracle AS SPI

To successfully configure the Oracle AS SPI, you must complete all configuration prerequisites, complete Oracle AS SPI configuration (for managed nodes and the management server), and complete additional configuration based on your environment.

Configuration Prerequisites

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

- [Task 1: Assign Operator Responsibilities to the Operator](#)
- [Task 2: Assign Tools to the Managed Nodes](#)
- [Task 3: Verify the Application Server Status](#)
- [Task 4: Collect Oracle AS Login Information](#)

Task 1: 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 links for "Capabilities" and "Responsibilities". Below this is a table with two columns: "Attribute" and "Value".

Attribute	Value
Name	opc_adm
Label	opc_adm
Description	HPOM Administrator
Type	Administrator
Real Name	HPOM Administrator
Node Hierarchy	NodeBank

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

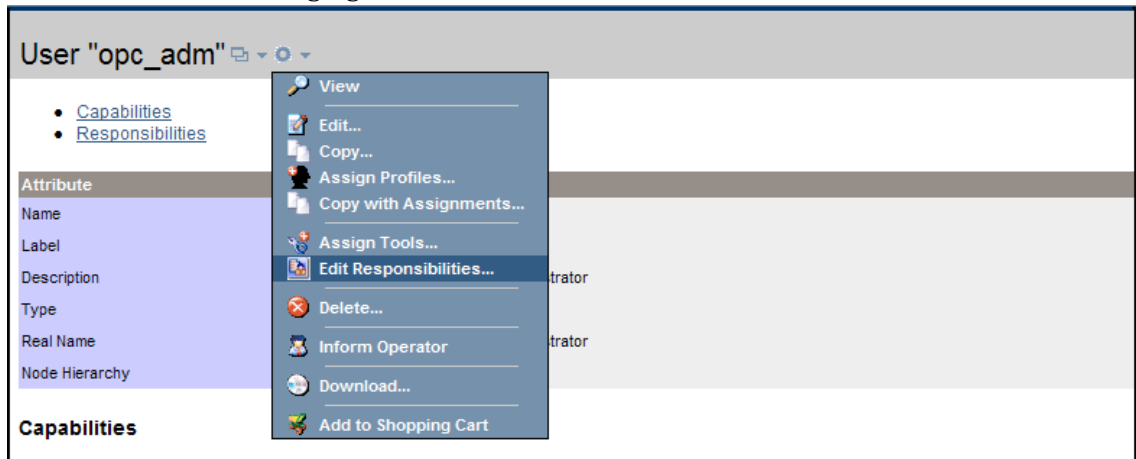
Capabilities

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

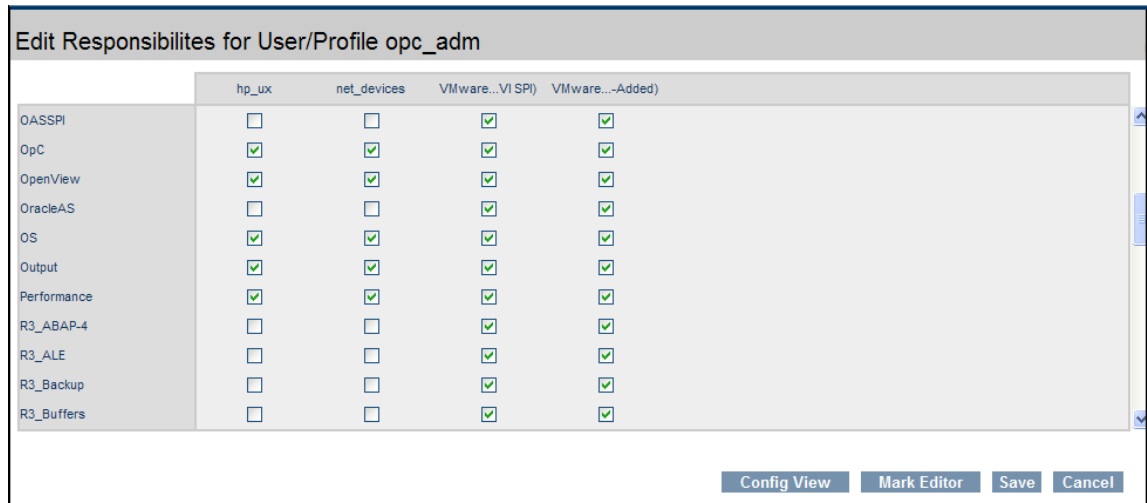
Responsibilities

Message Groups

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




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



- 5 Assign the OASSPI Node or Message Groups to any other appropriate operators.
- 6 Click **Close**.

Task 2: Assign Tools to the Managed Nodes

- 1 Open the Tool Bank window and select the SPI for Oracle AS tool group.
- 2 Select **Assign to User/Profile...** from the **Choose an Action** drop-down list and click  to submit.

The Selector window opens.

- 3 Click **All Users**.
- 4 Select the operator to which you want to assign the tools.
- 5 Click **OK**.

The Oracle AS SPI tools are assigned to the operator.

Task 3: 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 interface. The main heading is 'Application Server: testapps1.test.com'. Below this, there are navigation tabs: 'Home', 'J2EE Applications', 'Ports', and 'Infrastructure'. The 'General' tab is selected and highlighted with a yellow box. The 'General' section shows a status icon with a green checkmark and the text 'Status Up'. Below this, there are fields for 'Host' (pymt111.vml.owrtest.adapps.hp.com), 'Installation Type' (Portal and Wireless), 'Oracle Home' (C:\oracle\bi), and 'Farm' (oaspi.Overview). There are also 'Stop All' and 'Restart All' buttons. To the right, there are two pie charts: 'CPU Usage' and 'Memory Usage'. The CPU Usage chart shows 0% for Application Server, 0% for Idle, and 100% for Other. The Memory Usage chart shows 0% for Application Server, 3% (134MB) for Free, and 97% (3,969MB) for Other. At the bottom, there are buttons for 'Start', 'Stop', 'Restart', and 'Delete OC4J Instance', along with 'Enable/Disable Components', 'Configure Component', and 'Create OC4J Instance'.

Task 4: 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.


Oracle AS SPI Configuration

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


- 1 Task 1: To Add Nodes to the Oracle AS Node Group
- 2 Task 2: To Assign the Categories to the Managed Nodes
- 3 Task 3: To Deploy Instrumentation on the Managed Node
- 4 Task 4: To Run Discovery
- 5 Task 5: To Verify the Discovery Process
- 6 Task 6: To Assign Policies to the Managed Node
- 7 Task 7: To Distribute the Oracle AS SPI Policies
- 8 Task 8: To Run Configuration
- 9 Task 9: To Verify the Oracle AS SPI Configuration

Task 1: To Add Nodes to the Oracle AS 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 opens.
- 3 Click **All Nodes**.
- 4 Select the managed nodes running Oracle OC4J/OHS servers.
- 5 Click **OK**.

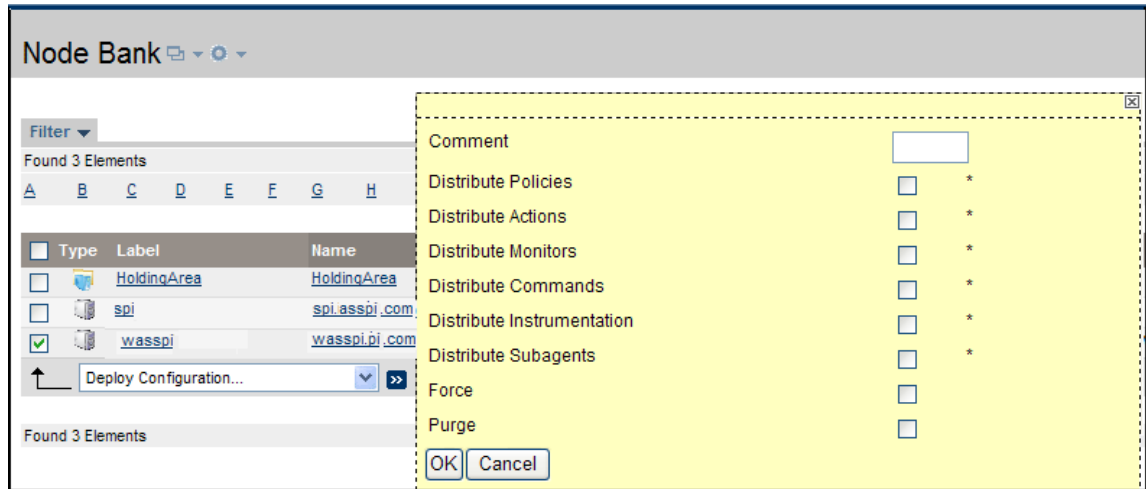
Task 2: To Assign the Categories to the Managed Nodes

- 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 opens.
- 3 Select the **Oracle**, **OASSPI Discovery** (optional), **JMX**, **SHS_Data_Collector**, and **SPIDataCollector** categories.
- 4 Click **OK**.

Task 3: 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**.

Task 4: To 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.

Follow these steps:

- 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 invoke Oracle AS GUIs. see [Important:](#) on page 135.
- 3 Right-click a node and select **Start** → **SPI for Oracle AS** → **SPI Admin** → **Discover or Configure OASSPI**.

The Tool Selector window opens.

- 4 Select the Launch Discover Tool radio button and click **OK**. By default, the Launch Configure Tool radio button is selected.

The Introduction window opens.

- 5 Click **Next**.

The Configuration Editor opens.

- 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 opens.

Enter the username and password collected in [Task 4: 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). That is, 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 about the configuration structure, see [Structure](#) on page 117.

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 about the configuration structure, see [Structure](#) on page 117) 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 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.
- 9 The Confirm Operation window opens. 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**.

▶ 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 `SPIConfig` 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.

Follow these steps:

- 1 In the cluster, identify the OC4J instance that is connected to the OHS server.
- 2 In the Configuration Editor (see [Using the Configuration Editor](#) on page 119 for more information about the configuration editor) 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 opens.
- 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
Note that there is a single space between 10.1 and 3 in the version.
- 6 Click **Next**. The OASSPI Discover Tool: Confirm Operation Window opens.
- 7 Click **OK**.



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 about the HTTP Server does not appear in the service map because this information was manually entered and not discovered.

Task 5: To Verify the Discovery Process

Depending on the number of managed nodes in your environment, verification takes several minutes to complete.

- 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>
```

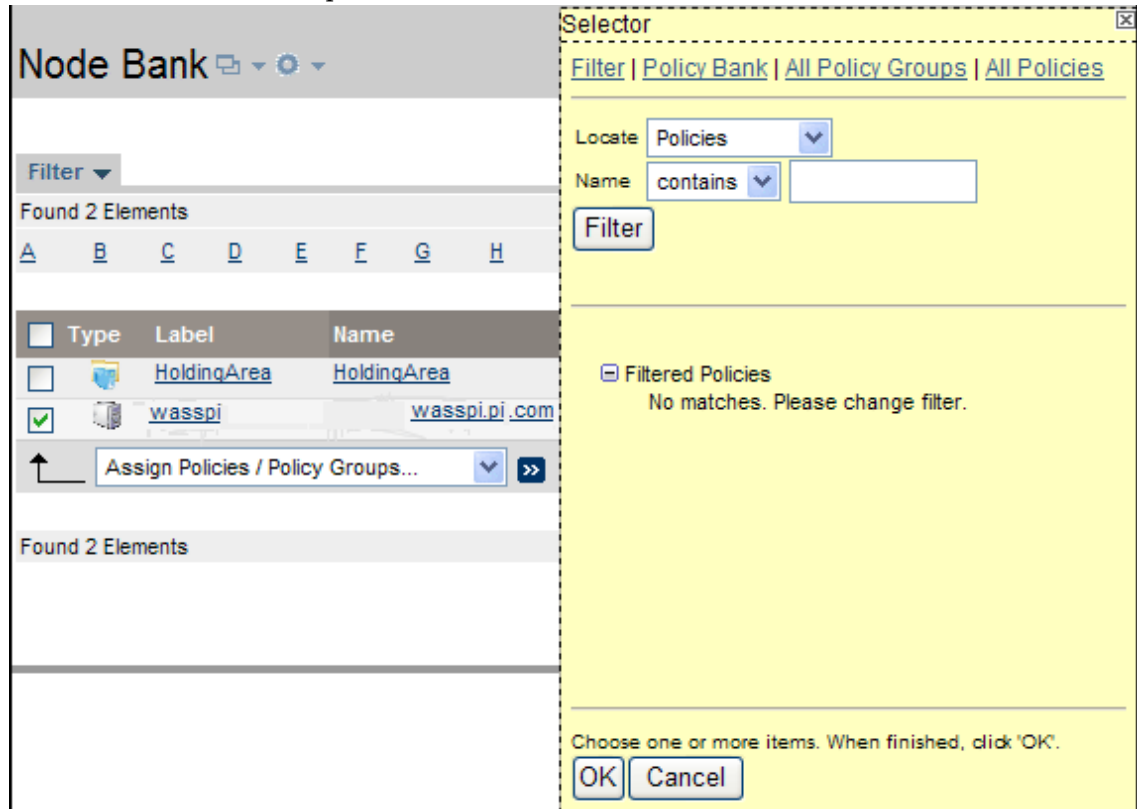
For example: `opcservice -assign opc_admin <service>`

- 3 Run the Discover or Configure OASSPI tool to verify the properties set by the discovery process. For more information about the configuration editor, see [Discover or Configure OASSPI](#) on page 136.

Task 6: 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 opens.



- 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**.

Task 7: To Distribute 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 5, 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.

Task 8: 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 invoke Oracle AS GUIs. see [Important:](#) on page 135.
- 3 Right-click a node and select **Start** → **SPI for Oracle AS** → **SPI Admin** → **Discover or Configure OASSPI**.

The Tool Selector window opens.

- 4 Click **OK**. By default, the Launch Configure Tool radio button is selected.

The Introduction window opens.

- 5 Click **Next**.

The Configuration Editor opens.

- ▶ 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. See [Task 4: To Run Discovery](#) on page 39 for information on how to set the properties.

- 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. After you save the changes, you cannot undo the changes automatically.
- 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 by you are not saved to the selected managed nodes' configuration and remain in the configuration on the management server.

For more information about the configuration structure, see [Structure](#) on page 117.

Task 9: To Verify the Oracle AS SPI Configuration

Run the Verify tool to verify whether all the instrumentation files are properly deployed. For more information about this tool, see [Verify](#) on page 139.

- 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**.

Additional Oracle AS SPI Configuration

Based on your Oracle Application Server configuration and tool needs, you must finish the Oracle AS SPI configuration 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

Based on your Oracle Application Server configuration and tool needs, you might need to set one or more conditional properties. 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 about the properties, see [Configuration Properties](#) on page 128.

Table 3 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 (Performance Manager must be installed).	GRAPH_URL

Setting Conditional Properties

To set the conditional properties, perform the steps in [Task 8: To Run Configuration](#) on page 44.

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, follow these steps:



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 access to 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, follow these steps:
 - 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. Run the following command:


```
opcagt -start
```
- d Verify OV_SUDO is set. 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 opens.
- 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_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 115.
- 6 In a separate window, run the visudo command (for example, type: **/usr/local/sbin/visudo**).
 - c From the wasspi_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
Cmd_Alias OASSPI_LFENP = /opt/OV/nonOV/perl/a/bin/perl -S \
/var/opt/OV/bin/instrumentation/wasspi_oas_le *
Cmd_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 Customizing the Oracle AS SPI Policies

As you become familiar with the Oracle AS SPI, you can determine which policies are most useful to you and which you might want to change. This chapter provides more detail on the policies and how to make those changes.

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.
- 2 Click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Metrics** policy group.
- 3 Select a metric and click **Edit...** from the drop-down list.

The drop-down list appears as .

- 4 The Edit Measurement_Threshold Policy “*Metric Name*” window opens.
- 5 Click the **Thresholds** tab.

- Click the condition you want to modify.

The screenshot shows the 'Edit Measurement_Threshold Policy "OASSPI_0005"' window. It features a navigation bar with tabs: Properties, Source, Message Defaults, Thresholds, and Options. Below the navigation bar, there are controls for 'Use Instance Filters' (set to 'No') and 'Monitoring Type' (set to 'Maximum'). A list of thresholds is shown on the left, with '1 OASSPI-0005.1: Critical Threshold' selected. The right pane displays the configuration for 'Threshold 1', including a 'Description' field with the value 'OASSPI-0005.1: Critic', a 'Threshold' field with the value '98.0', a 'Short term peak behaviour' dropdown set to 'No special treatment', and a 'Reset' dropdown set to 'Use same as threshold value'.

- Click the different tabs (**Threshold**, **Start Actions**, **Continue Actions**, and **End Actions**) and modify the attributes. See [Table 4](#) for a list of attributes that you can modify.
- Click **Save** to save the changes.
- Deploy the modified policy as described in [Task 7: To Distribute the Oracle AS SPI Policies](#) on page 43.

Table 4 Metric Attributes

Attributes	Description
Threshold	Enter a value for the metric data that, when exceeded, would signify a problem either about to occur or already occurring.
Duration	The length of time that the established threshold can be exceeded by the incoming data values for a metric before an alarm is generated.
Severity	The level assigned by the HPOM administrator to a message, based on its importance in a given operator's environment. Click Severity to select the desired severity setting.
Message Text	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 4 Metric Attributes

Attributes	Description
Actions	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.
Automatic action	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.
Operator-initiated action	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 Perform Action within a message's details window).

Figure 15 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 15 Threshold Value for OASSPI 0005.1


Condition	A	O	N	T	C
1 match OASSPI-0005.1: Critical Threshold	✓	✓	-	-	✓
2 match OASSPI-0005.2: Major Threshold	✓	✓	-	-	✓

Modifying Alarm Generation

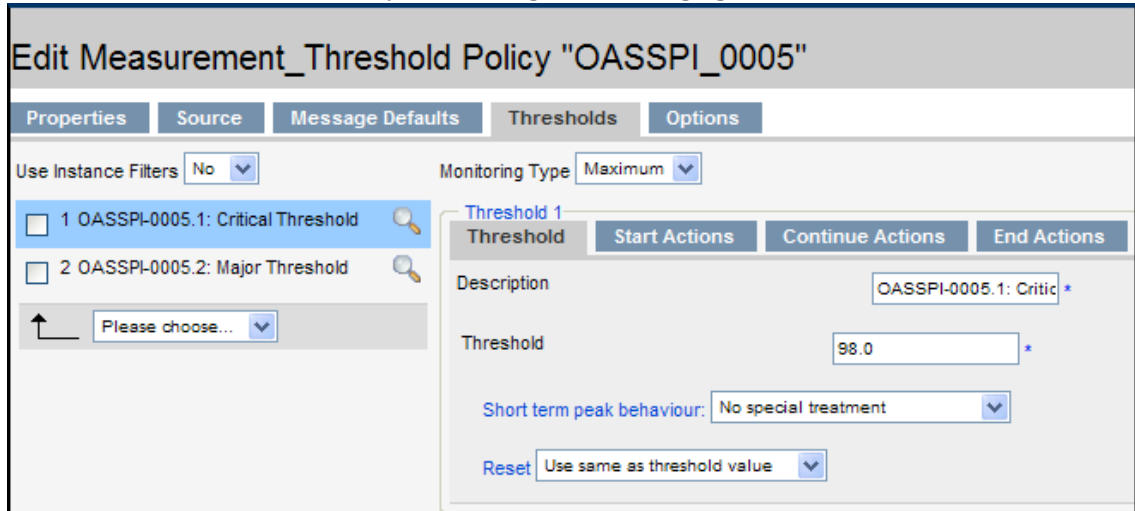
An alarm can be generated once or multiple times, depending on its Message Generation setting in the Modify Threshold Monitor window.

To change the Message Generation, follow these steps:

- 1 Open the Policy Bank window.
- 2 Click **SPI for Oracle AS** → **OASSPI** → **OASSPI-Metrics** policy group.
- 3 Select a metric and click **Edit...** from the drop-down list.

The drop-down list appears as .

- 4 The Edit Measurement_Threshold Policy “Metric Name” window opens.
- 5 Click the **Thresholds** tab.
- 6 Click the condition to modify the settings for message generation.



- 7 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.
- 8 Click **Save**.
- 9 Re-distribute the modified policies as described in [Task 7: To Distribute the Oracle AS SPI Policies](#) on page 43.


Advanced Policy Customizations

The policy changes suggested here range from making copies of default policy groups in order to customize a few settings, to deleting whole groups of metrics within a policy’s command line. This section is considered advanced because all changes described here, whether simple or complex, 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. Then, follow these steps:

- 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.

The drop-down list appears as .

The Copy Policy Group window opens.

- 3 Rename the group, select the parent group and click **Save** to 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 enables you to keep 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, 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 are started 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

Parameter	Function	Syntax with Example
-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 metric(s).	-r
-t	(tag) Creates a new policy group by adding a prefix to an existing collector policy and specifying the metric number(s).	-t <prefix>- Example: wasspi_ca -prod oas -m 220-223 -t DEV-
-prod	(product) Identifies the SPI(s) 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>
	alarm: When off, overrides any alarming condition as set up in the metric monitor policy.	-x alarm=off
	prefix: Default: JMXUDM_. Specifies the prefix of the metric ID.	-x prefix=SALES_
	print: When on, prints the metric name, instance name, and metric value to STDOUT in addition to any configured alarming or logging.	-x print=on
	log: 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, 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 **Edit...** from the drop-down list.

The drop-down list appears as .

- 4 The Edit Scheduled_Task Policy “OASSPI-OHS-05min” window opens.


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 set to "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.
- 9 Change the message text.
- 10 Click **Save** to save the changes.
- 11 Distribute the new policies (described in [Task 7: To Distribute the Oracle AS SPI Policies](#) on page 43).

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.

The drop-down list appears as .

The Copy Policy “OASSPI-OHS-05min” window opens.

- 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.
The drop-down list appears as .
- The Edit Scheduled_Task Policy “OASSPI-OHS-05min” window opens.
- Click the **Scheduled Task** tab.
- Delete 10 and 11 from the Command text box.
- Click **Save** to save the changes.
- Re-distribute the modified policies as described in [Task 7: To Distribute the Oracle AS SPI Policies](#) on page 43.

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 obviously separate from your original setup. In such a case, you would 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, follow these steps:

- 1 Copy the original policy group. In the Policy bank window, select the group, and click **Copy...** from the drop-down list.

The drop-down list appears as .

The Copy Policy Group window opens.

- 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 would also contain the identifying name. You would 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. Example: /oc4j/Petstore/EJBs/shoppingcartEjb.jar/TheCart/ejbActivate

Name	Description
node	The node on which the OC4J/OHS server is running. Example: <code>mool.hp.com</code>
servername	The OC4J/OHS server name. Corresponds to the <code>NAME</code> configuration property. Example: <code>my server</code>
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, follow these steps:
 - 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>**.

These reports show all server data on a node.

- To view graphs, follow these steps:
 - 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 Admin** → **View Graphs**.

The web browser is launched, which opens 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 16 OASSPI Reports

/ Tool Bank / OASSPI-TOOLS / OASSPI-REPORTS

Ascii metric reports for Oracle Application Server

Details OASSPI Reports Filter

Found 19 Elements

Type	Label	Name	Description
<input type="checkbox"/>	C005_JVMMemUtilPct	OASSPI.OASSPI_0005	Percent of heap space used in the JVM
<input type="checkbox"/>	C010_CPUUtilPct	OASSPI.OASSPI_0010	Percent of the CPU time utilized over the collection interval
<input type="checkbox"/>	C011_MemoryUtilPct	OASSPI.OASSPI_0011	Percent of the physical memory utilized over the collection interval
<input type="checkbox"/>	C050_JMSConnCreated	OASSPI.OASSPI_0050	Frequency of the JMS connections created over the collection interval
<input type="checkbox"/>	C100_HTTPSvrActConn	OASSPI.OASSPI_0100	Number of active HTTP connections
<input type="checkbox"/>	C220_EJBCLActThreads	OASSPI.OASSPI_0220	Current number of threads accessing the actual implementation of the method
<input type="checkbox"/>	C221_EJBCLAvgExecTim	OASSPI.OASSPI_0221	Average time spent inside the actual implementation of the method
<input type="checkbox"/>	C222_EJBCLCallsPrct	OASSPI.OASSPI_0222	Number of requests processed by the actual implementation of the method over the collection interval
<input type="checkbox"/>	C230_EJBWrapActThrd	OASSPI.OASSPI_0230	Current number of threads accessing the auto-generated wrapper method
<input type="checkbox"/>	C231_EJBWrapAvExecTim	OASSPI.OASSPI_0231	Average time spent inside the auto-generated wrapper method
<input type="checkbox"/>	C232_EJBWrapCallPrct	OASSPI.OASSPI_0232	Total number of requests processed by all auto-generated wrapper methods over the collection interval
<input type="checkbox"/>	C240_SrvlAvgExecTim	OASSPI.OASSPI_0240	Average time spent on the servlet's service() call (in msec) over the collection interval
<input type="checkbox"/>	C242_SrvlActThreads	OASSPI.OASSPI_0242	Current number of threads servicing the servlet
<input type="checkbox"/>	C245_JSPAvgExecTime	OASSPI.OASSPI_0245	Average time to serve a JSP (in msec) over the collection interval
<input type="checkbox"/>	C247_JSPActRequests	OASSPI.OASSPI_0247	Current number of active requests for the JSP
<input type="checkbox"/>	C251_JMSTotalMsgCt	OASSPI.OASSPI_0251	Total number of messages contained in the message store
<input type="checkbox"/>	C260_JDBCachMissPct	OASSPI.OASSPI_0260	Generate autoaction report for C260_JDBCachMissPct
<input type="checkbox"/>	C280_WebCntxtAvRgPrct	OASSPI.OASSPI_0280	Average time spent servicing web requests (in msec) per request processed, over the collection interval
<input type="checkbox"/>	C281_WebCntxtActSess	OASSPI.OASSPI_0281	Current number of active sessions

Choose an action

- To generate a report in HPOM, follow these steps:
 - 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/sso/WEBS/web	0	1.93	
Web Context Session	Active Sessions	Total Active Time (msecs)	Com
/oc4j/default/WEBS/dms	0	0	0
/oc4j/sso/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 (mse	
/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 you installed on your managed nodes. In reviewing the number of policies per managed node, you can see if you 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**.

5 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 66. 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 about 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 68. 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>
AIX	<code>/usr/lpp/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. 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. (See the Reporter Help and the online Concepts Guide for complete information.)

► 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 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. (See [Integrating with HP Reporter](#) on page 66 if you did not complete the report package installation.)

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

Table 5 Group Reports

Title	Description	Oracle AS Version	Metric
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 6 Single System Reports

Title	Description	Oracle AS Version	Metric
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, follow these steps:

- 1 Install and configure the Oracle AS SPI. Verify that you set the `GRAPH_URL` property. For more information about the `GRAPH_URL` property, see [Property Definitions](#) on page 130.
- 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, follow these steps:

- 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\OV_PM\ORACLEAS_SPI\OASSPI-OVPM.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 reporting 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 reporting packages) and type:

```
/usr/sbin/pkgadd -d <mount_point>/SOLARIS/  
HP_Operations_Smart_Plug-ins_SOLARIS.sparc 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
-------	----------------

Column	Attribute
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_SRVLACTTHREADS
20	C047_JSPACTREQUESTS
21	C050_JMSCONNCREATED
22	C280_WEBCNTXTAVRQPRC
23	C281_WEBCNTXTACTSESS

Class OASSPI_RPT_METRICS

Column	Attribute
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 7](#) on page 70), 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), follow these steps:

- 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/Current Conditions

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

To manually generate a graph, follow these steps:

- 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.
- 4 Select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **View Graphs**.

Oracle AS SPI Metrics Available for Graphs

The tables that follow 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 7 Metrics for Graphs

Title	Description	Oracle AS Version	Metric
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

Table 7 Metrics for Graphs

Title	Description	Oracle AS Version	Metric
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
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 pressing **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

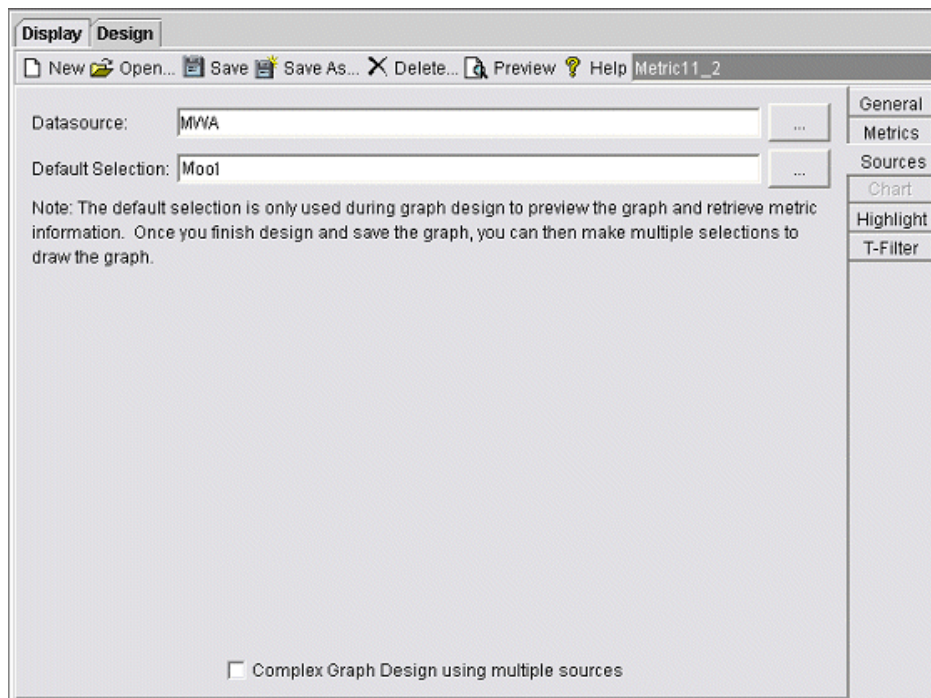
Within the web page display, you can specify a date range of one day, one week, one month, or one year. See the Online Help for instructions on changing display settings.

Example Integration

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.

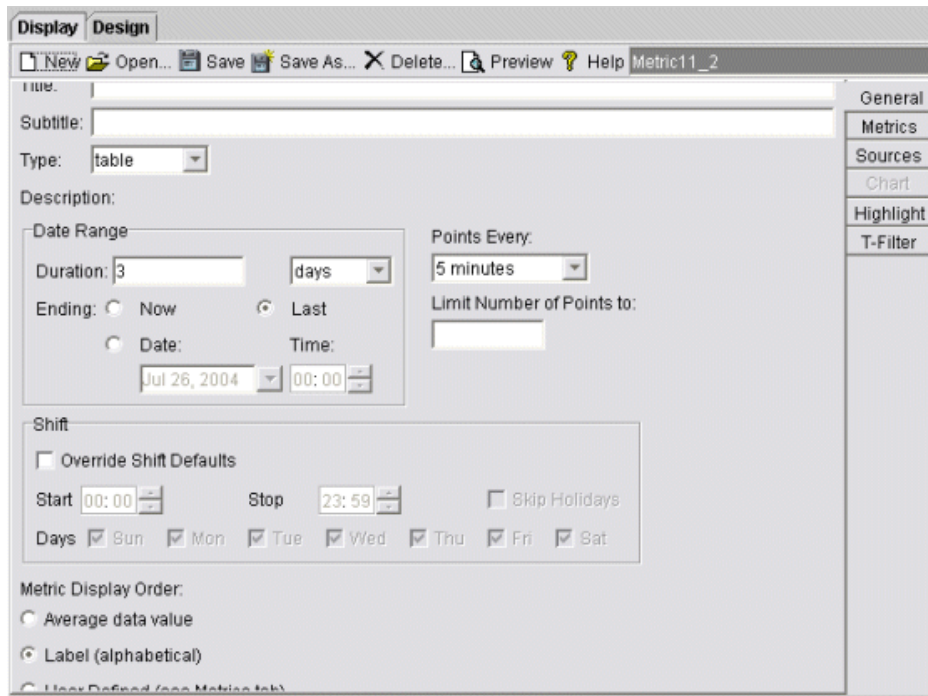
- 1 Start the Java Interface option of HP Performance Manager. The Performance Manager Java Interface window opens.



- 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).

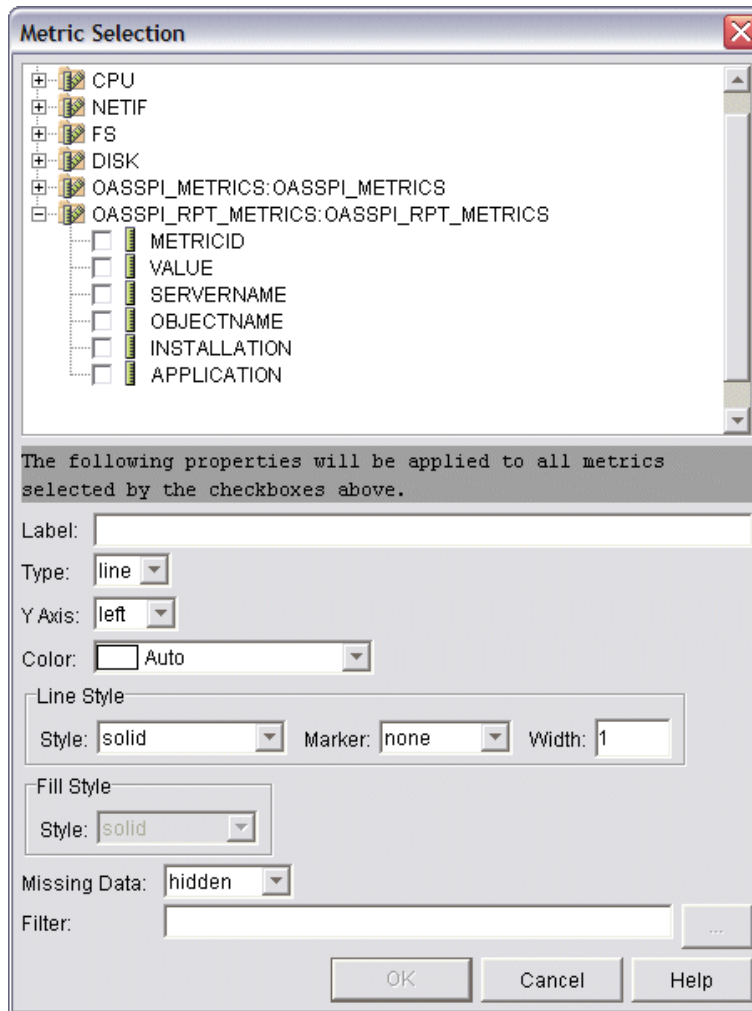
- c Click next to the Default Selection text box and select the node on which the data source resides.

3 Click the **General** tab at the right of the window.



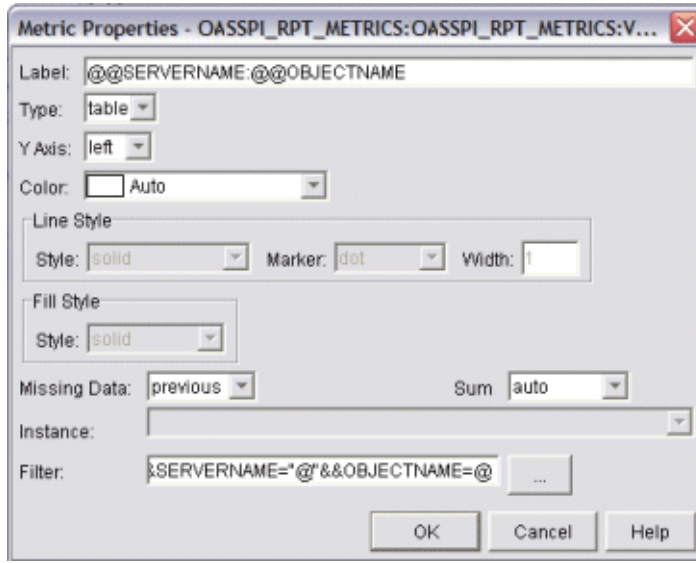
- 4 From this window,
- a Select **line** from the Type drop-down list. This generates a line graph.
 - b Enter a Date Range.
 - c Enter an interval using the Points Every drop-down list.
 - d Click **Label (alphabetical)** if you want the graph key sorted alphabetically.

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

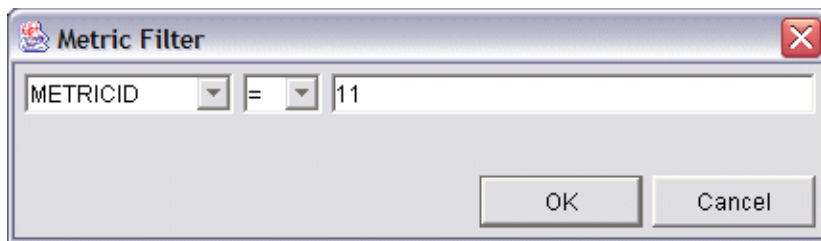


- 6 From the Metric Selection window,
- Next to the OASSPI_RPT_METRICS data source, click + to expand it in the tree.
 - Select the VALUE check box.
 - Click **OK**.

- 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 opens.



- 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 opens.



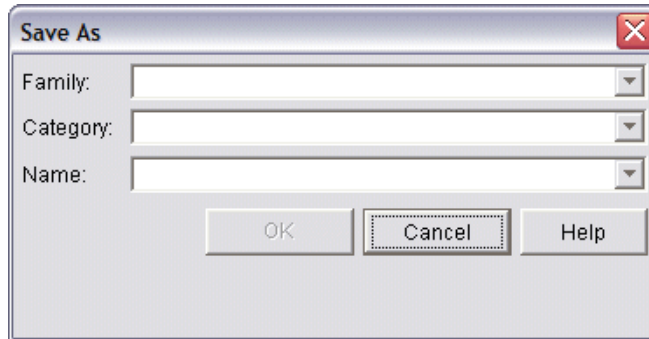
- 9 From the Metric Filter window,
 - a Select **METRICID** from the first drop-down list.
 - b Select **=** from the second drop-down list (if it is not already selected).
 - c Enter a metric number (for example, 11) in the text box.
 - d Click **OK**.
- 10 From the Metric Properties window,
 - a In 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 76.

b Click **OK**.

11 Click **Save As** at the top of the window. The Save As window opens.



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 17](#).

Figure 17

```
*****
#* 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 75, edit the `FILTER` field.
- c Save the file. The graph file now contains the following (see [Figure 18](#)):

Figure 18

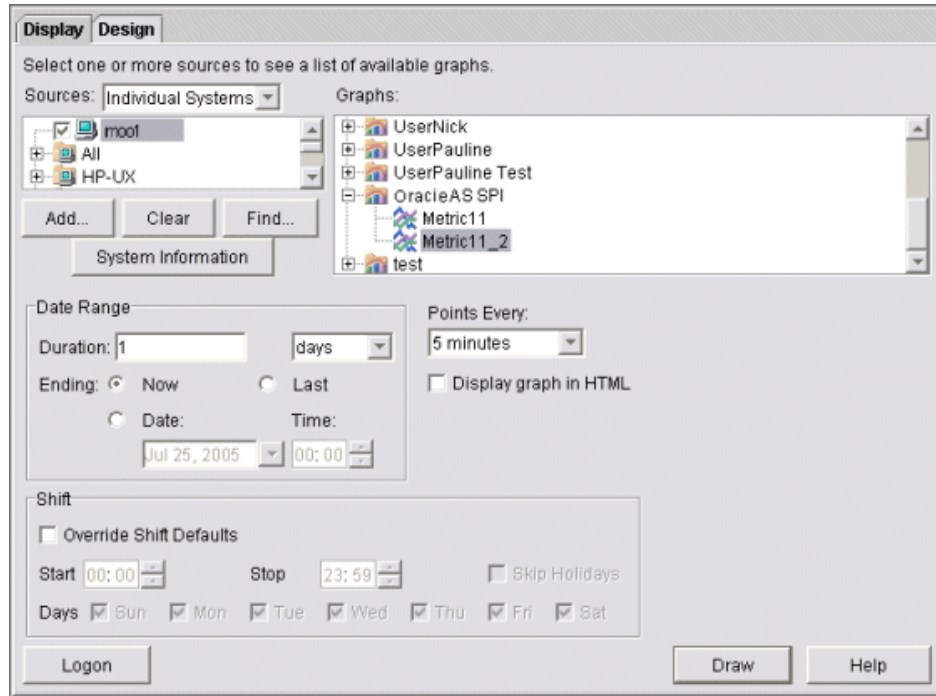
```
*****
#* OpenView Performance Manager
#* user Defined Graph Templates
#* Last Updated: 07/25/05 04:31_30 AM by [1.2.3.4] mool
*****
FAMILY: OASSPI_Graphs
GRAPH: Metric11
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: mool
SUMFROMRAW:

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, follow these steps:

- 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 opens.

➤ 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, follow these steps:

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

6 Basic Troubleshooting and Error Messages

Self-Healing Info Tool

The 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 about this tool, see [Self-Healing Info](#) on page 137.



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%>/` is `/var/opt/OV`)

File Type	Log
Filename	<code><%OvInstallDir%>/WASSPI/oas/log/ <managed_node>_disc_server.log</code>
Description	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):

Directory	<code><Agent_Dir>/wasspi/oas/log/wasspi_perl.log</code> (archived files have a one digit number appended to the filename)
Description	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 the tracing, run the Stop Tracing tool. For more information on how to run these tools, see Start/Stop Tracing on page 138. By default, the log file size is 10MB and three archived versions are kept.
Directory	<code><Agent_Dir>/wasspi/oas/log/Discovery.log</code> (archived files have a one digit number appended to the filename)
Description	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 Start/Stop Tracing on page 138. By default, the log file size is 10MB and three archived versions are kept.

Directory	<Agent_Dir>/wasspi/oas/log/Collector.log (archived files have a one digit number appended to the filename)
Description	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. For more information on how to run these tools, see Start/Stop Tracing on page 138. By default, the log file size is 10MB and three archived versions are kept.
Directory	<Agent_Dir>/wasspi/oas/log/CollectorClient.log (archived files have a one digit number appended to the filename)
Description	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 Start/Stop Tracing on page 138. By default, the log file size is 10MB and three archived versions are kept.

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 84).
- 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 opens.
 - 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 84.
- 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>`


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 node(s) on which you want to launch Discover or Configure OASSPI tool.
 - c Right-click on the node(s).
 - d Select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **Discover or Configure OASSPI**.
The Tool Selector window opens.
 - e Click **OK**. By default, the Launch Configure Tool radio button is selected.
The Introduction window opens.
 - f Click **Next**.
 - g From the configuration editor, set the JAVA_HOME property. For more information about using the configuration editor, see [Using the Configuration Editor](#) on page 119.
 - h Click **Save** to save the changes made to the configuration. Once you save your changes, you cannot automatically undo them.
 - i Click **Finish** or **Next** to save any changes and exit the editor.
If you selected **Next**, the Confirm Operation window opens. 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**.
- j 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, follow these steps:
 - 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, follow these steps:
 - 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**.

Troubleshooting the Tools

- **Problem:** Configuration variable `SERVER<n>_START_CMD` missing for server 'Default Server'
Solution: Before you can successfully run the Start Oracle AS tool, you must set the `START_CMD` and `USER` properties. Set these properties using the Discover or Configure OASSPI tool. For more information about this tool, see [Discover or Configure OASSPI](#) on page 136.
- **Problem:** Configuration variable `SERVER<n>_STOP_CMD` missing for server "Default Server"
Solution: Before you can successfully run the Stop Oracle AS tool, you must set the `STOP_CMD` and `USER` properties. Set these properties using the Discover or Configure OASSPI tool. For more information about this tool, see [Discover or Configure OASSPI](#) on page 136.
- **Problem:** When launched, the Verify tool gives improper output.
Solution: 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.
- **Problem:** When launched, the Self-Healing Info tool gives improper output.
Solution: Make sure 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 not getting created on RHEL 4.0 platform.
Solution: Make sure that you have installed the latest version of DSI2DDF component from the SPI DVD.

Error Messages

This section provides detailed information on error messages resulting from conditions detected in the operation of the Oracle AS SPI, not the Oracle Application Server itself. The error messages discussed in this chapter, belong to the OASSPI Message Group.

For any given problem, only the most recent error message is displayed (the older error message is automatically acknowledged). This reduces the number of error messages displayed in the message browser.

WASSPI-1

Description	Unable to create the lock file <filename>. File already exists.
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</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

Description	Cannot access the SPI configuration.
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</p> <ol style="list-style-type: none">1 Verify that the Oracle AS SPI has been configured correctly by running the OASSPI Admin → Verify tool. If the configuration is not correct, run the OASSPI Admin → Discover or Configure OASSPI tool.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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.

WASSPI-3

Description	Error parsing command line.
Severity	Critical
Help Text	<p>Probable Cause</p> <p>The Oracle AS SPI data collector command line is incorrectly specified in a collector policy.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.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.

WASSPI-4

Description	Error getting the metric definitions.
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 If the UDM_DEFINITIONS_FILE property is missing from the OASSPI configuration file, run the OASSPI Admin → Discover or Configure OASSPI tool and set the value for this property.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 OASSPI Admin → Discover or Configure OASSPI tool.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. Refer to the <i>HP Operations Smart Plug-in for Oracle Application Server Configuration Guide</i> for more information on writing user-defined metrics. Reinstall your user-defined metric definition file. Run the OASSPI Admin → Discover or Configure OASSPI tool and verify that the UDM_DEFINITIONS_FILE property in the SPI configuration, is specified correctly.5 If the underlying error is <code>ClassNotFoundException</code>, this is an internal error. Report this to HP Support.

WASSPI-5

Description	Error processing metric <i><metric_number></i> .
Severity	Major
Help Text	<p>Probable Cause</p> <p>An error occurred while trying to collect data or perform calculations for the specified metric.</p> <p>Suggested Action</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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.</p>

WASSPI-6

Description	Required property <i><property_name></i> is missing from the Oracle AS SPI configuration.
Severity	Major
Help Text	<p>Probable Cause A required property is missing from the Oracle AS SPI configuration.</p> <p>Suggested Action</p> <ol style="list-style-type: none">1 Run the OASSPI Admin → Discover or Configure OASSPI tool. Verify that you have specified the correct server information for the Oracle Application servers on this managed node.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.

WASSPI-7

Description	Unable to contact server <i><server_name></i> at url= <i><URL></i> , port= <i><port></i> .
Severity	Critical
Help Text	<p>Probable Cause The specified server is not running.</p> <p>Suggested Action</p> <ol style="list-style-type: none">1 Run the OASSPI Admin → Discover or Configure OASSPI tool. Verify that you have specified the correct server information for the Oracle Application Servers on this managed node.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.3 Verify that the Oracle AS is running on the managed node.

WASSPI-8

Description	Error saving graphing or reporting data to file <i><file_name></i> .
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Identify the steps to reproduce the problem.3 Run the OASSPI Admin → Start Tracing tool to turn on tracing. Try to reproduce the problem.4 Run the OASSPI Admin → Self-Healing Info tool. Contact HP support with the information gathered by this tool.

WASSPI-9

Description	Unable to retrieve property <i><property_name></i> .
Severity	Critical
Help Text	<p>Probable Cause</p> <p>A required property is missing from one of the Oracle AS SPI configuration files.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Run the OASSPI Admin → Discover or Configure OASSPI tool. Verify that you have specified the correct information for the Oracle Application Servers on the managed node in question.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.

WASSPI-10

Description	Encountered problem accessing file <filename>.
Severity	Critical
Help Text	<p>Probable Cause</p> <p>The specified file could not be found, created, or accessed. This file could be a temporary file.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Verify that you have enough disk space to create temporary files.

WASSPI-11

Description	No servers have been specified in the Oracle AS SPI configuration file.
Severity	Major
Help Text	<p>Probable Cause</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>Suggested Action</p> <ol style="list-style-type: none">1 Run the OASSPI Admin → Discover or Configure OASSPI tool. Verify that you have specified the correct server name and port information for the Oracle Application Servers on this managed node.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.

WASSPI-12

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

WASSPI-13

Description	Exception occurred while running an opcomon process.
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</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

Description	Unable to find file <i><filename></i> .
Severity	Critical
Help Text	<p>Probable Cause</p> <p>A file required by the Oracle AS SPI data collector could not be found.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Run the OASSPI Admin → Discover or Configure OASSPI tool on this managed node.

WASSPI-15

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

WASSPI-16

Description	A bad filter <i><filter value></i> was specified for metric <i><metric_number></i> .
Severity	Major
Help Text	<p>Probable Cause A metric filter is incorrectly specified in the metric definitions XML document.</p> <p>Suggested Action</p> <ol style="list-style-type: none">1 If the metric is specified in an XML document that was provided by the user, correct the document. Refer the <i>HP Operations Manager Smart Plug-in for Oracle Application Server Configuration Guide</i> for more information about the correct format for a user-defined metric definition document.2 If the metric is a pre-defined metric that is shipped with the Oracle AS SPI, run the OASSPI Admin → Discover or Configure OASSPI tool to reinstall the Oracle AS SPI configuration files.

WASSPI-18

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

WASSPI-19

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

WASSPI-20

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

WASSPI-26

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

WASSPI-27

Description	RMI collector unable to process <code><command></code> .
Severity	Warning
Help Text	<p>Probable Cause</p> <p>An exception was encountered while performing an rmid related operation.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Identify the steps to reproduce the problem.3 Run the OASSPI Admin → Start Tracing tool to turn on tracing. Try to reproduce the problem.4 Run the OASSPI Admin → Self-Healing Info tool. Contact HP support with the information gathered by this tool.

WASSPI-28

Description	RMID on port <code><port></code> has been <code><status></code> .
Severity	Normal

WASSPI-29

Description	Collector server <code><server id></code> for Java home <code><path></code> has been started.
Severity	Normal

WASSPI-30

Description	Failed to start <code><rmid_path></code> on port <code><port></code> .
Severity	Critical
Help Text	Probable Cause The specified port is already in use. Suggested Action <ol style="list-style-type: none">1 Run the OASSPI Admin → Discover or Configure OASSPI tool. Set the <code>RMID_PORT</code> property to a port number which is not currently in use.

WASSPI-31

Description	Lost connection to RMI collector while processing <code><command></code> .
Severity	Warning

WASSPI-32

Description	Unable to retrieve metadata for mbean <code><JMX-ObjectName></code> .
Severity	Warning

WASSPI-33

Description	No actions matched server <code><server_name></code> , version <code><version></code> .
Severity	Warning
Help Text	Probable Cause JMXAction element(s) define <code>FromVersion</code> and <code>ToVersion</code> tags which do not match the server version. Suggested Action 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

Description	Metric <code><metric_id></code> does not define any actions.
Severity	Warning
Help Text	Probable Cause The metric ID specified with the <code>-m</code> option does not define a <code>JMXActions</code> element. Suggested Action 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

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

WASSPI-36

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

WASSPI-37

Description	MBean <code><JMX_objectname></code> on server <code><server_name></code> does not expose attribute <code><attribute_name></code> for write.
Severity	Warning
Help Text	<p>Probable Cause</p> <p>An action's JMXCalls element defines a write attribute exposed by the specified MBean as read-only.</p> <p>Suggested Action</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

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

WASSPI-39

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

WASSPI-40

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

WASSPI-41

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

WASSPI-42

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

WASSPI-43

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

WASSPI-201

Description	File <i><filename></i> not found.
Severity	Critical
Help Text	Probable Cause A configuration file could not be found. Suggested Action Run the OASSPI Admin → Discover or Configure OASSPI 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

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

WASSPI-203

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

WASSPI-204

Description	Error sending opcmsg <i><message></i> .
Severity	Critical
Help Text	<p>Probable Cause 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>Suggested Action Confirm that the OASSPI-Messages policy has been deployed on the managed node.</p>

WASSPI-205

Description	Error sending opcmon <i><command></i> .
Severity	Critical
Help Text	<p>Probable Cause 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>Suggested Action 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

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

WASSPI-207

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

WASSPI-208

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

WASSPI-209

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

WASSPI-210

Description	Cannot configure OASSPI.
Severity	Critical
Help Text	<p>Probable Cause</p> <p>The Oracle AS SPI configuration process failed.</p> <p>Suggested Action</p> <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Run the OASSPI Admin → Discover or Configure OASSPI tool.

WASSPI-211

Description	Cannot create directory <i><directory></i> .
Severity	Critical
Help Text	<p>Probable Cause</p> <p>There are insufficient permissions for the HP Operations agent user to create the directory or there is insufficient disk space.</p> <p>Suggested Action</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

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

WASSPI-214

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

WASSPI-216

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

WASSPI-218

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

WASSPI-219

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

WASSPI-221

Description	<filename> does not exist.
Severity	Critical
Help Text	Probable Cause 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. Suggested Actions <ul style="list-style-type: none">• Log files - If there have never been any entries written to the file, no action is necessary. Otherwise, run the OASSPI Admin → Discover or Configure OASSPI tool.• Property files - Run the OASSPI Admin → Discover or Configure OASSPI tool.

WASSPI-222

Description	<i><filename></i> is empty.
Severity	Critical
Help Text	Probable Cause 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. Suggested Action If the file is a configuration file, run the OASSPI Admin → Discover or Configure OASSPI tool.

WASSPI-223

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

WASSPI-224

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

WASSPI-225

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

WASSPI-226

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

WASSPI-227

Description	No HP performance agent is installed. Data source will not be configured.
Severity	Warning
Help Text	Probable Cause: If an HPOM is available, the SPI integrates with it. This warning indicates that none is available. Suggested Action: 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

Description	ddflog returned an error logging <logfile-name>: <system-error-msg>
Severity	Warning
Help Text	<p>Probable Cause</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>Suggested Action</p> <ol style="list-style-type: none">1 Redeploy SPI for Oracle Application Server and SPI Data Collector instrumentation on the node having the problem.2 Otherwise, examine the system error message, if any, for clues to the problem.3 Run the OASSPI Admin → Start Tracing tool to turn on tracing. Try to reproduce the problem.4 Run the OASSPI Admin → Self-Healing Info tool. Contact HP support with the information gathered by this tool.

WASSPI-229

Description	Cannot connect to directory <directory_name>
Severity	Warning
Help Text	<p>Probable Cause</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>Suggested Action</p> <p>Run the OASSPI Admin → Discover or Configure OASSPI tool.</p>

WASSPI-230

Description	Cannot get lock <file> after <time>
Severity	Critical
Help Text	<p>Probable Cause</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>Suggested Action</p> <p>Make sure no SPI processes are running. Manually remove the lock file.</p>

WASSPI-231

Description	Error starting JRE <JVM_file>: <message>
Severity	Critical
Help Text	<p>Probable Cause: 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>Suggested Action:</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

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

WASSPI-234

Description	Error running program <file>, return value: <n>.
Severity	Critical
Help Text	<p>Probable Cause</p> <p>The SPI attempted to run the specified tool or auxiliary program and encountered an error (the return code is specified).</p> <p>Suggested Action</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

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

WASSPI-236

Description	Failure when running XSLT on <code><xml></code> with stylesheet <code><xsl>:<message></code> .
Severity	Critical
Help Text	Probable Cause 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. Suggested Action Review the message shown. It is most likely that there is an error in the XML.

WASSPI-237

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

WASSPI-241

Description	Cannot delete file <code><file></code> .
Severity	Critical
Help Text	Probable Cause 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. Suggested Action Make sure the protection of the file is correct.

All Other Errors

Description	An unknown error appears in the Oracle AS SPI error log.
Severity	Major
Help Text	Suggested Action <ol style="list-style-type: none">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 OASSPI Admin → View Error File tool. The error message can be identified by the date/time stamp.2 Identify the steps to reproduce the problem.3 Run the OASSPI Admin → Start Tracing tool to turn on tracing. Try to reproduce the problem.4 Run the OASSPI Admin → Self-Healing Info tool. Contact HP support with the information gathered by this tool.

A File Locations

You can find 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

Managed Node File Locations

These file locations are valid if you are migrating the UNIX or Windows node, on which WebSphere 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 116 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
AIX	Configuration	/var/opt/OV/wasspi/oas/conf
AIX	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
AIX	Configuration	/var/opt/OV/conf/oasspi
AIX	Error Logs	/var/opt/OV/log/oasspi

B The Configuration

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

Structure

See [Sample Configurations for the Oracle AS SPI](#) on page 133 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 NODE <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

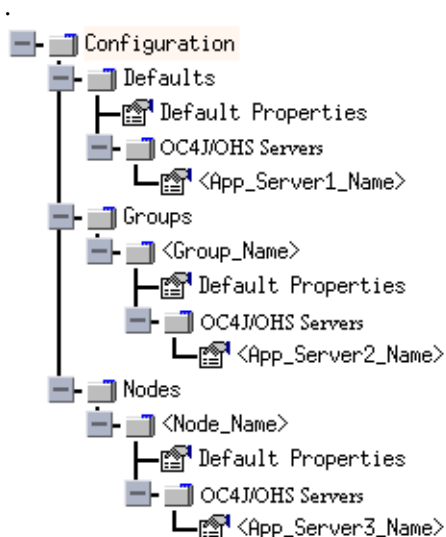
Configuration Editor – Tree

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.

Item Name	Description
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 Property Precedence on page 118).
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 Property Precedence on page 118).
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 Property Precedence on page 118).









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 added or removed an OC4J/OHS server, node, or group without saving the change or if you modified a configuration property, a Confirm Cancel window opens. Click Save and Exit to save the changes before exiting, Exit without Save to exit without saving the changes, or Return to Editing to continue editing the configuration (changes are not saved).
Finish	Exit Discover or Configure OASSPI. Appears instead of Next 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 File → Save 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 Add OC4J/OHS Server on page 123.	<ul style="list-style-type: none">  OC4J/OHS Servers  Defaults  <Group_Name>  <Node_Name>
Add Group	Create a group to which you can assign nodes that have common properties. For more information, see Add Group on page 123.	<ul style="list-style-type: none">  Any item in the tree  Any item in the tree
Add Node	Add a managed node to the Nodes folder. For more information, see Add Node on page 124.	<ul style="list-style-type: none">  Any item in the tree  Any item in the tree

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 opens.	<ul style="list-style-type: none"> ☞ 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 Remove OC4J/OHS Server/Remove ALL OC4J/OHS Servers on page 124.	<ul style="list-style-type: none"> ☞ 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 Remove Group/Remove ALL Groups on page 125.	<ul style="list-style-type: none"> ☞ Groups ☞ <Group_Name>
Remove Node/Remove ALL Nodes	Remove a managed node or remove all managed nodes. For more information, see Remove Node/Remove ALL Nodes on page 126.	<ul style="list-style-type: none"> ☞ 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.	<ul style="list-style-type: none"> ☞ Any item in the tree ☞ Any item in the tree
Set Configuration Properties tab	Set the Oracle AS SPI configuration properties. For more information, see Set Configuration Settings Tab on page 126.	<ul style="list-style-type: none"> ☞ <OC4J/OHS_Server_Name> ☞ Default Properties
View Configuration Settings tab	View the Oracle AS SPI configuration properties. For more information, see View Configuration Settings Tab on page 126.	<ul style="list-style-type: none"> ☞ 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, follow these steps:

- 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 opens.

- 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 126.

- 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, follow these steps:

- 1 Right-click any item in the tree and select **Add Group**.

The Configure OASSPI Tool: Add Group window opens.

- 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 126.

- 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, follow these steps:

- 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 opens.

- 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 126.

- 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, follow these steps:

- 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.
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, follow these steps:

- 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.
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, follow these steps:

- 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.
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, follow these steps:

- 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.

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, follow these steps:

- 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.

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, follow these steps:

- 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, follow these steps:

- 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, follow these steps:

- 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 128.

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 Set Configuration Properties 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 Set Configuration Properties 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 (those 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 8 on page 129 lists all properties by the Oracle AS SPI requirements:

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

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

Table 8 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 9 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. Example: 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. Examples: 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	Required	The directory where the Oracle Application Server is installed. Example: HOME = /opt/oracle/infra
HOME_LIST	9.04, 10.1.2, 10.1.3	Required	The directory which contains all the locations for HOME separated by ;.
JAVA_HOME	9.04, 10.1.2, 10.1.3	Required 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. Example: JAVA_HOME = /opt/oracle/jdk

Table 9 Configuration Properties

Property	Applicable OAS Version	Required/ Conditional/ Optional	Description
LOGIN	10.1.3	Required	An Oracle AS defined user (not a system user) that is used to monitor an Oracle AS server. Example: SERVER1_LOGIN = janedoe
MAP_KEY_PREFIX	10.1.3	Required	Any unique HTTP instance name. Example: my_j2eeinstance1.system1.com
NAME	9.04, 10.1.2, 10.1.3	Required	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). Example: SERVER1_NAME = exampleServer
PASSWORD	10.1.3	Required	The password for the LOGIN. If LOGIN is configured, a password must be defined. Example: 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.	Default: 30 (seconds) The amount of time, in seconds, to wait for rmid to start before timing out. Example: 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. NOTE: 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. Example: 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. Example: SERVER1_STOP_CMD = /sbin/init.d/oracle stop

Table 9 Configuration Properties

Property	Applicable OAS Version	Required/ Conditional/ Optional	Description
TIMEOUT	9.04, 10.1.2, 10.1.3	Optional	Default: 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	Default: ajp13. Set to ajp13 if this is an OC4J server. Set to ohs if this is an OHS (HTTP_Server) server. Example: SERVER1_TYPE=ajp13
URL_PATH	10.1.3	Required	Required for discovery and collection of metrics. It is a mandatory property that every server in the SiteConfig must have. Example: 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. Example: 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). Example: 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 123.
- 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 124.



Properties set for a node take precedence over the same properties set for a group. See [Property Precedence](#) on page 118 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 Tools

The Oracle AS SPI tools include configuration and troubleshooting utilities.

OASSPI Admin tools include:

- Discover or Configure OASSPI
- Init Non-Root
- Self-Healing Info
- Start/Stop Monitoring
- Start/Stop Tracing
- Verify
- View Error Log
- View Graphs

The Oracle AS SPI tools include:

- Launch Oracle AS Console
- Start/Stop Oracle AS
- View Oracle AS Logs
- View Oracle AS Status

Important:

To invoke the GUIs related to the Oracle AS SPI, perform the following steps:

- 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.

OASSPI Admin Tools Group

OASSPI Admin tools enable you to configure, control, and troubleshoot the Oracle AS SPI. The OASSPI Admin tools group includes the following tools:

Discover or Configure OASSPI

Discover or Configure OASSPI tool launches the configuration editor. You can run either the discovery or configuration using Discover or Configure OASSPI tool.

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

For complete instructions on how to configure the Oracle AS SPI, see [Chapter 3, Configuring the Oracle AS SPI](#).

Function

The following functions are performed by the Configure Tool:

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

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

The HPOM management server maintains the configuration information for all Oracle Application servers on HP Operations Manager managed nodes. Each managed node maintains a subset of the configuration information maintained on the management server. The configuration information of Oracle Application servers on a node is maintained on that managed node.

When you make changes to the configuration using the configuration editor, the changes are always saved on the HPOM management server.

If you select a specific HPOM managed node when you launch Discover or Configure OASSPI, configuration changes affecting Oracle Application Servers running on that node are automatically saved on the node. If you do not select a managed node, the configuration changes are not saved on the managed node.

Configuration changes affecting non-selected managed nodes are saved to the configuration on the HPOM management server and not on the non-selected managed node. To save the changes on the node, you must select the managed node and re-run the Discover or Configure OASSPI tool.

To Launch the Discover or Configure OASSPI Tool

- 1 From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.

- 2 Select the node(s) on which you want to launch Discover or Configure OASSPI tool.
- 3 Right-click on the node(s).
- 4 Select **Start** → **SPI for Oracle AS** → **OASSPI Admin** → **Discover or Configure OASSPI**.
The Tool Selector window opens.
- 5 To run the discover tool, select the Launch Discover Tool radio button and click **OK**. To run the configure tool, select the Launch Configure Tool radio button and click **OK**. By default, the Launch Configure Tool radio button is selected.
- 6 See [Task 4: To Run Discovery](#) on page 39 and [Task 8: To Run Configuration](#) on page 44 for more information on how to launch Discover or Configure OASSPI tool.

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 45.

Function

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

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

To Launch the Init Non-Root Tool

- 1 Follow the steps [step 1 to step 3 in Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **Init Non-Root**.

The Init-Non Root Output window opens.

Self-Healing Info

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

Required 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/Stop Tracing](#) on page 138.
- 2 Reproduce the problem.

Function

Self-Healing Info tool performs the following functions:

- Saves data in the following file:
 - on a UNIX 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 139).

To Launch the Self-Healing Info Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **Self-Healing Info**.
The Self-Healing Info Output window opens.

Start/Stop Monitoring

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

Function

- Start Monitoring starts the collection of metrics for one or all OC4J/OHS servers on a managed node.
These metrics generate alarms when thresholds are exceeded. You can also use the metrics to create reports (automatically or manually generated) and graphs. These reports and graphs are used to analyze trends in server usage, availability and performance.
- Stop Monitoring stops the collection of metrics for one or all OC4J/OHS servers on a managed node.
You can 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.
You can launch the Verify tool to check whether the monitoring has started or stopped. By default, monitoring is on.

To Launch the Start/Stop Monitoring Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **Start/Stop Monitoring**.
The Start/Stop Monitoring Output window opens.

Start/Stop Tracing

Starts/stops saving information about each of the activity performed by the SPI on the managed node into a file.

Function

Start Tracing saves information about each of the activity performed by the SPI on the managed node into a file.

Stop Tracing stops logging the information about each of the activity performed by the SPI on the managed node into a file.

Run this tool only when instructed by your HP support representative.

Run the Self-Healing Info tool to collect the file(s) created by this tool as part of the data to be used by your HP support representative.

To Launch the Start/Stop Tracing Tool

- 1 Follow the steps [step 1 to step 3 in Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **Start/Stop Tracing**.

The Start/Stop Tracing Output window opens.

Verify

You can run the Verify tool to check whether the files (instrumentation, configuration, library files, and so on) required for the functioning of the SPI is properly deployed.



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

Function

The Verify tool verifies whether the files (instrumentation, configuration, library files, and so on) required for the functioning of the Oracle AS SPI is properly deployed on the managed node and management server.

To Launch the Verify Tool

- 1 Follow the steps [step 1 to step 3 in Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **Verify**.

The Verify Output window opens.

View Error Log

You can use the View Error Log tool to view the contents of the Oracle AS SPI error log file.

Function

View Error Log displays the contents of the Oracle AS SPI error log file `<OV_AGT_DIR>/wasspi/oas/log/wasspi_perl.log`.

In this instance, `<OV_AGT_DIR>` typically is:

- `/var/opt/OV` on UNIX managed nodes

- \Documents and Settings\All Users\Application Data\HP\HP BTO Software\ on Windows managed nodes

To View the Oracle AS SPI Error Log

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **View Error Log**.

The View Error Log Output window opens.

View Graphs

You can use the View Graphs tool to view HP Performance Manager graphs in a web browser.

Required Setup

HP Performance Manager must be installed and you must configure Mozilla or Netscape browser on the HP Operations Manager for UNIX before this tool can run successfully.

If you are using Netscape Navigator, use version 6.0 or higher.

Function

The View Graphs tool launches a web browser to display, as graphs, the Oracle AS SPI metric data. These graphs are generated using HP Performance Manager.

To Launch the View Graphs Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **SPI Admin** → **View Graphs**.

The View Graphs Output window opens.

Oracle AS SPI Tools Group

The tools in the Oracle AS SPI group provide you access to the functions of Oracle Application Server from the HPOM console. The Oracle AS SPI tools group includes the following tools:

Launch Oracle AS Console

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

Required Setup

- Configure Mozilla or Netscape browser on the HP Operations Manager for UNIX 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.

To Launch the Launch Oracle AS Console Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **Oracle AS SPI** → **Launch Oracle AS Console**.
The Launch Oracle AS Console Output window opens.
- 3 Select an option:
 - 1 - Launch the Oracle Application Server Control Console
 - 2 - Launch AggreSPY
 - 3 - Launch the Oracle Enterprise Manager Database Control (Oracle AS Enterprise Manager must be installed on the managed node for this option to be available)
 - q - Quit the tool

Start/Stop Oracle AS

You can start or stop one or more instances of Oracle Application Servers from the HP Operations Manager (HPOM) console by running the Start Oracle AS tool, without logging in to each individual Oracle Application Server Control Consoles.

Required Setup

The `START_CMD`, `STOP_CMD`, and `USER` configuration properties *must* be set before this tool can run successfully.

Function

Start or Stop Oracle AS tool starts or stops one or all application servers on the selected managed nodes.

To Launch the Start/Stop Oracle AS Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **Oracle AS SPI** → **Start/Stop Oracle AS**.

The Start/Stop Oracle AS Output window opens.

View Oracle AS Logs

You can use View Oracle AS Logs tool enables you to view Oracle Application Server log files without logging in to the system on which the Oracle Application Server is running.

Function

View OAS Logs tool performs the following functions:

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

You can enter only one numeric value in the parameter field and view the log file corresponding to that number. Select one log file to view per managed node every time you launch the View OAS Logs tool.

If you keep the Tool Status window open and relaunch the tool, the output in the Tool Status window accumulates.

To Launch the View Oracle AS Logs Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **Oracle AS SPI** → **View Oracle AS Logs**.

The View Oracle AS Logs Output window opens.

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.

To Launch the View Oracle AS Status Tool

- 1 Follow the steps [step 1](#) to [step 3](#) in [Discover or Configure OASSPI](#) on page 136.
- 2 Select **Start** → **SPI for OASSPI** → **Oracle AS SPI** → **View Oracle AS Status**.

The View Oracle AS Status Output window opens.

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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