HP Operations Smart Plug-in for Oracle WebLogic Application Server

for HP Operations Manager for HP-UX, Linux, and Solaris

Software Version: 7.04

Installation and Configuration Guide

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Contents

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

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

About the WebLogic SPI

In conjunction with HPOM, the WebLogic SPI offers centralized tools that help you monitor and manage systems using WebLogic Server. From the HPOM console, you can apply the HPOM performance and problem-managing processes to monitor systems using WebLogic Server. The WebLogic SPI metrics are automatically sent to the HP Operations Agent. These metrics can generate alarms or be consolidated into reports and graphs to help you analyze trends in server usage, availability, and performance.

You can also integrate the WebLogic SPI with HP Reporter and HP Performance Manager to obtain additional reporting and graphing flexibility and capabilities (both products must be purchased separately). For details on integrating the WebLogic SPI with other HP products, see Chapter 6, Integrating the WebLogic SPI with HP Reporting and Graphing Solutions.

Smart Plug-in Data

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

- Server availability
- Server performance
- Memory usage
- Transaction rates
- Servlet executing times, time-outs, request rates
- JDBC connection status
- Web application processing
- Java message service processing
- Cluster processing
- Exception counts of scheduled WLS actions

Smart Plug-in Uses and Customizations

As a WebLogic Server administrator, you can choose the metrics crucial to the operation of WebLogic Server by modifying the WebLogic SPI policies. The policies contain settings that enable incoming data to be measured against predefined rules. These rules generate useful information in the form of messages. The 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.

Components of the WebLogic SPI

The WebLogic SPI has four main components:

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

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

The WebLogic SPI configuration tools enable you to 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. You can use the WebLogic SPI reporting tools to generate metric reports with HP Operations Agent software running on the managed nodes. In addition, you can generate graphs that show the WebLogic SPI data (available through message properties).

Figure 1   WebLogic Application Server SPI - Components
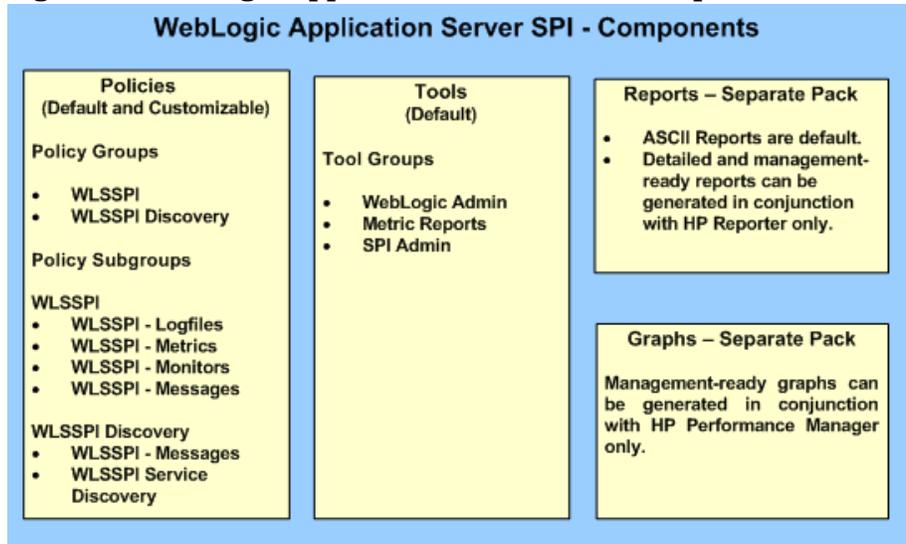
Policies

The WebLogic SPI consists of policies that monitor the WebLogic Server. The policies contain settings which enables incoming data to be measured against predefined rules. These rules generate useful information in the form of messages. The messages are color-coded to indicate the severity level. You can review these messages for problem analysis and resolution. There are several pre-defined corrective actions for specific events or threshold violations. These corrective actions are automatically triggered or operator-initiated. Monitoring implies generation of alarms related to critical events of the tool, and logging important performance metrics of the application server. The metrics that are logged can be used to create graphs. For more information on policies, see Overview on page 71.

Tools

The WebLogic SPI tools include configuring, troubleshooting, and report-generating utilities. In the Tool Bank window, the WebLogic SPI tools consists of the following tool groups:

- WebLogic Admin (WLSSPI:ADMIN)

- Metric Reports (WLSSPI:REPORTS)

- SPI Admin (WLSSPI:SPI_ADMIN)

- JMX Metric Builder: This tool group is available *only if* you install the SPIJMB software.

Reports

The SPI package contains the default reporting policies provided by the SPI. Reports are generated by the HP Reporter using the WebLogic SPI data. The reports show consolidated, historical data generated as web pages in management-ready presentation format which helps you analyze the performance of the WebLogic Server over a period of time. For details on integrating the WebLogic SPI with HP Reporter to get consolidated reports, see Integrating with HP Reporter on page 95.

Graphs

The SPI package contains the default graphing policies provided by the SPI. Graphs are drawn from metrics that are collected in the datasources created by the SPI. The graphs help you analyze trends in server usage, availability, and performance. For details on integrating the WebLogic SPI with HP Performance Manager to get consolidated graphs, see Chapter 6, Integrating the WebLogic SPI with HP Reporting and Graphing Solutions.

Functions of the WebLogic SPI

The WebLogic 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 rules within these policies define various conditions that might occur within the WebLogic 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 WebLogic SPI performs the following functions:

Collecting and Interpreting Server Performance and Availability Information

Policies are deployed to the managed nodes and the SPI starts gathering server performance and availability data after you configure the WebLogic SPI. This data is compared with the rules of the deployed policies. The policies define conditions that can occur within the WebLogic Server such as queue throughput rates, cache use percentages, time-out 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 WebLogic SPI policies generate messages when a threshold is exceeded. These messages can appear as follows:

- **Messages in the Message Browser**

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

Figure 2   Message Browser

- **Instruction Text**

Messages generated by the WebLogic SPI policies contain instruction text to help analyze and solve problems. You can perform preassigned corrective actions manually, or let them be triggered automatically.

Instruction text is present under the Message Properties window. Double-click the Message Text. The Message Properties window appears. To view the instruction text, click the **Instruction** tab. Instruction text is also available in the *HP Operations Smart Plug-in for Oracle WebLogic Server Reference Guide*.

Figure 3   Instruction Text
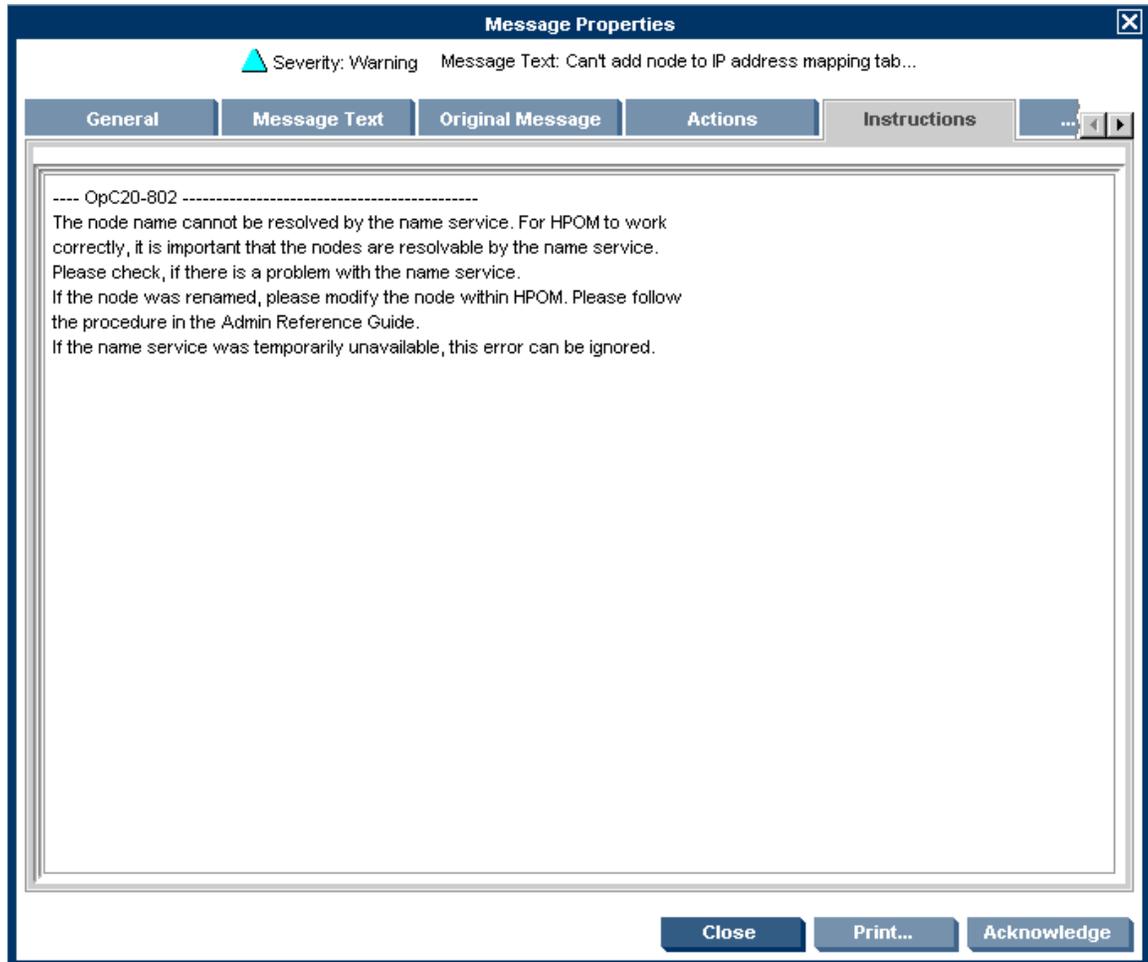
- **ASCII-Text Reports**

In addition to the instruction text, some messages cause automatic action reports to be generated. These reports show conditions of a specific WebLogic Server instance. If a report is available, you can click the **Annotations** tab in the Message Properties window to view it.

Figure 4 **ASCII-Text Reports**
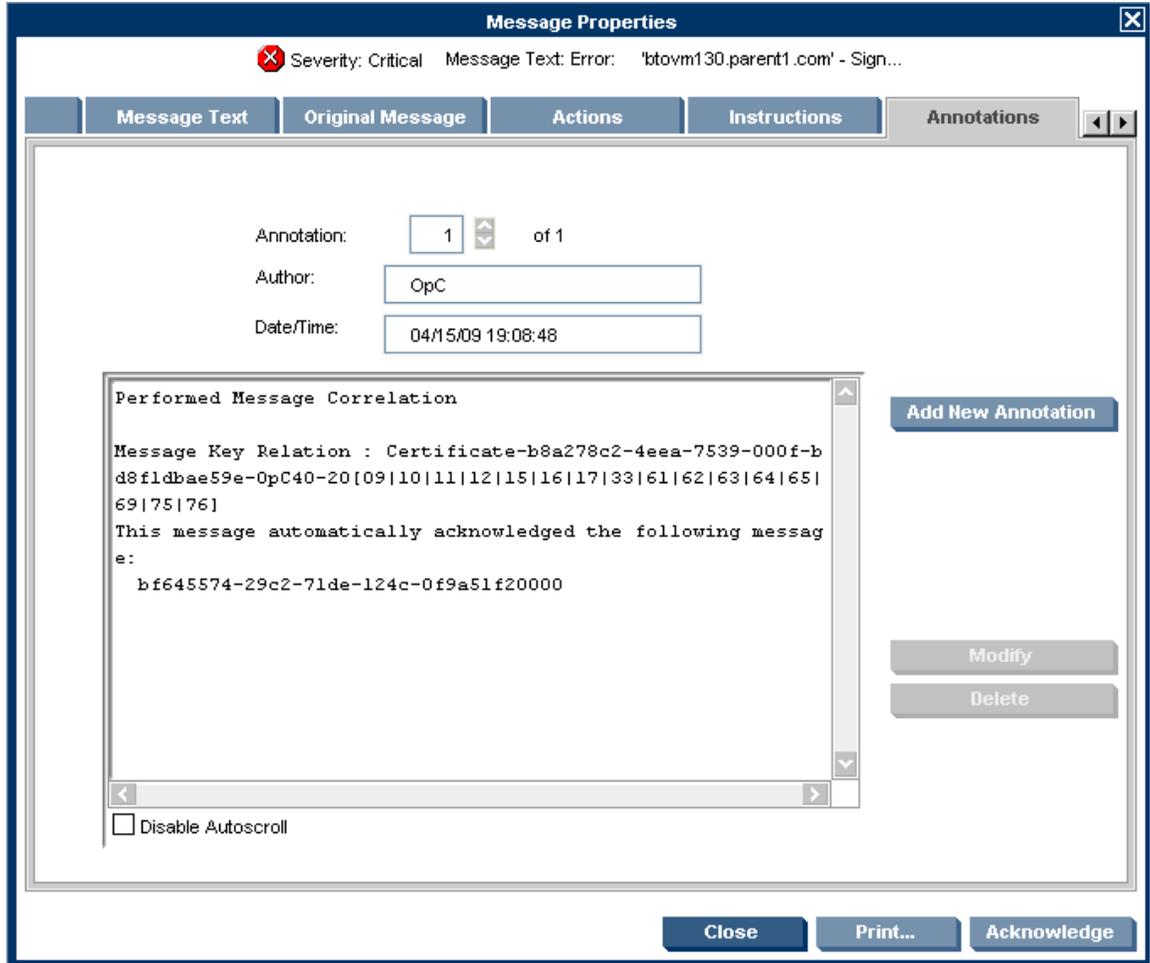
Generating Reports Using HP Reporter

You can integrate the WebLogic SPI with HP Reporter to provide you with management-ready, web-based reports. The WebLogic SPI Report package includes the policies for generating these reports.

After you install the product and complete basic configuration, HP Reporter generates reports of summarized, consolidated data every night. You can assess the performance of the WebLogic Server over a period of time, with the help of these reports.

HP Reporter uses the WebLogic SPI data to generate reports.

Graphing Data with HP Performance Manager

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

You can integrate the WebLogic SPI with HP Performance Manager to generate and view graphs. (use the **View Graphs** tool from the WLSSPI Admin tool group to view graphs). These graphs show the values of the metrics collected by the WebLogic SPI. You can click **Perform** to view graphed data from almost all the WebLogic SPI alarm messages. **Perform** is present

within the **Actions** tab in the Message Properties window. The action launches your Web browser, where you can choose a graph that shows values for the metric that generated the message as well as the other related metrics. The following is a sample graph:

Figure 5   Sample Graph
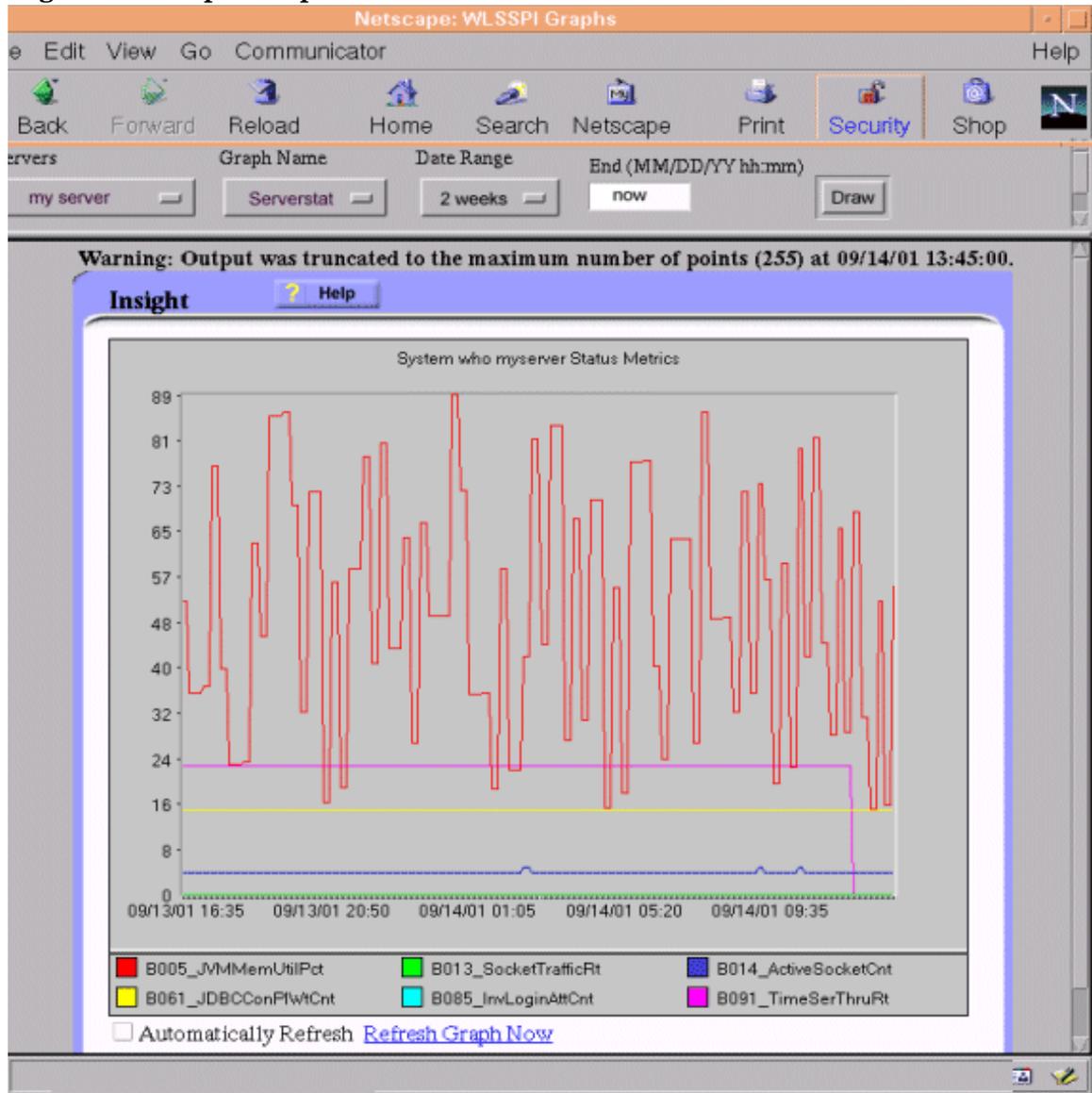
Customizing Policies and Metrics

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

- Modify the default policies – Within a policy, you can change the default settings for:
  — Collection interval
  — Threshold
  — Message text
  — Duration

— Severity level of the condition

— Actions assigned to the condition (operator-initiated or automatic)

- Create custom policy groups – You can create custom policy groups using default policies as base. For more information, see Chapter 5, Customizing the WebLogic SPI Policies.

- Create custom metrics – You can define your own metrics or User Defined Metrics (UDMs) to expand the monitoring capabilities of the WebLogic SPI. For more information on UDMs, see the *HP Operations Smart Plug-in for User Defined Metrics User Guide*.

2 Installing and Upgrading the WebLogic SPI

This chapter provides information on installation of the WebLogic SPI on different environments. It discusses all the required prerequisites, instructions, and steps for installing the WebLogic SPI. The following flowchart summarizes the steps for installing and configuring the WebLogic SPI.

Figure 6   Flowchart on steps for installing and configuring the SPI for HP-UX
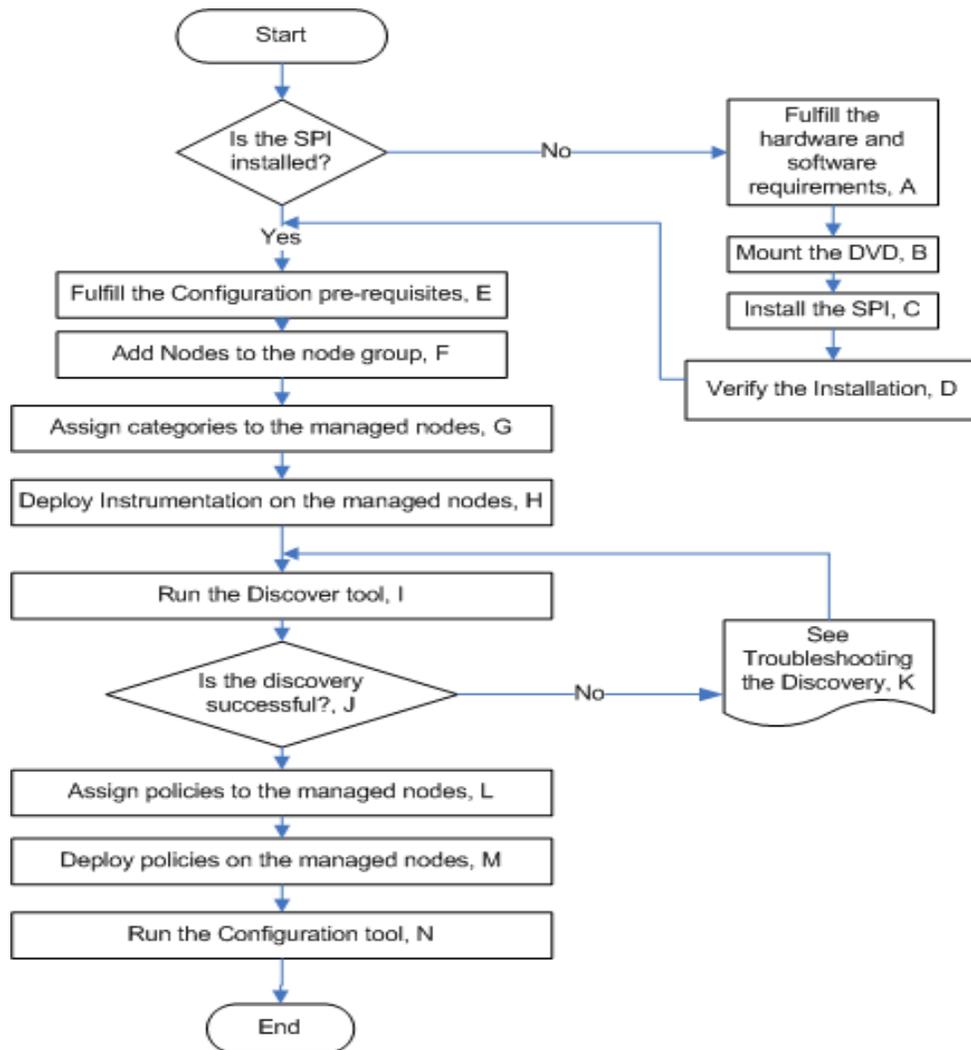
Table 1   References of the legends in the flowchart

A	Prerequisites on page 27
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C	To Install the WebLogic SPI on page 29

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M	Deploy the WebLogic SPI Policies on page 45
N	Run Configuration on page 45

Figure 7   Flowchart for installing and configuring the SPI for Linux or Solaris
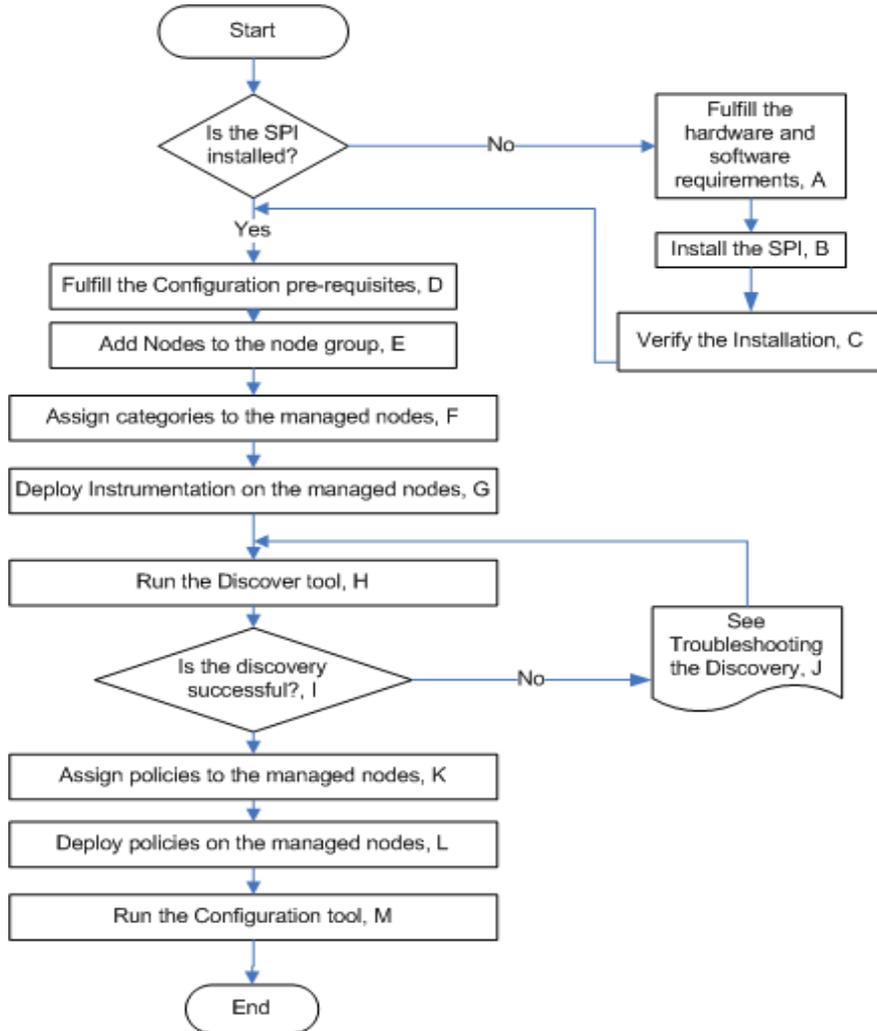
Click a hyperlink below to find detailed information.

Table 2   References of the legends in the flowchart

A	Prerequisites on page 27
B	Installing the SPI on the HPOM for Linux or Solaris management server on page 29
C	Verifying Installation on page 32
D	Prerequisites on page 37
E	Add Nodes to the WebLogic Node Group on page 39
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G	Deploy Instrumentation on the Managed Nodes on page 41
H	Run Discovery on page 41
I	Verify the Discovery Process on page 43
J	Troubleshooting the Discovery Process on page 109
K	Assign Policies to the Managed Nodes on page 44
L	Deploy the WebLogic SPI Policies on page 45
M	Run Configuration on page 45

The following flowchart summarizes the steps for upgrading the WebLogic SPI.

Figure 8   Flowchart on steps for upgrading the SPI on HP-UX, Linux, and Solaris
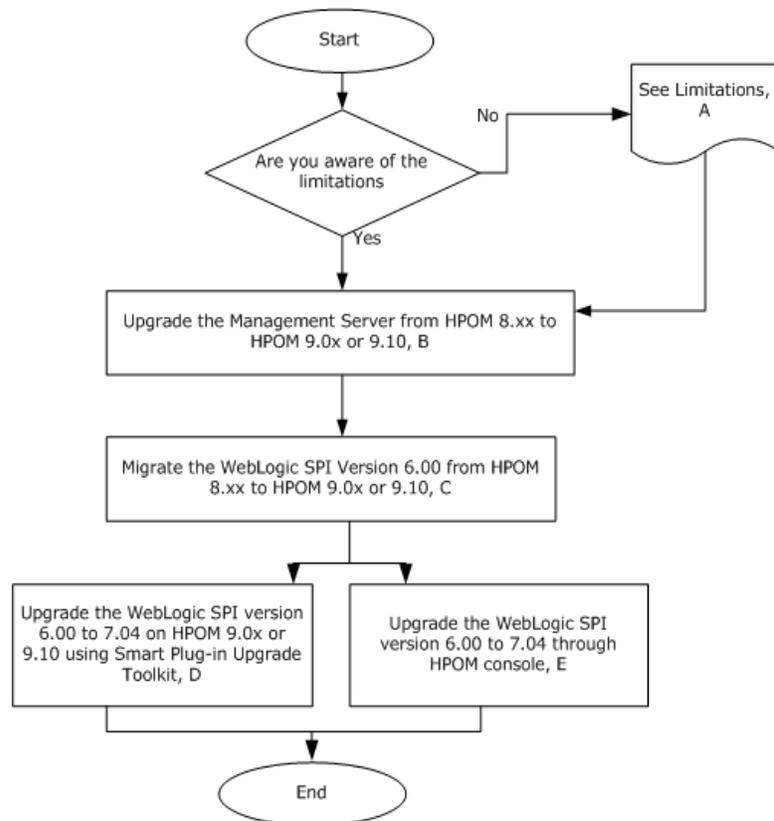
Click on a hyperlink below to find detailed information.

Table 3   References of the legends in the flowchart

A	Limitations on page 32
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D	Upgrading the WebLogic SPI using the HP Operations Smart Plug-in Upgrade Toolkit on page 34
E	Upgrading the WebLogic SPI on a Standalone HPOM 9.0x or 9.10 Server through HPOM Console on page 34

Installation Packages

The WebLogic SPI version 7.04 is a patch release. You can download the patches from the following location: **http://support.openview.hp.com/selfsolve/patches**. Instructions to install a patch are available in the patch text.

The WebLogic SPI installation package includes the following:

- SPI Package
- Graph Package
- Reporter Package

These packages are available only when you install the WebLogic SPI from any one of the following:

- SPI DVD for UNIX (SPI DVD 2009)
- SPI DVD for Linux
- SPI DVD for Solaris

The following section lists the installation packages for the WebLogic SPI for HPOM:

- Linux
- HP-UX
- Solaris

Linux

SPI Package

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

Location of main package :
<SPIDVD>\HP_Operations_Smart_Plug-ins_Linux_setup.bin

Graphing Package

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

- For HP-UX: `/HPUX/HP_PM/WEBLOGIC_SPI/HPOvSpiWlsG.depot`

- For Windows: `\WINDOWS\HP_PM\WEBLOGIC_SPI\HPOvSpiWlsG.msi`

- For Solaris: `/SOLARIS/HP_PM/WEBLOGIC_SPI/HPOvSpiWlsG.sparc`

- For Linux: The core and graph templates packages for WLS SPI are contained in the main packages for Linux mentioned earlier.

Reporting Package

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

HP-UX

SPI Package

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

Location of main package:

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

Graphing Package

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

- For Windows: `\WINDOWS\OV_PM\WEBLOGIC_SPI\WLSSPI-OVPM.msi`

- For HP-UX: The core and graph templates packages for WLS SPI are contained in the main packages for HP-UX mentioned earlier.

Reporting Package

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

Solaris

SPI Package

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

Location of main package:

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

Graphing Package

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

- For Windows: `\WINDOWS\HP_PM\WEBLOGIC_SPI\HPOvSpiWlsG.msi`

- For HP-UX: `/HPUX/HP_PM/WEBLOGIC_SPI/HPOvSpiWlsG.depot`

- For Linux: `/LINUX/HP_PM/WEBLOGIC_SPI/HPOvSpiWlsG.rpm`

- For Solaris: The core and graph templates packages for WLS SPI are contained in the main packages for Solaris mentioned earlier.

Reporting Package

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

Installation Environments

Standard Installation of SPI Components on the HPOM Server

You can install the full version of HP Performance Manager on the HPOM 9.0x or 9.10 server. You can select to install only the SPI packages and not the graphing packages through the HP Operations Smart Plug-Ins DVD. However, if the full version of HP Performance Manager is installed on the same machine, the corresponding packages can be installed or uninstalled on the HPOM 9.0x or 9.10 server.

Standard Installation in HPOM Cluster Environment

In an HPOM cluster environment, you must have installed HPOM 9.0x or 9.10 server on each of the systems in the cluster. You can install the SPI on each of the nodes in the cluster environment.

Standalone HP Performance Manager

For such a system only the corresponding package of any SPI is enabled and available for selection from the HP Operations Smart Plug-Ins DVD. For example, if a system has only HP Performance Manager installed, the graph package of the WebLogic SPI can be installed on it.

Prerequisites

Fulfill the hardware and software requirements before installing the SPI. Install the HPOM server and discovery package before installing the WebLogic SPI. It is not necessary to stop HPOM sessions before beginning the WebLogic SPI installation.

Hardware Requirements

For information on hardware requirements for the management server, see the *HP Operations Manager for Unix Concepts Guide.* For information on hardware requirements for the managed nodes, see **http://support.openview.hp.com/selfsolve/document/KM323488**.

Software Requirements

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

On the Management Server:

For HP-UX

- HP Operations Manager for UNIX: 9.0x or 9.10
- HP Performance Manager: 8.20 (required if you want to generate graphs)
- HP Reporter: 3.80 (required if you want to generate web-based reports)
- HP Operations SPI Data Collector (DSI2DDF): 2.40
- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.00
- JMX Component (JMXSPI): 7.00
- HP Operations SPI Upgrade Toolkit: 2.00

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

For Linux

- HP Operations Manager for Linux: 9.0x or 9.10
- HP Performance Manager: 8.21 (required if you want to generate graphs)
- HP Reporter: 3.80 (required if you want to generate web-based reports)
- HP Operations SPI Data Collector (DSI2DDF): 2.41
- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.01
- JMX Component (JMXSPI): 7.01
- HP Operations SPI Upgrade Toolkit: 2.01

For Solaris

- HP Operations Manager for Solaris: 9.0x or 9.10

- HP Performance Manager: 8.21 (required if you want to generate graphs)

- HP Reporter: 3.80 (required if you want to generate web-based reports)

- HP Operations SPI Data Collector (DSI2DDF): 2.41

- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.02

- JMX Component (JMXSPI): 7.02

- HP Operations SPI Upgrade Toolkit: 2.02

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

On the Managed Nodes (for HP-UX, Solaris or Linux):

- HP Performance Agent: 5.00 (required if you want to use HP Performance Agent for data logging)

- HP Operations agent (version 8.60) must be installed and configured

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

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

Installing the WebLogic SPI

Installing the SPI on HP-UX

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

Mounting the DVD on HP-UX

To mount the DVD on HP-UX:

1 Log on as a **root** user.

2 Set the user root's umask by entering:
   umask 027

3 Create a directory to mount the DVD:
   mkdir /<mount_point>

   For example: **mkdir /dvdrom**

4 Insert the DVD into the disk drive and mount it as user root by entering:
   mount /dev/<dvdrom_drive_name> /<mount_point>

   For example, for a local DVD, you might enter:
   mount /dev/dsk/c0t2d0 /dvdrom

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

To Install the WebLogic SPI

▶ The instructions that follow show the command line usage of `swinstall`. On HP-UX systems, you can also use the graphical user interface (GUI).

For an HP-UX 11.31 management server, type the following command:

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

or

`swinstall -s /dvdrom/HPUX/HP_Operations_Smart_Plug-ins_HPUX.depot`
and select the SPI or the dependent components to install them.

▶ If you want to create UDMs, install the SPIJMB software. For more information about this software, see the *HP Operations Smart Plug-in for User Defined Metrics User Guide*.

Installing the SPI on the HPOM for Linux or Solaris management server

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

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

Installing the SPI through Graphical User Interface

To install the Weblogic SPI using X-Windows client software:

1   Log on as a **root** user.

2   Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.

3   Start the X-windows client software and export the DISPLAY variable by typing the following command:

`export DISPLAY=<ip address>:0.0`

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

`./HP_Operations_Smart_Plug-ins_Linux_setup.bin`

or

`./HP_Operations_Smart_Plug-ins_Solaris_setup.bin`

The introductory window appears.

5   Select the language from the drop-down list and click **OK**. The Introduction (Install) window appears.

6   Click **Next**. The License Agreement window appears.

7   Select **I accept the terms of the License Agreement** button and click **Next**. The Select Features window appears.

8 Select the **HP Operations SPI for WebLogic Application Server** check box and click **Next**.The
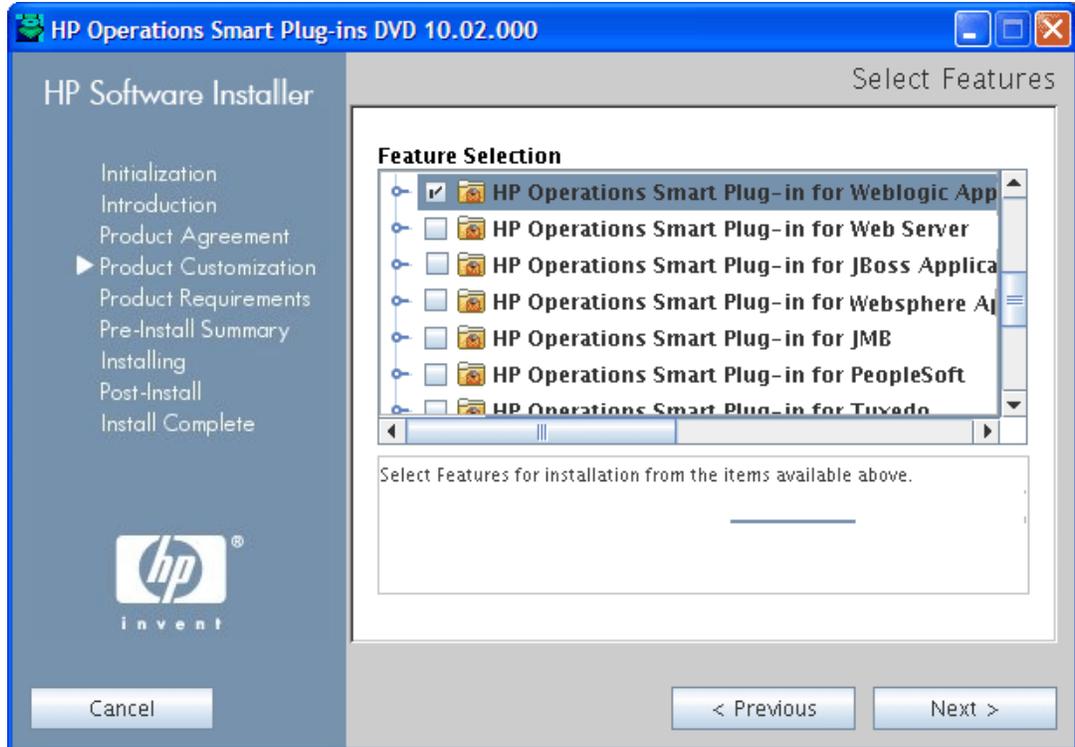
▶ By default, the HP Operations Smart Plug-in Common Components are selected.

Install Check window opens.

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

10 Click **Install**.

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

— Select the Force reinstallation of already installed component packages check box to reinstall the selected components, as applicable.

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

If the installation fails, you can quit installation. Click **Quit** to stop the installation. This does not uninstall the components installed till then.

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

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

Installing the SPI through Command Line Interface

To install the WebLogic SPI through command line interface:

1 Log on as a `root` user.

2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.

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

   ./HP_Operations_Smart_Plug-ins_Linux_setup.bin -i console

   or

   ./HP_Operations_Smart_Plug-ins_Solaris_setup.bin -i console

4 When the prompt, 'Choose Locale...' appears, press the number corresponding to the
   language you want to choose.

5 Press **Enter** to continue. The Introduction screen appears.

6 Press **Enter** to continue.

7 When the prompt, 'I accept the terms of the License Agreement' for the License
   information appears, press **Y** to accept the terms and continue installation.

8 When the prompt, 'Please select Features' for the selection of the feature appears, press
   the number corresponding to the feature you want to install.

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

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

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

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
WebLogic SPI is ready.

▶ Ensure that sufficient disk space (500 MB) is available on each management server for the
   WebLogic SPI you plan to install. Cancelling the installation process before completion can
   result in partial installations and require manual removal of the partially installed
   components.

After installing the HPOM management server:

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 installed 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 SPI on HP-UX on page 28 and then proceed to the next management server until the installation on every management server in the cluster is complete.

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

Verifying Installation

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

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

Solaris - Type the command **pkginfo -l HPOvSpiWls** to verify the installation of the WebLogic SPI on the management server.

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

Upgrading the WebLogic SPI

You can upgrade the WebLogic SPI from HPOM for UNIX version 8.xx to HPOM for HP-UX, Linux, or Solaris version 9.0x or 9.10.

Limitations

Note the following when you plan to install the WebLogic SPI 7.04 on HPOM 9.0x or 9.10:

- You must complete the migration process from HPOM 8.xx to HPOM 9.0x or 9.10 before upgrading the WebLogic SPI.

- After upgrading to the HPOM 9.0x or 9.10, you must move all the managed nodes to the SPI for WebLogic SPI 7.04.

- Monitoring a node by combination of SPIs from SPI DVD 2008 and SPI DVD 2009 or SPI DVD 2010 is not supported.

- If you have multiple WebLogic SPI versions deployed on HPOM, you must configure newly added managed nodes using the WebLogic SPI 7.04. No configuration is possible on the existing or old managed nodes monitored by the WebLogic SPI 6.00.

- Before you start the migration process of HPOM, install all the available patches for the WebLogic SPI 6.00. After you install the WebLogic SPI 7.04, no patches or hotfixes available for WebLogic SPI 6.00 can be installed on the HPOM server.

- To run the user interface related to WebLogic SPI 7.04, you must install X-windows client software on the system from which you will start the HPOM for UNIX 9.0x or 9.10 server operator user interface.

- Before you upgrade the WebLogic SPI 7.04, you must take a backup of the content available in the /opt/OV/wasspi/wls directory.

To upgrade the earlier versions of the WebLogic SPI to WebLogic SPI 7.0x, perform the following tasks:

- Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x or 9.10
- Migrate the WebLogic SPI 6.00 from HPOM 8.xx to HPOM 9.0x or 9.10
- Upgrade the WebLogic SPI 6.00 to WebLogic SPI 7.0x on HPOM 9.0x or 9.10

Upgrade the Management Server from HPOM 8.xx to HPOM 9.0x or 9.10

Follow the steps documented in the following guides:

- *HP Operations Manager for UNIX 9.00 Installation Guide* for upgrading or migrating HPOM 8.xx to 9.0x.
- *HP Operations Manager for UNIX 9.10 Installation Guide* for upgrading or migrating HPOM 9.0x to 9.10.

Migrate the WebLogic SPI 6.00 from HPOM 8.xx to HPOM 9.0x or 9.10

The instrumentation files and other SPI-specific data are migrated while migrating or upgrading HPOM for UNIX 8.xx server (where the WebLogic SPI 6.00 is installed) to HPOM for UNIX 9.0x or 9.10. Some SPI specific data, however, must be migrated manually.

Migrate the HPOM from one system to another

Install HPOM for UNIX 9.0x or 9.10 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 or 9.10, create the following directories on the target HPOM for UNIX 9.0x or 9.10 server:

    /var/opt/OV/wasspi/wls/

    /opt/OV/SPISvcDisc/conf/WLSSPI/

    /opt/OV/wasspi/wls/

    /var/opt/OV/share/conf/SPISvcDisc/WLSSPI/

2   Copy the files present in the folders created in step 1 from HPOM for UNIX 8.xx to HPOM for UNIX 9.0x or 9.10 server at their respective folders.

3   Copy the following files from HPOM for UNIX 8.xx to HPOM for UNIX 9.0x or 9.10 server at their respective folders:

    /opt/OV/SPISvcDisc/conf/wasspi_wls_DiscConfig.sh

    /opt/OV/newconfig/inventory/HPOvSpiWls.xml

Upgrade the WebLogic SPI 6.00 to WebLogic SPI 7.0x on HPOM 9.0x or 9.10

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

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

The HP Operations Smart Plug-in Upgrade Toolkit (SPI Upgrade Toolkit) version 2.0x helps you upgrade the WebLogic SPI to a higher version while retaining the customizations done on policies. During the WebLogic 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 WebLogic SPI using the SPI Upgrade Toolkit, follow the instructions defined in *HP Operations Smart Plug-in Upgrade Toolkit UNIX User Guide*.

Upgrading the WebLogic SPI on a Standalone HPOM 9.0x or 9.10 Server through HPOM Console

To upgrade the WebLogic SPI on a standalone HPOM 9.0x or 9.10 server, complete these tasks:

1   Rename the policy and tool group for WebLogic SPI from *SPI for WebLogic Server* to *SPI for WebLogic Server_OLD*. Rename both the Name and the Label (for example, *WLSSPI:TOOLS* to *WLSSPI:TOOLS_OLD*).

2   Deassign the policies or policy groups assigned to the node.

3   Kill the rmid and all Java processes started by the SPI on the node.

4   Delete the old policies, instrumentation, and datasources on the node manually. The existing data is deleted. Hence, take a backup of your existing data.

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

5   Install the WebLogic SPI by performing the steps in To Install the WebLogic SPI on page 29.

6   Configure the SPI by performing the steps in Chapter 3, Configuring the WebLogic SPI.

Install the New Report Package (Optional)

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

1   On the Windows system running HP Reporter, select **Settings** → **Control Panel** → **Add/Remove Programs**.

2   Select the WebLogic SPI report package and click **Remove**.

3   To install the WebLogic SPI report package, follow the steps given in Integrating with HP Reporter on page 95.

Install the New Graph Package (Optional)

•   If HP Performance Manager is running on a Windows system, remove older versions of the WebLogic SPI graph package and install the new WebLogic SPI graph package. To install the new graph package:

a   Select **Settings** → **Control Panel** → **Add/Remove Programs**.

b   Select the WebLogic SPI graph package (HP Operations SPI for WebLogic Server - Graphing Component Integration) and click **Remove**.

c   To install the WebLogic SPI graph package, follow the steps in Integrating with HP Performance Manager on page 98.

- If HP Performance Manager is running on a HP-UX system (not the HPOM management server):

  ▶   If HP Performance Manager is installed on the HPOM management server, the files are automatically updated when you install the SPI software.

  a   Run `swlist | grep WLSSPI-GRAPHS` to verify that the graph package is installed.

  b   Run `swremove WLSSPI-GRAPHS` if the graph package is installed.

  c   To install the WebLogic SPI graph package follow the steps in Integrating with HP Performance Manager on page 98.

- If HP Performance Manager is running on a Solaris system (not the HPOM management server):

  ▶   If HP Performance Manager is installed on the HPOM management server, the files are automatically updated when you install the SPI software.

  a   Run `/usr/bin/pkginfo HPOvSpiWlsG` to verify that the graph package is installed.

  b   Run `/usr/sbin/pkgrm HPOvSpiWlsG` if the graph package is installed.

  c   To install the WebLogic SPI graph package follow the steps given in section Integrating with HP Performance Manager on page 98.

3 Configuring the WebLogic SPI

This chapter explains how to configure the WebLogic SPI, complete all configuration prerequisites, configure the WebLogic SPI on managed nodes and the management server, and do additional configuration based on your environment.

Prerequisites

Log on to HPOM as an administrator. The Administration interface opens. Complete the following tasks before configuring the WebLogic SPI:

- Assign Operator Responsibilities
- Assign Tools to the Operator
- Verify the Application Server Status
- Collect WebLogic Login Information

Assign Operator Responsibilities

To assign operator responsibilities to the operator:

1   Log on to HPOM as an administrator (for example, as an administrator **opc_adm**).

2   Select **All Users** → **opc_adm**. The User "opc_adm" window appears.

3   To change a user's responsibility, select **Edit Responsibilities...** from the list as shown in the following figure:

4   Select all check boxes for WLSSPI and WebLogic Message Groups.

5   Assign the WLSSPI Node or Message Groups to other appropriate operators.

6   Click **Save**. Operator responsibilities will be assigned.

Assign Tools to the Operator

To assign tools to the operator:

1   Click **Browse** → **Tool Bank**. Under the Tool Bank window that appears, select the SPI for WebLogic Server tool group.

2   Select **Assign to User/Profile...** from the **Choose an Action** list and click ⏩ to submit. The Selector window appears.

3   Click **All Users** under the Selector window.

4   Select the operator to which you want to assign the tools.

5   Click **OK**. The WebLogic SPI tools are assigned to the operator.

Verify the Application Server Status

Check the status of WebLogic Servers in the WebLogic admin server console to verify if the application servers are running.

Figure 9   The WebLogic Admin Server console

Collect WebLogic Login Information

Collect the WebLogic login and password for each WebLogic Administration Server. If you do not want to use the existing login and password, create a new login and password. The WebLogic SPI discovery process uses the login and password to gather basic configuration information, and the WebLogic SPI data collector uses the login and password to collect metrics.

🚩   To simplify the WebLogic SPI configuration, keep the login and password for both WebLogic Servers and WebLogic Administration Servers similar.

WebLogic Server Version 9.x or Later

On WebLogic Server version 9.x or later, you can either log on as an administration user configured during installation of WebLogic Server or as a user that belongs to the WebLogic Administrators or Monitors group.

To configure a user belonging to Administrators or Monitors group, you must use the WebLogic administration server console. For more information about creating a user and assigning a user to a group, see Manage Users and Groups –

http://download.oracle.com/docs/cd/E13222_01/wls/docs100/ConsoleHelp/taskhelp/ security/ManageUsersAndGroups.html.

► A user that belongs to the Monitors group cannot use the Start WebLogic or Stop WebLogic tool to start or stop WebLogic Servers from the HPOM console. This user cannot perform the JMX call 'set' when implementing JMX actions to assign a value to a specified attribute for creating UDMs. For more information about JMX Actions, see *HP Operations Smart Plug-in for User Defined Metrics for UNIX User Guide*.

The WebLogic SPI Configuration from the Management Server

Complete the following tasks from the management server:

1   Add Nodes to the WebLogic Node Group

2   Assign Categories to the Managed Node

3   Deploy Instrumentation on the Managed Nodes

4   Run Discovery

5   Set Additional Properties

6   Verify the Discovery Process

7   Assign Policies to the Managed Nodes

8   Deploy the WebLogic SPI Policies

9   Run Configuration

10 Verify the WebLogic SPI Configuration

Add Nodes to the WebLogic Node Group

The WebLogic SPI automatically creates the WebLogic node group with preassigned policy groups. To place all nodes running WebLogic Server in this node group:

1   Open the All Node Groups window and select the WebLogic Node Group.

2   Select **Assign Nodes...** from the **Choose an Action** list and click ⏩ to submit.

The Selector window appears.
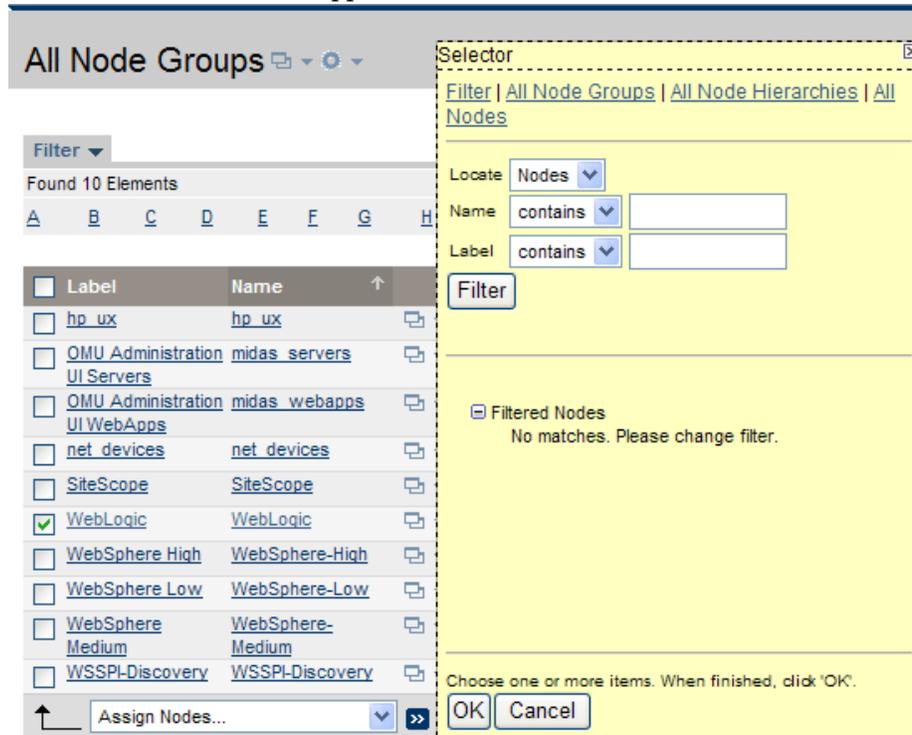
3   Click **All Nodes** under the Selector window.

4   Select the nodes running WebLogic Server.

5   Click **OK**. Selected nodes are added to the Node Group.

Assign Categories to the Managed Node

To assign categories to the managed node:

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

2   Select **Assign Categories...** from the **Choose an Action** list and click ⏩ to submit.

The Selector window appears.
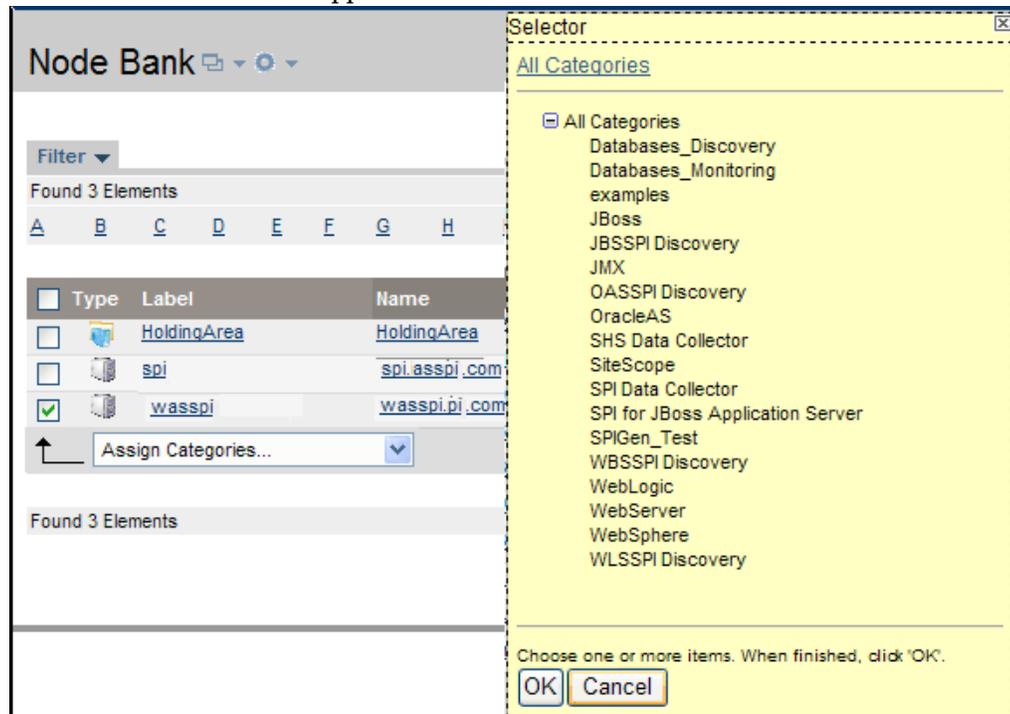
3   Select the **WebLogic, WLSSPI Discovery** (optional), **JMX, SHS_Data_Collector**, and **SPIDataCollector** instrumentation categories.

4   Click **OK**. The selected categories are assigned to the selected managed nodes.

Deploy Instrumentation on the Managed Nodes

To deploy instrumentation on the managed nodes:

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

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

3   Select **Distribute Instrumentation** by selecting the corresponding check box.

4   Click **OK**. Instrumentation is deployed on the selected nodes.

Run Discovery

To run discovery:

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 WLSSPI tool. To launch the WebLogic interfaces, see Launching WebLogic SPI interfaces on page 68.

3   Right-click a node and select **Start → SPI for WebLogic → SPI Admin → Discover or Configure WLSSPI**. The Tool Selector window appears.

4   Select the Launch Discover Tool button and click **OK**. By default, the Launch Configure Tool radio button is selected. The Introduction window appears.

5   Click **Next**. The Configuration Editor appears.

6 If you have already set the LOGIN, PASSWORD, HOME or BEA_HOME_LIST, and JAVA_HOME properties, go to the step 7.

   If you have not set the LOGIN, PASSWORD, HOME or BEA_HOME_LIST, and JAVA_HOME properties, perform the following steps to set these mandatory properties.

   ▶ Make sure that the LOGIN, PASSWORD, HOME or BEA_HOME_LIST, and JAVA_HOME properties are set since these are mandatory properties. In earlier versions of the SPI, only LOGIN and PASSWORD were mandatory properties.

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

      The Set Access Info for Default Properties window appears.
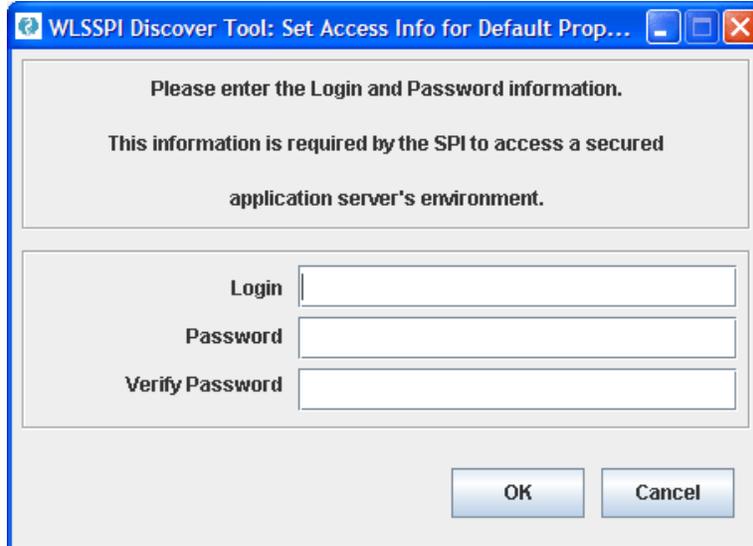
      Enter the username and password collected in Collect WebLogic Login Information on page 38. The LOGIN and PASSWORD properties are set according to this information.

      The LOGIN and PASSWORD properties set in this window are used as the default WebLogic 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 WebLogic login and password is used by the WebLogic SPI to log on to all WebLogic Admin Servers. For more information about the configuration structure, see Structure on page 123.

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

      If the WebLogic Admin Server login and password are different for different instances of WebLogic, you must customize the WebLogic 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 123) and click **OK**.

   b Select HOME or BEA_HOME_LIST from the **Select a Property to Set...** drop-down list and click **Set Property.** Set the value for HOME or BEA_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 Click **Next** to save any changes and exit the editor.

8   The Confirm Operation window appears. Verify the nodes on which the operation is to be performed. Click **OK**.

If you click **Cancel** and make changes to the configuration, the 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 WLSSPI tool, launch the Discover tool, click **Next** from the configuration editor, and then click **OK**.

> Wait for the discovery process to complete before going to the next task. The discovery process might take several minutes to complete.

Set Additional Properties

The LOGIN, PASSWORD, HOME or BEA_HOME_LIST, and JAVA_HOME properties are the basic properties needed by the discovery process. However, depending on your environment, you might need to provide additional configuration information.

You can set the configuration properties listed in Configuration Properties on page 133.

Setting Additional Properties

To set additional properties:

1   In the configuration editor, set the properties. For information about setting properties using the configuration editor, see Run Configuration on page 45.

2   Click **Next** to save changes and exit the editor. The Confirm Operation window appears.

3   Verify the nodes on which the operation is to be performed and click **OK**.

> Wait for the discovery process to complete before going to the next task. The discovery process might take several minutes to complete.

Verify the Discovery Process

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

1   Verify that the following message appears in the message browser for each managed node:

    WASSPI-302: WLSSPI Discovery is Successful

Depending on the number of managed nodes in your environment, it could 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 WebLogic service.

The following figure shows a snapshot of the Service Map as it appears after successful discovery. Using the Service Map, you can find out the tool that has a problem (if any). The lines in the Service Map are color coded to show various levels of severity. For example, red lines show that the tool has critical problems.

Figure 10 Service Map
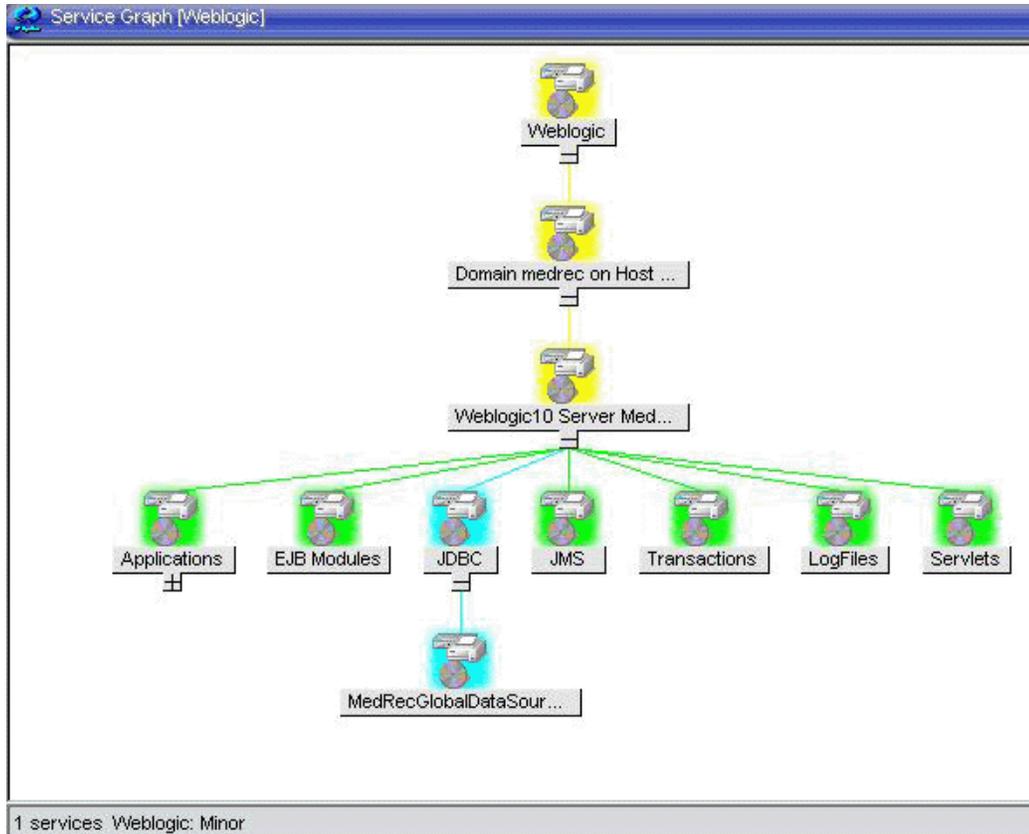
If the service map is not displayed in the Operational UI, type the following command to assign the services to the operator:

opcservice -assign *<operator> <service>*

For example: **opcservice -assign opc_adm <service>**

3   Launch the **Discover or Configure WLSSPI** tool to verify the properties set by the discovery process. For more information about the configuration editor, see Run Configuration on page 45.

Assign Policies to the Managed Nodes

To assign policies to the managed node:

1   Open the Node Bank window and select the managed node.

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

3   Click **Policy Bank**.

4   Select the policies you want to assign to the managed node from the **SPI for WebLogic Server** policy group.

5   Click **OK**. The selected policies are assigned to the selected nodes.

Deploy the WebLogic SPI Policies

To deploy the WebLogic SPI policies:

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

2 Select **Deploy Configuration...** from the **Choose an Action** list and click ⏩ to submit.
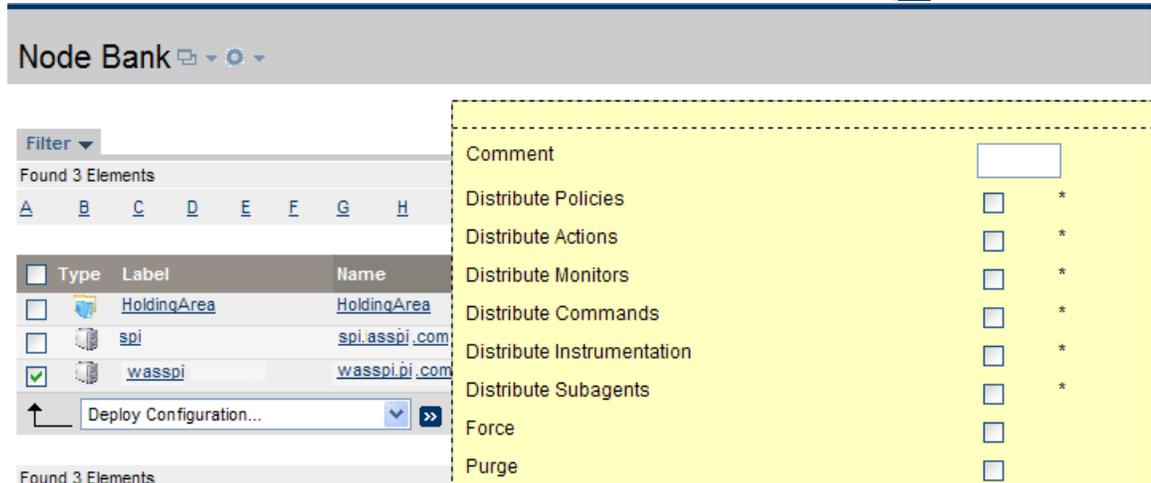
3 Select **Distribute Policies** by selecting the corresponding check box.

4 Click **OK**.

After the policies are deployed, the monitors can now run according to their specific collection interval.

▶ For information on integrating the WebLogic SPI with HP Reporter for generating WebLogic Server reports that show consolidated information, see Chapter 6, Integrating the WebLogic SPI with HP Reporting and Graphing Solutions.

Run Configuration

To run configuration:

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

2 Select one or more nodes on which you want to launch Discover or Configure WLSSPI tool. To launch the WebLogic interfaces, see Launching WebLogic SPI interfaces on page 68.

3 Right-click a node and select **Start → SPI for WebLogic → SPI Admin → Discover or Configure WLSSPI**.

The Tool Selector window appears.

4 Click **OK**. By default, the Launch Configure Tool button is selected. The Introduction window appears.

5 Click **Next**. The Configuration Editor appears.

▶ Make sure that the LOGIN, PASSWORD, HOME or BEA_HOME_LIST, and JAVA_HOME properties are set. You cannot proceed to the next window if the required properties are not set. See step 6 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...** list. Then click **Set Property**, and set the value for the property. For more information on how to use the configuration editor, see Appendix B, 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 WebLogic SPI on the managed node.

➤ If you click **Cancel**, the changes made by you are not saved to the selected managed nodes' and remain in the configuration on the management server.

For more information about the configuration structure, see Structure on page 123.

Verify the WebLogic SPI Configuration

Launch the Verify tool to verify that the files required for the functioning of the SPI (such as instrumentation, configuration and library files) are properly deployed. For more information about the Verify tool, see Verify on page 61.

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

2   Select the node(s) on which you want to launch the Verify tool.

3   Right-click on the node(s) and select **Start → SPI for WebLogic Server → SPI Admin → Verify**. The Verify Output window appears.

Additional Configuration

Based on your WLS server configuration and application needs, you can set additional configuration properties, and install and configure additional components to finish the WebLogic SPI configuration.

Conditional Properties

You may have to set one or more of the following conditional properties (these properties are not automatically discovered by the discovery process). For more information about the properties, see Configuration Properties on page 133.

Setting Conditional Properties

To set conditional properties, see Run Configuration on page 45.

If you have added an application server or added/edited the HOME or PORT properties, run the Discover or Configure WLSSPI tool (Run Discovery on page 41) on the managed nodes on which the application server/properties were added or edited. Running Discovery updates the service map.

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

➤ 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 end of the download page (**http://www.sudo.ws/sudo/download.html**). See the release notes for more information about Sudo installation.

1 Switch the HTTPS agent to a non-root user. For more information, see the *HP Operations HTTPS Agent Concepts and Configuration Guide for the HP-UX and Sun Solaris Management Server Operating Systems.*

2 On the managed node, set the OV_SUDO variable and log on as `root` or HP Operations agent user. Follow these steps:

   a   Run the following command to stop all HP Operations agents:

   opcagt -kill

   b   Run the following command to set the OV_SUDO variable:

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

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

   c   Run the following command to start the HP Operations agents:

   opcagt -start

   d   Run the following command to verify that OV_SUDO is set:

   ovdeploy -cmd set | grep SUDO

   The following message appears:

   OV_SUDO=*<sudo_program>*

3 Configure the managed node. The following 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 a node on which you want to launch the Init Non-Root tool.

   d   Right-click a node and select **Start → SPI for WebLogic Server → SPI Admin → Init Non-Root**. The Init Non-Root Output window appears.

4 Edit the `/etc/sudoers` file using the visudo editor (installed with Sudo):

   a   On the managed node, log on as **root**.

   b   Open the /*<SPI_Config_DIR>*/`wasspi_wls_sudoers` file.

   <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 121.

   c   Run the `visudo` command in a separate window (for example, type: **/usr/local/sbin/visudo**).

   d   Copy the following lines from the `wasspi_wls_sudoers` file and append the lines to the `sudoers` file:

```
          Cmnd_Alias WLSSPI_ADMN = /opt/OV/nonOV/perl/a/bin/perl -S wasspi_admin
          *
          Cmnd_Alias WLSSPI_COLL = /opt/OV/nonOV/perl/a/bin/perl -S wasspi_ca *
          Cmnd_Alias WLSSPI_DISC = /opt/OV/nonOV/perl/a/bin/perl
          wasspi_wls_discovery.pl
          Cmnd_Alias WLSSPI_LFEN = /opt/OV/nonOV/perl/a/bin/perl -S wasspi_wls_le
          *
          Cmnd_Alias WLSSPI_SHSC = /opt/OV/nonOV/perl/a/bin/perl -S
          shs_collector.pl *

          Cmnd_Alias WLSSPI_ADMNP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_admin *
          Cmnd_Alias WLSSPI_COLLP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_ca *
          Cmnd_Alias WLSSPI_DISCP = /opt/OV/nonOV/perl/a/bin/perl \
          /var/opt/OV/bin/instrumentation/wasspi_wls_discovery.pl
          Cmnd_Alias WLSSPI_LFENP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/wasspi_wls_le *
          Cmnd_Alias WLSSPI_SHSCP = /opt/OV/nonOV/perl/a/bin/perl -S \
          /var/opt/OV/bin/instrumentation/shs_collector.pl *
          <OV_Agent_username> <nodename> = NOPASSWD: WLSSPI_ADMN, WLSSPI_COLL, \
          WLSSPI_DISC, WLSSPI_LFEN, WLSSPI_SHSC, WLSSPI_ADMNP, WLSSPI_COLLP, \
          WLSSPI_DISCP, WLSSPI_LFENP, WLSSPI_SHSCP
```

where *<OV_Agent_username>* is the HP Operations agent user account and *<nodename>* is the name of the managed node.

  e Type **wq** to save the file and exit the visudo editor.

▶ Repeat steps 3 and 4 every time the agent user is switched.

Configuration in High Availability Environments

High availability is a general term used to characterize environments that are business-critical and therefore are protected against downtime. Very often, cluster systems are used to reach high availability.

You can configure the WebLogic SPI to accommodate cluster environments where failovers enable uninterrupted WLS availability. The WebLogic SPI monitoring, when synchronized with the cluster environment, can switch off from the failed node to the active node.

Prerequisites

The prerequisites for using the WebLogic SPI in high availability environments are:

- Management Server: HP-UX or Linux

- Node: HP-UX MCSG cluster, Veritas cluster (applicable only for WebLogic server version 10.x)

- HPOM 8.xx HTTPS Agent version (for details, see the Agent cluster support matrix)

Configuring the WebLogic SPI for High Availability Environments

Complete the following tasks:

- Create the WebLogic SPI monitoring configuration file
- Create the clustered application configuration file
- Configure the WebLogic SPI

Create the WebLogic SPI monitoring configuration file

The WebLogic SPI uses a monitoring configuration file `<appl_name>.apm.xml` that works in conjunction with the clustered application configuration file.

▶ *<appl_name>* is the namespace_name. For more information, see *HP Operations for UNIX HTTPS Agent Concepts and Configuration Guide*.

The `<appl_name>.apm.xml` file lists all the WebLogic SPI policies on the managed node so that you can disable or enable these policies as appropriate, for inactive and active managed nodes.

To create this clustered application configuration file for your WLS environment:

1 Use the following syntax to create the `<appl_name>.apm.xml` file:

```
<?xml version="1.0"?>
<APMApplicationConfiguration>
    <Application>
        <Name> ... </Name>
        <Template> ... </Template>
        <StartCommand>wasspi_perl -S wasspi_clusterSvrApp -opt startMonitor
        $instancename</StartCommand>
        <StopCommand>wasspi_perl -S wasspi_clusterSvrApp -opt stopMonitor
        $instancename</StopCommand>
    </Application>
</APMApplicationConfiguration>
```

2 Enter the namespace_name under the <Name></Name> tag.

3 After the file is created, save it in the `$OvDataDir/bin/instrumentation/conf` directory.

Sample wlsspi.apm.xml file

```
<?xml version="1.0"?>
<APMApplicationConfiguration>
    <Application>
        <Name>wlsspi</Name>
        <Template>WLSSPI Java Discovery Error Log</Template>
        <Template>WLSSPI Java Collector Error Log</Template>
        <Template>WLSSPI Error Log</Template>
        <Template>WLSSPI-Logfile-Monitor</Template>
        <Template>WebLogic Log Template</Template>
        <Template>WLSSPI-05min</Template>
        <Template>WLSSPI-15min</Template>
        <Template>WLSSPI-1h</Template>
        <Template>WLSSPI-ConfigCheck</Template>
        <Template>WLSSPI-Performance</Template>
```

```
        <StartCommand>wasspi_perl -S wasspi_clusterSvrApp -opt startMonitor
$instanceName</StartCommand>
        <StopCommand>wasspi_perl -S wasspi_clusterSvrApp -opt stopMonitor
$instanceName</StopCommand>
    </Application>
</APMApplicationConfiguration>
```

▶ <appl_name>.apm.xml is dependent on the application namespace. It is not dependent on
the instance level. Therefore, the start and stop actions are provided with the associated
instance name as their first parameter when they are executed at package switch time. The
environment variable *$instanceName* is set by ClAw when start or stop tasks are performed.

Create the clustered application configuration file

The clustered application configuration file apminfo.xml, working in conjunction with the
<appl_name>.apm.xml file of the WebLogic SPI, enables you to associate the WebLogic SPI
monitored instances with cluster resource groups. As a result, when you move a resource
group from one node to another, in the same cluster, monitoring stops on the failed node and
starts on the new node.

To create the clustered application configuration file apminfo.xml:

1   Use a text editor to create the file. The syntax is:

```
<?xml version="1.0" ?>
<APMClusterConfiguration>
    <Application>
        <Name>namespace_name</Name>
        <Instance>
          <Name><Instance Name></Name>
          <Package><Package Name></Package>
        </Instance>
    <Application>
</APMClusterConfiguration>
```

2   Enter namespace_name under the <Name></Name> tag.

3   Save the apminfo.xml file to the $OvDataDir/conf/conf directory.

Sample apminfo.xml file

```
 <?xml version="1.0" ?>
 <APMClusterConfiguration>
    <Application>
        <Name>wlsspi</Name>
        <Instance>
          <Name>MedRecServer</Name>
          <Package>ClusterService</Package>
        </Instance>
    </Application>
</APMClusterConfiguration>
```

Configure the WebLogic SPI

To configure the WebLogic SPI:

1   Deploy instrumentation files on the target cluster nodes. For information on deploying
    instrumentation files, see Deploy Instrumentation on the Managed Nodes on page 41.

2   Launch the Discover or Configure WLSSPI tool with the active cluster node as the target.
    For information on launching the discovery tool, see Run Discovery on page 41.

3   Launch the Discover or Configure WLSSPI tool with the active cluster node as the target.
    For information on launching the configure tool, see Run Configuration on page 45.

4   Deploy all the required policies on the active node. For information on deploying the
    policies, see Deploy the WebLogic SPI Policies on page 45.

5   Repeat steps 2, 3 and 4 on the passive node. To perform these steps on the passive node,
    you must failover to the passive node (for WebLogic AS to be available).

Discovery of WebLogic Portal Servers

The WebLogic SPI discovers and monitors WebLogic Portal Servers.

The WebLogic SPI directly discovers WebLogic Portal Servers along with the Application
server instances, if the login credentials are same for Application server and Portal server
instances.

If the login credentials for Application server instance and Portal Server instance are
different, run the discovery twice using the two different credentials.

To run the discovery, follow these steps:

1   Set the credentials for Application server instance, and run the discovery.

2   Take a backup of the resulting `SiteConfig` file. The SiteConfig file is located in `</var/opt/OV/wasspi/wls/conf/SiteConfig>` directory, on the nodes.

3   Set the credentials for Portal Server instance, and run the discovery.

4   Merge the contents of the backed up SiteConfig with the newly generated SiteConfig.

JMX Metric Builder can be used to browse and create metrics for Portal Mbeans, after the
discovery of WebLogic Portal Servers. For more information, see *HP Operations Smart Plug-in
for User Defined Metrics for HP-UX, Linux, and Solaris.*

Discovery and Configuration Scenarios

This section includes examples of some common scenarios.

Use Case 1: Administration Port Turned On (WebLogic Servers are Running in HTTPS Mode)

If the Administration Port is enabled for the WebLogic Servers, there are two discovery
scenarios:

Scenario 1: The WebLogic admin server is running on t3s (HTTPS) and the WebLogic Servers associated with it is running on t3 (HTTP)

Discovery

To launch discovery:

1   Launch Discover or Configure WebLogic SPI. See Run Discovery on page 41.

2   In the configuration editor, set the ADMIN_PORTS property. ADMIN_PORTS is the SSL port on which the application server is listening.

▶   If the WebLogic Admin server is running on a virtual IP (in a non-clustered environment), you must specify the virtual IP address when setting the ADMIN_PORTS property. Set ADMIN_PORTS value to *<ip address>*:port. For information about configuration in clustered environment, see Configuration in High Availability Environments on page 48.

3   Set the PROTOCOL property to **t3s** (t3s is the default value for PROTOCOL). PROTOCOL specifies if the application server port is using SSL or non-SSL.

4   If required, set the PASSPHRASE and KEYSTORE properties. Click **Next** to run discovery on the selected nodes.

   KEYSTORE is the path to the SSL trust keystore file.

   PASSPHRASE is the password that you set for the KEYSTORE in the SSL environment of the WebLogic Admin server.

   For more information about setting the properties see Configuration Properties on page 133.

▶   The properties KEYSTORE, PASSPHRASE, and PROTOCOL can be set at any level (global, group, node, or server). PROTOCOL is required if you use SSL. You must set KEYSTORE and PASSPHRASE only if you use a keystore and passphrase in your SSL environment.

Configuration

After Discovery is successful:

1   Launch the Discover or Configure WLSSPI tool (for instructions on launching this tool see Run Configuration on page 45).

2   In the configuration editor set the value of the PROTOCOL property to **t3** for the WebLogic Servers.

   ▶   If you do not change the value of PROTOCOL property for the WebLogic Servers to t3, PROTOCOL will take up the default value (t3s) set for the Admin Server. For more information about configuration property precedence, see Configuration Properties on page 133.

3   Create a Monitor user in BEA under the active Security Realm.

4   Set the SERVER_LOGIN and SERVER_PASSWORD properties similar to the credentials set for the Monitor user.

5   Repeat steps 1 through 4 for every instance of WebLogic Server.

Scenario 2: The WebLogic admin server as well as the WebLogic Servers associated with it is running on t3s (HTTPS):

To run discover and configuration:

1   Run Discover or Configure WebLogic SPI and set the properties as mentioned in Scenario 1.

2   After Discovery is successful:

    a   Launch the Discover or Configure WLSSPI tool (for instructions on launching this tool, see Run Configuration on page 45).

    b   Set the PROTOCOL property to the default value **t3s**.

    c   Create a Monitor user in BEA under the active Security Realm.

    d   Set the SERVER_LOGIN and SERVER_PASSWORD properties similar to the credentials set for the Monitor user.

    e   Repeat steps a to d for every instance of the WebLogic Server.

Use Case 2: Administration Port Not Turned On (WebLogic Application Server is Running on a Virtual IP)

If the WebLogic Server is running on a virtual IP, and the Administration Port is not turned on, follow these steps to run discovery:

1   Launch Discover or Configure WebLogic SPI. See Run Discovery on page 41.

2   In the configuration editor, set the NODE_NAMES and ADDRESS properties.

3   Click **Next**. The Confirm Operation window appears.

4   Click **OK** to run discovery on the selected managed nodes.

> ➤ For information about configuration in clustered environment, see Configuration in High Availability Environments on page 48.

Discovery and Collection in WebLogic Server Domains

A WebLogic Server administration domain is a logically related group of WebLogic Server instances. Domains include a special WebLogic Server instance called the Administration Server, which is the focal point from which you can configure and manage all server instances in the domain. You can use this Administration Server to configure and manage the domain.

When you configure a domain, there is addition of WebLogic Server instances called Managed Servers. You can deploy Web applications, EJBs, Web Services, and other resources onto the Managed Servers. The domains enable multiple functions such as dedicated service-related systems, basic clustering and caching support, including failover support and workload balancing.

A typical domain is constituted by the Administration Server, stand-alone Managed Servers, and/or a cluster of Managed Servers. The following figure illustrates the content of a domain:

Figure 11 WebLogic Domain Content
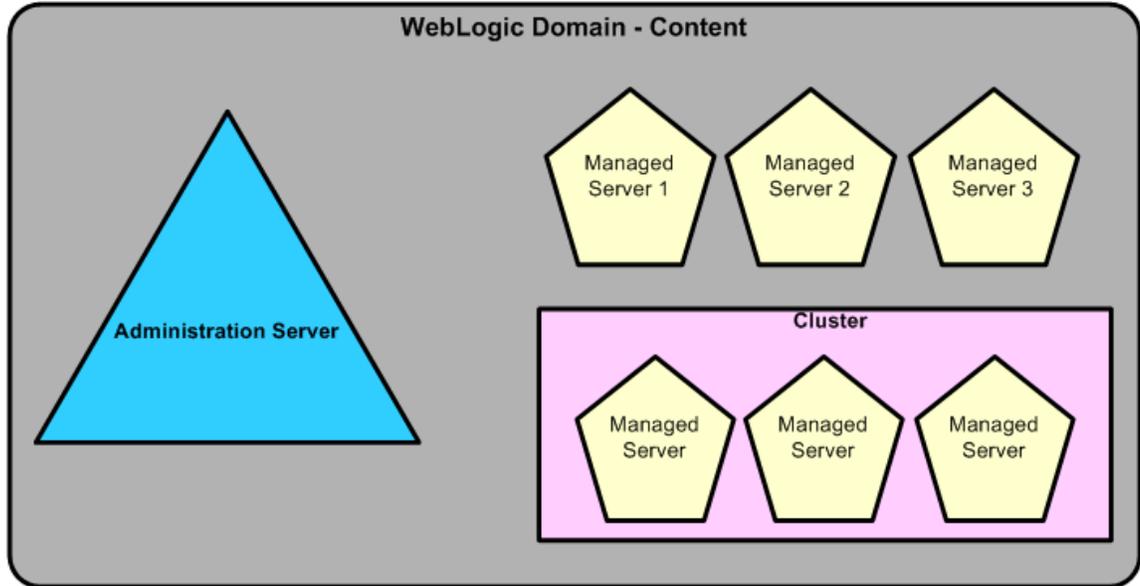
For more information on the domain's configuration, see WebLogic documentation at **http://download.oracle.com**

Discovery in the WebLogic Domain Scenario

In a WebLogic Domain scenario, the WebLogic SPI discovery process performs the following functions:

- Discovers the Administration Server, managed servers and clusters and populates the SiteConfig file on the HPOM management server with information about them.

▶ The WebLogic SPI instrumentation files and policies are deployed only on the Administration Server.

Collection in the WebLogic Domain Scenario

In a WebLogic Domain scenario, the WebLogic SPI collection process performs the following functions:

- The SPI Collector will collect the WebLogic SPI metrics for all the servers configured in the SiteConfig file.

Integrating with CODA

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

If you want to use the HP Operations subagent, CODA, included with OVO 7.x and later, you must configure the managed nodes to do so. This configuration does not support 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	`/var/opt/OV/conf/dsi2ddf/`
Windows	`\usr\ov\conf\dsi2ddf\`

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

2   Save the empty file.

4 Using Tools

The WebLogic SPI offers centralized tools, which help you to monitor and manage systems using the WebLogic application server and configure the management server's connection to selected server instances on specific managed nodes. The WebLogic SPI tools include configuring, troubleshooting, and report-generating utilities.

Overview

In the Tool Bank window, the WebLogic SPI tools comprise the following WebLogic SPI tool groups:

- WebLogic Admin (WLSSPI:ADMIN)
- Metric Reports (WLSSPI:REPORTS)
- SPI Admin (WLSSPI:SPI_ADMIN)
- JMX Metric Builder: This tool group is available only if you install the SPIJMB software.

Figure 12 Elements in Tool Group "SPI for WebLogic Server"
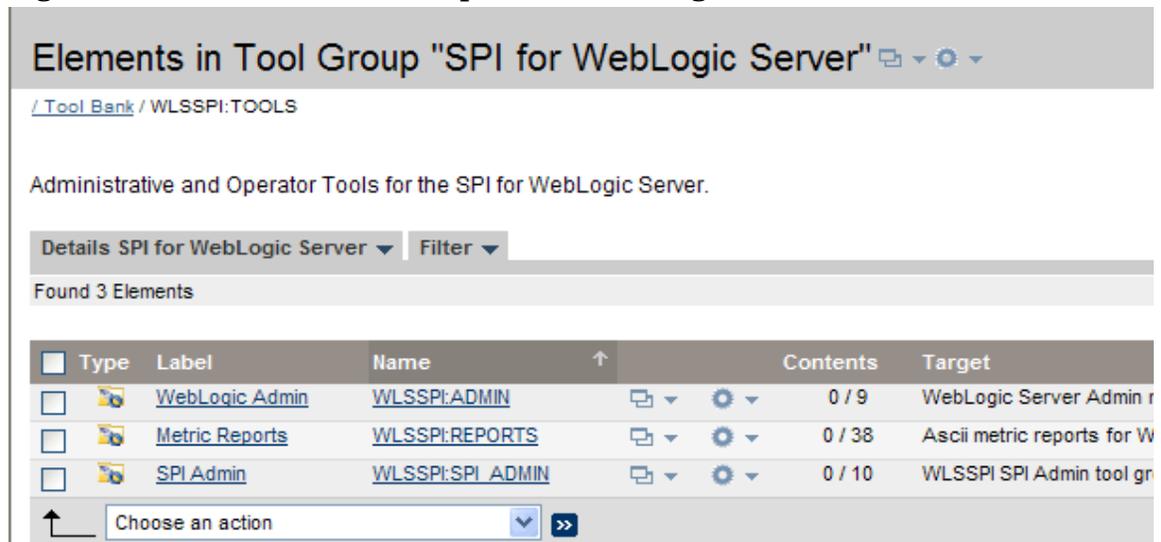
SPI Admin Tools Group

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

To access the SPI Admin tools, in the Tool Bank window, click **WLSSPI:TOOLS g WLSSPI:SPI_ADMIN.**

Figure 13 SPI Admin tools

The SPI Admin tools group contains the following tools:

- Discover or Configure WLSSPI

- Init Non-Root

- Self-Healing Info

- Start Monitoring

- Stop Monitoring

- Start Tracing

- Stop Tracing

- Verify

- View Error File

- View WLSSPI Graphs

Discover or Configure WLSSPI

You can run either discovery or configuration using the Discover or Configure WLSSPI tool.

The Discover or Configure WLSSPI tool launches the configuration editor. It enables you to identify instances of a WebLogic application server on a managed node from the HPOM console (on selecting Launch Discover Tool option) or maintain the WebLogic SPI configuration by viewing, editing, or setting configuration properties in the configuration editor (on selecting the Launch Configure Tool).

Function

The Configure tool performs the following functions:

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

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

Configuration information about all the WebLogic application servers running on all managed nodes is maintained on the management server. In addition, every managed node maintains information about WebLogic application servers running on that node.

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

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

Init Non-Root

The Init Non-Root tool simplifies the configuration of a non-root HTTPS agent on a UNIX managed node. For information about configuring a non-root HTTPS agent on a UNIX managed node, see Configuring a Non-Root HTTPS Agent on a UNIX Managed Node on page 47.

Function

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

1 Runs the wasspi_perl -S wasspi_initnonroot.pl -prod wls force command to set the proper SPI path.

2 Generates the `wasspi_perl_su` file.

Self-Healing Info

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

Setup

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

1 Run the Start Tracing tool. For more information, see Start Tracing on page 60.

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_wls_support.tar`
  — on a Windows managed node: `wasspi_wls_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.

Start Monitoring

This tool starts the WebLogic SPI from collecting metrics from an application server.

The WebLogic SPI collects metrics to get performance or availability data. Metrics are also used to create reports (automatically or manually generated) and graphs. These reports and graphs are used to analyze trends in server usage, availability, and performance.

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

Function

The Start Monitoring tool starts the collection of metrics for one or all application servers on a managed node.

Stop Monitoring

This tool stops the WebLogic SPI from collecting metrics from an application server. Typically, you would 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.

Function

The Stop Monitoring tool stops the collection of metrics for one or all application servers on a managed node.

Start Tracing

This tool logs information on all SPI activities on the managed node. Launch this tool only when instructed by your HP support representative. These files contain data that the HP support representative uses.

Function

Start Tracing saves information about each activity performed by the SPI into a file.

Stop Tracing

This tool stops logging the information on each of the activity performed by the SPI on the managed node.

Function

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

Verify

You can launch this tool to verify whether the files required for the functioning of the SPI (such as instrumentation, configuration and library) are deployed.

Function

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

View Error File

The Verify Error File tool enables to view the contents of the WebLogic SPI error log file.

Function

The View Error File tool displays the contents of the WebLogic SPI error log file <OV_AGT_DIR>`/log/wlsspi/wasspi_perl.log`, where <OV_AGT_DIR> typically is:

- `/var/opt/OV` on UNIX managed nodes
- `\Program Files\HP\HP BTO Software\` on Windows managed nodes.

View WLSSPI Graphs

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

Setup

Before running the View Graphs tool:

1   Install the HP Performance Manager.
2   Configure Mozilla or Netscape browser on the HP Operations Manager for UNIX.

Function

The View Graphs tool launches a web browser to display HP Performance Manager graphs generated by the WebLogic SPI metric data.

WebLogic Admin Tools Group

You can manage WebLogic application server functions by using the tools in the WebLogic Admin (WLSSPI:ADMIN) tools group.

To access the tools in the WebLogic Admin tools group, in the Tool Bank window, click **WLSSPI:TOOLS g WLSSPI:ADMIN**.

Figure 14   WebLogic Admin Tool Group

The WebLogic Admin tool group consists of the following tools:

- Check WebLogic
- Start WLS Console
- Start WebLogic
- Stop WebLogic
- View Deployed Apps
- View WebLogic Log
- View WebLogic Servers
- View Application Activation Status
- View Application Timeout

Check WebLogic

You can use this tool to check the status of each WebLogic application server running on a selected managed node.

Function

The Check WebLogic tool displays the following information for each WLS server on the selected nodes:

Information	Description
Server Name	The server name as defined in the WebLogic application server.
State	The status of the WebLogic application server.
Listen Address	The name and IP address used to listen for incoming connections.
Health State	Numerical representation of the current state of the WebLogic application server.
Health State String	What the WebLogic application server is reporting using self-health monitoring.

If the WebLogic SPI is configured to not collect metrics for the WebLogic application server, the following message appears:

```
Collection is temporarily OFF for <server_name>
```

Start WLS Console

You can use the Start WLS Console tool to launch the WLS Administration Server console from the HPOM console. You can bring up the console for one or more instances of application servers on the selected managed nodes.

Setup

- The ADMIN_HOST and ADMIN_PORTS configuration properties must be set before this tool can run successfully.

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

Function

The Start WLS Console tool launches the WebLogic Administration Server console, in a web browser, for one or more instances of application servers on the selected nodes.

Start WebLogic

You can use the Start WebLogic tool to start the WebLogic application servers from the HPOM console. You can start one or more instances of application servers running on the selected managed nodes without logging on to each WebLogic administration server.

Setup

The START_CMD, STOP_CMD, and USER configuration properties must be set before launching this tool. To set this property, run the Configure tool and select WLS application servers displayed in the left pane. Set the preceding configuration properties for each WLS application server.

Function

The Start WebLogic tool starts one or more instances of application servers on the selected managed nodes.

Stop WebLogic

You can use the Stop WebLogic tool to stop the WebLogic application servers from the HPOM console. You can stop one or more instances of application servers running on the selected managed nodes without logging on to each WebLogic administration server.

Setup

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

Function

The Stop WebLogic tool stops one or more instances of application servers on the selected managed nodes.

View Deployed Apps

You can use the View Deployed Apps tool to view applications running on a WebLogic application server instance without logging on to the system on which the WebLogic application server is running.

Function

The View Deployed Apps tool displays the following information for each WebLogic application server instance on the selected managed node (the WLS Version column denotes information based on the WebLogic application server version):

Information	WLS Version	Description
Application	9.x, 10.x	The application instance.
Name	9.x, 10.x	The name of the application.
Version	9.x, 10.x	The application version (if the application is not versioned, "null" is displayed).
Module Type	9.x, 10.x	The J2EE module type such as CAR, EAR, EJB, RAR, or WAR.

View WebLogic Log

You can use the View WebLogic Log tool to view WebLogic application server log files without logging on to the system on which the WebLogic application server is running.

Function

The View WebLogic Log tool displays the following information:

- View WebLogic Log without a parameter: a numbered list of available log files for the managed node.

- View WebLogic Log with a non-valid parameter (a non-numeric value or a number not corresponding to the list of available log files): a numbered list of available log files for the managed node.

- View WebLogic Log with a valid parameter: the contents of the corresponding log file for the managed node.

You can enter only one numeric value in the parameter field. You will be able to view the log file designated to this number (for all selected managed nodes). Each time you launch this tool select one log file on one managed node to view.

View WebLogic Servers

You can use the View WebLogic Severs tool to view the WebLogic domain configuration, cluster information, and physical machines without logging on to the system on which the WebLogic Server is running.

Function

The View WebLogic Servers tool displays the following information for each WLS Server instance on the selected managed node (Based on the WebLogic application server version, the WLS Version column denotes the information):

Information	WLS Version	Description
Domain	9.x, 10.x	The WebLogic domain instance.
Admin Server	9.x, 10.x	The name of the WebLogic administration server instance.
Version	9.x, 10.x	The release identifier for the configuration.
Server	9.x, 10.x	The WebLogic Server instance.
Name	9.x, 10.x	The name of the server instance. This is the name displayed in the Administration Console and is used to identify the server.
Listen Port	9.x, 10.x	The default TCP port that the WebLogic Server instance uses to listen for regular (non-SSL) incoming connections.
Listen Address	9.x, 10.x	The IP address or DNS name the WebLogic Server instance uses to listen for incoming connections.
Cluster	9.x, 10.x	The cluster instance.
Name	9.x, 10.x	The user-specified name of the cluster instance.
Type	9.x, 10.x	How clustered servers send data for optimization of cross-cluster replication such as man (metro area network), wan, or none.
Address	9.x, 10.x	The address used by clients to connect to the cluster and what is used for generating EJB handles and entity EJB failover addresses.
Multicast Address	9.x, 10.x	The address used by cluster members to communicate with each other.
Machine	9.x, 10.x	The machine instance.
Name	9.x, 10.x	The user-specified name of the machine instance.

View Application Activation Status

You can use the View Application Activation Status tool to view the activation status of the applications deployed and running on a WebLogic application server instance, without logging on to the system on which the WebLogic application server is running.

Setup

Before launching the View Application Activation Status tool, set the following value for the configuration property URL_PATH
`/jndi/weblogic.management.mbeanservers.domainruntime.` For information on configuration properties, see Configuration Properties on page 133.

Function

The View Application Activation Status tool gives the following information for each WebLogic application server instance on the selected managed node. The information given in the Description column is dependent on the WebLogic application server version.

Table 4   Application Activation Status Information

Information	WLS Version	Description
AppRuntimeStateRuntime	9.x, 10.x	AppRuntimeStateRuntime MBean.
Application ID	9.x, 10.x	Serial Number for the Application ID (generated by the SPI).
Application-ID	9.x, 10.x	The name of the application.
Is Active?	9.x, 10.x	If "`true`" is displayed in this field, the application is active. If "`false`" is displayed, the application is inactive.

View Application Timeout

The View Application Timeout tool enables you to view the time left before retiring applications, deployed and running on a WLS instance. You can view the time left without logging in to the system on which the WebLogic application server is running.

Setup

Before launching the View Application Timeout tool, set the following value for the configuration property URL_PATH
`/jndi/weblogic.management.mbeanservers.domainruntime.` For information on configuration properties, see Configuration Properties on page 133.

You can use the View Application Timeout tool to get the following information for each WebLogic application server instance on the selected managed node. The information given in the Description column is dependent on the WebLogic application server version.

Table 5   Application Timeout Information

Information	WLS Version	Description
AppRuntimeStateRuntime	9.x, 10.x	AppRuntimeStateRuntime MBean.
Application ID	9.x, 10.x	Serial Number for the Application ID (generated by the SPI).
Application-ID	9.x, 10.x	The name of the application.
Time Left to Retire	9.x, 10.x	The amount of time the application is given to retire (This returns the value "-1" if only one version of the application exists on the server and no timeout is set for the applications).

Metric Reports

The Metric Reports group contains reports that show information about the WebLogic application server conditions. To access the metric reports, in the Tool Bank Window click **WLSSPI:TOOLS → WLSSPI:REPORTS**.

Figure 15 Metric Reports

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

Tool Bank Reports Generated from Alarms

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

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 or stops data collection for UDM graphs. Also starts or 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*.

Launching Tools

This section describes how you can launch the tools for the WebLogic SPI. The steps in Launching Discover or Configure WLSSPI tool describe how you can launch the Discover or Configure WLSSPI tool. The steps in Launching All Tools describe how you can launch all the other tools.

Launching WebLogic SPI interfaces

To launch the interfaces related to the WebLogic SPI:

1   Install X-windows client software on the machine from which you will launch the HPOM for UNIX 9.0x or 9.10 server Operator interfaces.

2   Start the X-windows client software.

Launching Discover or Configure WLSSPI tool

See Run Discovery on page 41, and Run Configuration on page 45 to know how to launch the Discover or Configure WLSSPI tool.

Launching All Tools

To launch tools:

1   From the Administration interface, select **Integrations g HPOM for Unix Operational UI**.

2   Select one or more nodes on which you want to launch the tool.

3   Right-click a node and select **Start g SPI for WebLogic g <Tool Group> g <Name of the Tool>**.

The *<Name of the Tool>* Output window appears.

5 Customizing the WebLogic SPI Policies

This chapter details the policies of WebLogic SPI and also describes how to configure them.

Overview

The SPI for WLS policy group consists of the following policy groups:

- WLSSPI
- WLSSPI Discovery

Figure 16 SPI for WebLogic Server Policy Group

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

Figure 17   WLSSPI Policy Group

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

Figure 18   WLSSPI-Logfiles Policy Sub-group

- **WLSSPI-Metrics** – Contains metric policies that monitor the performance levels and availability of a WebLogic Server.

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

- **WLSSPI-Monitor** – 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 WLSSPI-1h is one hour (where 1h represents one hour). Each collector policy is assigned a collection interval of 5 minutes, 15 minutes, or one hour.

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

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

— Runs the collector or analyzer at each collection interval

— Specifies which metrics are collected

Figure 19 WLSSPI-Monitors Policy Sub-group

- **WLSSPI-Messages** – This is a single policy. It intercepts the WebLogic SPI messages for the HPOM message browser.

The WLSSPI Discovery policy group contains the following policy sub-groups and individual policies:

Figure 20 WLSSPI Discovery Policy Group

- **WLSSPI-Messages**– This is a single policy. It intercepts the WebLogic SPI messages for the HPOM message browser.

- **WLSSPI Service Discovery** – This is a single policy. It updates the configuration on the HPOM management server and managed nodes.

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

Basic Policy Customizations

Based on your environment, you can customize some of the default WebLogic SPI policies. 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 before you start customizing the policies.

Modifying Metrics Policies

To modify metric attributes for all monitored instances of WebLogic Server::

1 Open the Policy Bank window.

2 Click **SPI for WebLogic Server** →**WLSSPI** →**WLSSPI-Metrics** policy group.

3 Select a metric and click **Edit...** from the list. The list appears when you click [gear icon].

4 The Edit Measurement_Threshold Policy "*Metric Name*" window appears.

5 Click the **Thresholds** tab and then click the condition you want to modify.

6 Click the different tabs (**Threshold**, **Start Actions**, **Continue Actions**, and **End Actions**) and modify the attributes. See Table 6 for a list of attributes that you can modify.

7 Click **Save** to save the changes.

8   Deploy the modified policy as described in Deploy the WebLogic SPI Policies on page 45.

Table 6   Metric Attributes

Attributes	Description
Threshold	The value which, when exceeded, signifies a problem either about to occur or already occurring.
Duration	The length of time for which the established threshold can be exceeded by the incoming data values for a metric before an alarm is generated.
Severity	The level you can assign to a message based on its importance in your environment. Click the **Start Actions** tab and then the **Message** tab. Select the desired severity setting from the **Severity** drop-down list.
Message Text	A 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. **Note:** Do *not* modify any of the parameters—surrounded by <> brackets, beginning with $—in a message.
Actions	The response to a message. This response is assigned by a message source policy or condition and can be automatic or operator-initiated. You need to set actions if you want to view reports, view Performance Manager graphs, or add custom programs.
Automatic action	An action triggered by an incoming event or message. No operator intervention is involved. The automatic action delivered with the WebLogic 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 under the Annotations tab in the Message Properties window.
Operator-initiated action	Corrective or preventive actions in response to a given message. Unlike automatic actions, these actions are operator initiated. The operator-initiated action delivered with the WebLogic SPI enables you to view a graph of the metric whose exceeded threshold generated the message along with other related metric values (to view the graph, click **Perform Action** within a Message Properties window).

The following figure shows that a threshold value of 10 is set for metric WLSSPI-0026. Metric WLSSPI-0026 monitors the total number of times (per minute) clients must wait for an available EJB (enterprise java bean).

The severity level of this metric is Warning.

The threshold value set for this metric is 10. If the total number of times (per minute) that the clients wait for an EJB increases over 10, an alarm is generated (a warning message).

Figure 21   Threshold value for WLSSPI-0026

Modifying Alarm Generation

You can set the number of times an alarm is generated by modifying the attributes in the Modify Threshold Monitor window.

To modify message generation:

1   Open the Policy Bank window.

2   Click **SPI for WebLogic Server** →**WLSSPI** →**WLSSPI-Metrics** policy group.

3   Select a metric and click **Edit...** from the list. The list appears when you click ⚙ ▾ .

4   The Edit Measurement_Threshold Policy "*Metric Name*" window appears.

5   Click the **Thresholds** tab and then click the condition to modify the settings for message generation.

Edit Measurement_Threshold Policy "WLSSPI_0001"

6   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.

7   Click **Save** to save the changes.

8   Deploy the modified policies as described in

Advanced Policy Customizations

Policy modifications include making copies of default policy groups to customize a few settings and deleting metric groups within a policy's command line. All modifications described require some advanced knowledge of the WebLogic SPI metrics.

Choosing Metrics to Customize

Determine the metrics you want to customize and the policies within the group, that you want to use and then:

1   Open the **Policy Bank** window and click **SPI for WebLogic Server**.

2   Select the policy group you want to use and click **Copy...** from the drop-down list, which appears when you click   ⚙ ▾ .

3   Under the Copy Policy Group window, rename the group, select the parent group and click **Save**.

4   Within the renamed policy group, copy each original policy and rename it (follow the steps 2 and 3).

5   Delete the original policies within the renamed policy group by selecting **Delete...** from the **Choose an Action** drop-down list and click ⏩ to submit.

6   Customize the renamed policies within the group as necessary.

Creating a new policy group enables you to keep custom policies separate from the original default policies.

Using the WebLogic SPI Collector/Analyzer Command with Parameters

The **wasspi_perl_su -S wasspi_ca -prod wls** command is used in every collector policy. The collector policy is named according to its collection interval. You can view the default command line parameters in the Edit Scheduled_Task Policy "Policy name" window under the Scheduled Task tab within the Command text box.

Using the WebLogic Server Command Parameters

The WebLogic 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
-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
-matchver (match version)	Specifies the specific WebLogic 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 execute.	-matchver *<version_number>* Example: -matchver 10
-maxver (maximum version)	Specifies the highest WebLogic Server version to monitor. Use with -minver to specify a range of versions. If no versions are found, the command does not execute.	-maxver *<version_number>* Example: -maxver 10
-minver (minimum version)	Specifies the lowest WebLogic Server version to monitor. Use with -maxver to specify a range of versions. If no versions are found, the command does not execute.	-minver *<version_number>* Example: -minver 9

Parameter	Function	Syntax
-r (report)	Generates an ASCII report for the specified metrics.	`-r`
-t (tag)	Creates a new policy group by adding a prefix to an existing collector policy and specifying the metric numbers.	`-t` *<prefix>-* Example: `wasspi_ca -prod wls -t DEV-`
-prod	(production) Identifies the SPIs on which the command is run on the node.	**Syntax:** `-prod` *<Name of the SPI>-* **Example:** `wasspi_perl -S wasspi_ca -prod wls -m 220-223 -t DEV-`
-x	Enables you to specify a property/ value as follows:	`-x` *<property>=<property_value>*
	alarm: When off, overrides any alarming condition set up in the metric monitor policy.	`-x alarm=off`
	prefix: Default: JMXUDM_ Specify 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`
	graph: When off, prevents graphing functions.	`-x graph=off`
	report: When off, prevents reporting functions.	`-x report=off`

Syntax Examples

- To collect specific data on all configured servers:

  `wasspi_ca -prod wls -m 10-14,25,26`

- To collect data from specific servers only:

  `wasspi_ca -prod wls -m 245,246,26 -i server1,server2`

- To not collect data from specific servers:

  `wasspi_ca -prod wls -m 220-225 -e server1,server2`

Using the JMX Command Parameters

The command parameters described in this section are used to run JMX actions. JMX actions are one or more JMX calls (invoke, get, set) performed on an MBean instance or type. A single JMX call can be performed from the command line. Multiple JMX calls can be specified in an XML file or as a Metric sub-element in a User Defined Metric file.

Table 7   JMX Command Parameters

Parameter	Function	Syntax
`-a` (action) **Required**	Indicates a JMX action is performed.	`-a`
`-i` (include)	Specifies servers on which to perform the JMX actions. If this parameter is not specified, the JMX actions are performed on all configured servers.	`-i` *\<server_name\>* Example: `-i server1,server3`
`-m` (metric)	Specifies the metric ID containing the action to perform. This metric ID must be defined in a UDM file. This option must not be used with the `-mbean` nor `-xml` options.	`-m` *\<metric_id\>* Example: `-m TestUDM_1000`

Table 7   JMX Command Parameters

Parameter	Function	Syntax

-mbean	Performs a JMX call on the specified MBeans. This option must not be used with the -m or -xml options.	-mbean *<objectname>* *<action>*
		
		Example: `-mbean *:*,`
		`Type=JMSServerConfig -get`
		`MessagesMaximum\`

	In the above syntax, *<action>* (a JMX call) is one of the following:	
	-get	Returns the value of the specified attribute. Syntax: -mbean *<objectname>* -get *<attribute>* Example: `-get MessagesMaximum`
	-invoke [-type]	Executes an MBean operation with the specified parameters. An operation might not require parameters (therefore, -type is not specified). A type parameter must be specified for operations which accept parameters. -type supports operation overloading. Syntax: -mbean *<objectname>* -invoke *<operation>* [-type *<parameter_type>* *<parameter_value>*]... where *<parameter_type>* is one of the following: short, int, long, double, float, boolean, java.lang.Short, java.lang.Integer, java.lang.Long, java.lang.Double, java.lang.Float, java.lang.Boolean, and java.lang.String. Example: `-invoke stagingEnabled -type` `java.lang.String examplesServer`
	-set	Assigns the specified value to the specified attribute. Syntax: -mbean *<objectname>* -set *<attribute>* *<value>* Example: `-set MessagesMaximum 250000`
-o	(object) Specifies an MBean instance.	Syntax: -o *<mbean_instance>* Example: `-o examplesJMSServer`
-xml	Specifies the XML file that contains the JMX actions to perform. This option must not be used with the -m or -mbean options.	Syntax: -xml *<filename>* Example: `-xml myJMXActions.xml`

- Set the maximum threads for an alarming WebLogic execute queue to 50 (where *<$OPTION(instancename)>* specifies an alarming instance):

```
wasspi_perl -S wasspi_ca -prod wls -a
-mbean "PetStore:*,Type=ExecuteQueueConfig"
-set ThreadsMaximum 50 -o <$OPTION(instancename)>
```

- Set the MessagesMaximum attribute to 25000 on multiple MBean instances:

```
wasspi_perl -S wasspi_ca -prod wls -a
-mbean *:*,Type=JMSServerConfig -set MessagesMaximum 250000 -i
examplesServer
```

- Set the MessagesMaximum attribute to 25000 on a specific MBean instance:

```
wasspi_perl -S wasspi_ca -prod wls -a
-mbean *:*,Type=JMSServerConfig -set MessagesMaximum 250000 -i
examplesServer -o examplesJMSServer
```

- Invoke an operation on multiple MBean instances:

```
wasspi_perl -S wasspi_ca -prod wls -a
-mbean *:*,Type=ApplicationConfig -invoke staged
-i examplesServer
```

- Get the MessagesMaximum attribute (after a set command, used to verify that the attribute was set):

```
wasspi_perl -S wasspi_ca -prod wls -a
-mbean *:*,Type=JMSServerConfig -get MessagesMaximum
-i examplesServer
```

- Use the sample UDM TestUDM_1000 in the `wls_UDMMetrics-sample.xml` file:

```
wasspi_perl -S wasspi_ca -prod wls -a -m TestUDM_1000 -i examplesServer
```

Changing the Collection Interval for All Monitored 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 WLSSPI-05min collector policy:

1 Open the Policy Bank window.

2 Click **SPI for WebLogic Server** → **WLSSPI** → **WLSSPI-Monitor**.

3 Select the collector policy **WLSSPI-05min** and click **Edit...** from the drop-down list, which appears when you click   .

4   The Edit Scheduled_Task Policy "WLSSPI-05min" window appears.

5   Change the Name to **WLSSPI-10min** and the description accordingly.

6   Click the **Scheduled Task** tab.

7   In the Minute box, change the polling interval from 5 minute to 10 minutes. For example, 0, 10, 20....

8   Click the **Message Failed** tab and change the message text.

9   Click **Save.**

10   Distribute the new policies (described in Deploy the WebLogic SPI Policies on page 45).

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. Delete all but the metrics you are changing. Set the new interval. Remove the metrics you changed from the original policy.

For example, to change the collection interval to 10 minutes for metrics 70-81:

1   Open the Policy Bank window.

2   Click **SPI for WebLogic Server → WLSSPI → WLSSPI-Monitor.**

3   Select the policy WLSSPI-05min and click **Copy...** from the drop-down list.

The drop-down list appears when you click .The Copy Policy WLSSPI-05min window appears.

4   Change the Name to **WLSSPI-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....

7   In the Command text box, delete all metrics after the –m except 70-81.
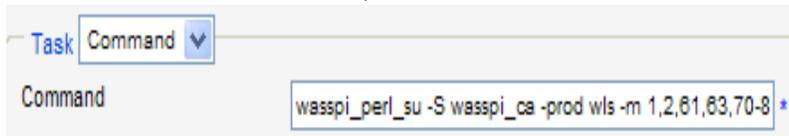
8   Click **Save**.

9   In the WLSSPI-Monitor policy group, select the WLSSPI-5min policy.

10 Click **Edit...** from the drop-down list. The drop-down list appears when you click [⚙ ▾]. The Edit Scheduled_Task Policy "WLSSPI-05min" window appears.

11 Click the **Scheduled Task** tab.

12 Delete 70-81 from the Command text box.

13 Click **Save**.

14 Re-distribute the modified policies as described in Deploy the WebLogic SPI Policies on page 45.

Customize Threshold Values for Different Applications/EJB/Servlet/JDBC

In your environment some applications might be more critical than others. In one application, some of the EJBs/Servlets/JDBC datasource might be more critical than others. You can set threshold values for every application and for every EJB/Servlet/JDBC datasource depending on the criticality.

To customize threshold values:

1   Double-click the metric you want to customize (for example, WLSSPI-0012). The Message and Suppress Conditions window appears.

2   Select the desired condition and click **Copy...** to make a copy of the condition.

3   In the Object Pattern field, enter the following details (enter only the necessary fields, see Examples):

<ServerName>:<ServerPort>:<NodeName>:<ApplicationName>:<EJBName/ServletName/JDBC DataSource>:<Instance Name>

4   In the Threshold column, change the threshold value.

5   Deploy the policy to the corresponding node.

Before customizing the threshold value, you might want to see the list of applications/EJBs/Servlets/JDBC datasource running on a server. For this you can use the following WebLogic SPI tools:

•   View WebLogic Servers: This gives you details of all running application servers and the corresponding ports.

•   View Deployed Apps: Gives a list of all applications deployed on a particular server.

Examples

The following examples illustrate how to enter details in the Object Pattern field:

Example 1: To set threshold for the application MedrecEAR, which is unique across all the nodes, enter the following:

```
<*>:<*>:<*>:MedrecEAR:<*>:<*>
```

Example 2: To set the threshold for the application MedrecEAR that is available on node 1 and node 2, then to set the threshold only on node 1, enter the following:

```
<*>:<*>:node1:MedrecEAR:<*>:<*>
```

Example 3: To set the threshold for the Servlet- `FileServlet` under the application MedrecEAR, and FileServlet is unique across all the nodes, enter the following:

`<*>:<*>:<*>:MedrecEAR:FileServlet:<*>`

Creating Custom, Tagged Policies

Another advanced customization option is to use the tag option (`-t` on the command line), which enables the collector or 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 WebLogic Server.

When multiple nodes are managed by a number of groups, this option enables you to create specially tagged policies that are separate from your original setup. In such a case, make copies of the policies, rename them with the tag, re-work the collector policy to pick up the tagged names, and 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 might be named CLIENT01-WLSSPI_0012 (retaining the metric number, which must be used). The collector policy should be named FIRST_CLIENT-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

To create a 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, which appears when you click ⚙ ▾ . The Copy Policy Group window appears.

2   Name the new group according to the 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 should contain the new name followed by the original metric number. For example, a copy of WLSSPI-0001 can be called CLIENT01-WLSSPI_0001.

    • The name you give to the new collector monitor policy should also contain the identifying name. You can also modify the scheduled collection for the new group by inserting the `-t` property on the command line. For example:

        wasspi_ca -prod wls -m 16 -t CLIENT01-

4   Delete all original policies from the new group.

Policy Variables

The following variables are used by the WebLogic 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: `medRecServer_MedRecServer_wl_management_ internal2_com.bea.wli.bpm.runtime.JwfServlet_20`
map_port	See port on page 86.
map_servername	The application server name with spaces replaced with underscores ("_"). Used for service map keys where spaces are prohibited. Example: `my_server`
node	The node on which the application server is running. Example: `node1.hp.com`
port	The port on which the application server is listening. Corresponds to the `PORT` configuration property. Example: `9001`
servername	The application server name. Corresponds to the `NAME` configuration property. Example: `my server`

Restoring the Default WebLogic SPI Policies

When the WebLogic SPI policies are installed in HPOM, the commands given in the following table automatically upload the policies when `swinstall` is run. Any customized policy settings you have done for the previous installation are overwritten.

To restore the default WLS policy group you have originally installed, delete all current policies and run one of the commands in the following table (depending on the version of HPOM):

Scripts run by `swinstall`

HPOM Version	Scripts
>8.x	`/opt/OV/bin/OpC/opccfgupld -silent -replace -subentity /var/opt/OV/share/tmp/OpC_appl/wasspi/wls/wls_set`

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

Viewing Text-based Reports

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 and historical data, generated as web pages in management-ready presentation format.

- To view message details, double-click a message text in the HPOM message browser.
- To view reports:
  a   From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  b   Select a node for which you want to generate a metric report.
  c   Right-click on the node.
  d   Select **Start** → **SPI for WebLogic Server** → **Metric Reports** → **<Name of the Metric Report>**.

    These reports show all server data on a node.

- To view graphs:
  a   From the HPOM console, select **Integrations** → **HPOM for Unix Operational UI**.
  b   Select a node for which you want to generate a graph.
  c   Right-click on the node.
  d   Select **Start** → **SPI for WebLogic Server** → **SPI Admin** → **View Graphs**. The web browser, which displays the graphing feature available in HP Performance Manager (which must be purchased separately) is launched.

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 soon after the alarm occurs.

When an Automatic Action report is executed from HPOM, the server is queried for additional data. If you set your message browser to display the SUIAONE column, you will notice the letter "S" under the "A" column (see the following figure) when a report is available under the Annotations tab of the Message Properties window.

Figure 22   Message Browser

To View Automatic Action Reports

To view Automatic Action reports under the Annotations tab of the Message Properties window:

- Double-click the Message Text. The Message Properties window appears.

- Click the **Annotations** tab. The automatic action reports will appear.

Automatic Action reports show data values on a single server. Column descriptions in the window provide more information.

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 WebLogic Server instances configured on the managed node, in contrast to Automatic Action Reports, which are generated for a single WebLogic Server instance. The reports generated from the Tool Bank reflect the current state of WebLogic Server on the managed node.

Figure 23 Tool Bank Reports

Generating a Report Manually

To generate a report manually:

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 WebLogic Server → Metric Reports → <Name of the Metric Report>**. The report will be generated.

Monitoring WebLogic on Unsupported Platforms

The WebLogic SPI supports the monitoring of WebLogic Servers installed on nodes running on supported platforms. However, it is possible to configure the WebLogic SPI to monitor a WebLogic Server installed on nodes running on unsupported platforms - nodes referred to as "remote nodes".

The section helps you to determine if your environment is conducive to set up remote monitoring nodes (running on platforms not supported by the WebLogic SPI). If your environment meets the following criteria, this section offers an example to get you started.

Requirements for Monitoring Remote Nodes

For a WebLogic Server installation on a system running on a platform other than the supported platforms, you can use the WebLogic SPI to monitor that remote system if the following conditions apply. The last condition is optional.

- The remote system is covered by a purchased license (using Tier 1 pricing).

- The WebLogic SPI runs on at least one managed node on a supported platform.

- (Optional, for logfile monitoring) The remote system runs on a platform supported by the HP Operations agent software.

Overview

This section provides an overview of remote monitoring and shows how it is implemented. It also explains how to set up the WebLogic SPI to access WebLogic Server metrics and logfiles on unsupported platforms by using both the WebLogic SPI and HP Operations Agent software.

Remote Monitoring

In a standard configuration, the WebLogic SPI programs and policies are deployed on the local managed node. In a non-standard configuration, the local system is used as a proxy through which remote metric information becomes accessible.

Remote system data collection and interpretation relies on the local, managed node to act as the proxy on which data collection is configured. The following figure denotes Remote System Data Collection.

Figure 24 Remote System Data Collection
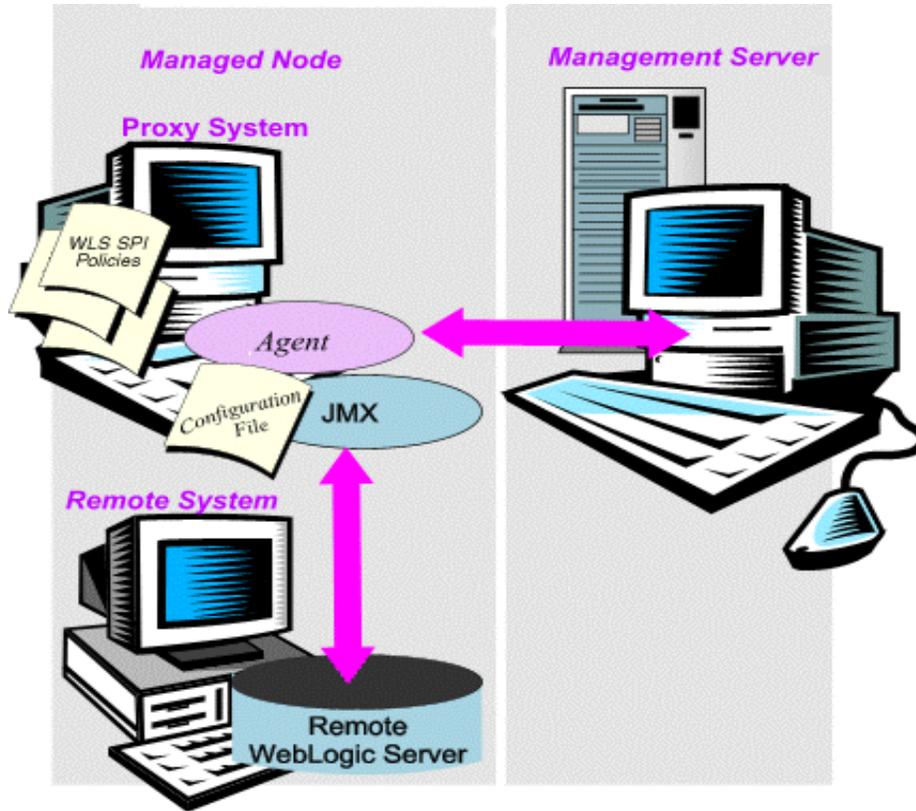
Configuration entries requirement: Within the configuration, entries for both local and remote nodes are included. You can include multiple remote system entries in a local system's section. See the example on page 91, that shows how the remote entry appears (with system IP address).

Policy deployment requirement: Policies must be deployed on the local node. If you need a separate policy group, you can copy and rename the existing policies and specify the WebLogic Server name on the command line using the −i or −e options. For details on using these command line parameters, see Using the WebLogic Server Command Parameters on page 78.

HP Operations Agent deployment requirement (optional logfile monitoring): To access remote WebLogic log files, make sure that the HP Operations Agent software is installed on the remote system. Using standard HPOM processes, you can modify the standard logfile policies included with the WebLogic SPI to specify the correct logfile names, and deploy them to the remote system.

▶   Monitoring remote nodes is not supported using logfile versioning.

Configure Remote System Monitoring

To monitor WebLogic Servers remotely on nodes, other than those running on the supported platforms, complete these tasks:

Discover the local node

Use Discover or Configure WLSSPI tool to discover the local node.

Configure the Remote WebLogic Server

Use Discover or Configure WLSSPI tool to configure each local managed node that communicates with a remote WebLogic Server. In the configuration add entries for remote WebLogic Servers.

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

2   Choose a WebLogic Server managed node from which to monitor the remote WebLogic Server.

3   Right-click on the node and select **Start → SPI for WebLogic Server → SPI Admin → Discover or Configure WLSSPI**.

4   Select Launch Configure Tool button and click **OK**.

5   In the configuration that appears, include an entry for each remote WebLogic Server system: LOGIN, PASSWORD, ADMIN_HOME, ADMIN_PORT, ADDRESS, HOME, VERSION, JAVA_HOME.

The values for LOGIN, PASSWORD, ADMIN_HOME, ADMIN_PORT, ADDRESS, and VERSION must be of the remote system and the values for HOME and JAVA_HOME must be of the local system. Set the property ADDRESS=*<DNS server nsame or IP address>*, where the server name and IP address corresponds to the server name and IP address of the remote server respectively. Make sure that the HOME and JAVA_HOME properties are set at the global level.

The following illustration shows how local and remote WebLogic Servers are configured. Notice, however, that for the remote servers the ADDRESS=*<IP_address>* property is added:

```
ADDRESS=15.75.27.109
```

 or

```
ADDRESS=hardey.hp.com
```

If you are configuring one local and one remote WebLogic Server, your configuration might look like the following for the local and remote node after the remote node is successfully discovered:

Figure 25 Configuration for the Local Node
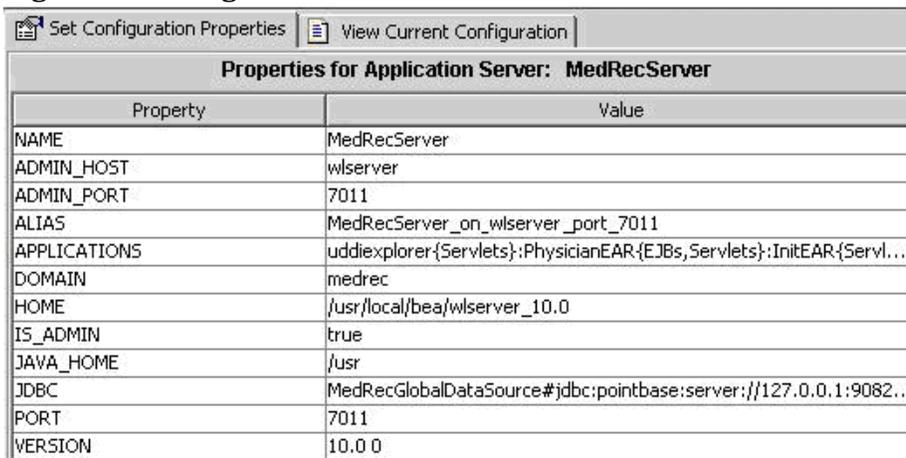
Set Configuration Properties	View Current Configuration	
Properties for Application Server: MedRecServer		
Property	Value	
NAME	MedRecServer	
ADMIN_HOST	wlserver	
ADMIN_PORT	7011	
ALIAS	MedRecServer_on_wlserver_port_7011	
APPLICATIONS	uddiexplorer{Servlets}:PhysicianEAR{EJBs,Servlets}:InitEAR{Servl...	
DOMAIN	medrec	
HOME	/usr/local/bea/wlserver_10.0	
IS_ADMIN	true	
JAVA_HOME	/usr	
JDBC	MedRecGlobalDataSource#jdbc:pointbase:server://127.0.0.1:9082...	
PORT	7011	
VERSION	10.0 0	

Figure 26 Configuration for the Remote Node
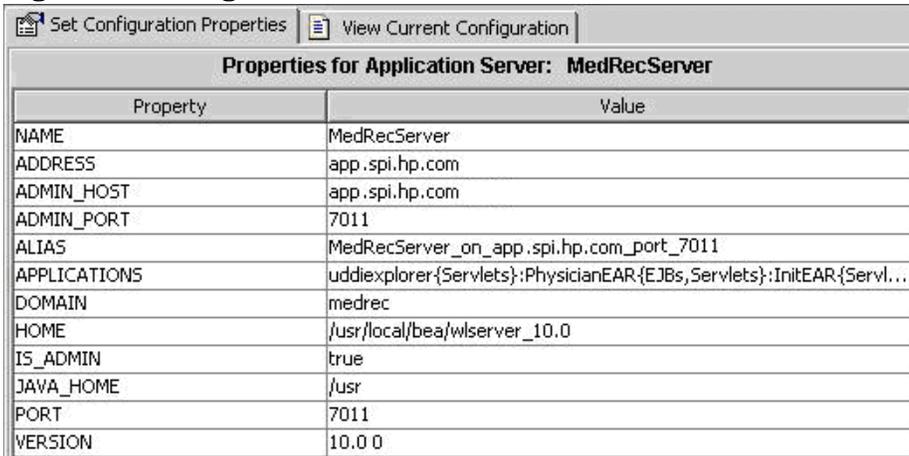
Property	Value
NAME	MedRecServer
ADDRESS	app.spi.hp.com
ADMIN_HOST	app.spi.hp.com
ADMIN_PORT	7011
ALIAS	MedRecServer_on_app.spi.hp.com_port_7011
APPLICATIONS	uddiexplorer{Servlets}:PhysicianEAR{EJBs,Servlets}:InitEAR{Servl...
DOMAIN	medrec
HOME	/usr/local/bea/wlserver_10.0
IS_ADMIN	true
JAVA_HOME	/usr
PORT	7011
VERSION	10.0 0

(Tabs: Set Configuration Properties | View Current Configuration — Properties for Application Server: MedRecServer)

The remote system is configured similar to that of the local system but contains the property ADDRESS=app.spi.hp.com.

6   To verify that the SPI is monitoring the remote node, run the following collector command:

```
wasspi_perl wasspi_ca -m 5 -x print=on -prod wls
```

You can view the output and the information from the remote and local node respectively.

For example: Metric: WLSSPI_0005, Server: "MedRecServer", Instance: "MedRecServer", Value: 54.0, Host: <remote-node>, Port: 7011

Integrate HP Performance Agent (Optional)

The HP Performance Agent collection occurs on the managed node, not the remote system. If you use PerfView and would like to graph the remote system data, you must make sure that HP Performance Agent integration is enabled on the local managed node.

Assign Local Node to WebLogic node group

Assign the local managed node to the WebLogic node group. Make sure you are deploying the configuration on the same WebLogic Server version node as the remote system.

Configuring Remote Monitoring for Logfiles (Optional)

Monitoring remote system logfiles is supported, if the following criteria are met:

1   The remote system has an HP Operations Agent running on it.

2   The system does not re-version logfiles when they roll.

To set up logfile monitoring, at the HPOM console, copy the WLS SPI logfile policy and then configure, assign, and deploy the copied logfile policy to the remote system.

Configure the Logfile Policy for Remote Logfiles

To configure the logfile policies for remote monitoring:

1   Select a copy of the WebLogic Logfile Policy located under WLSSPI-Logfiles in the SPI for WebLogic Server group. For example, **SPI for WebLogic Server → WLSSPI-Logfiles → WLSSPI Error Log**.

2   Click **Edit...** from the drop-down list, which appears when you click ⚙ ▾.

The Edit LogFile_EntryPolicy "WLSSPI Error Log" window appears.

3   Click the **Source** tab.

4   In the Logfile text box, enter the location of the logfile on the remote system: */<path>/<filename>*.

5   Assign and deploy the logfile policy to the remote HPOM managed node.

The Logfile policy and the HP Operations Agent, both present on the remote system, make WebLogic Server logfile monitoring possible.
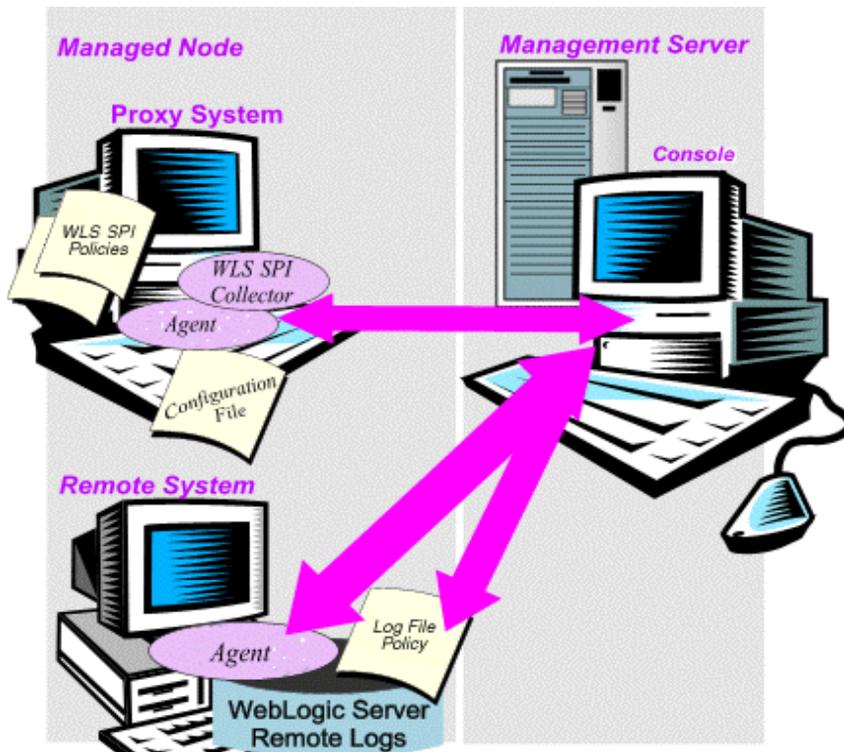
Remote Monitoring Limitations

Remote monitoring has the following limitations:

*   The WebLogic SPI and the HP Operations Agent do not support access to logfiles that are re-versioned each time the logs are rolled.

*   When no HP Operations Agent is present on the remote system, monitoring of WebLogic logfiles on the remote system cannot occur.

*   In the HPOM Tool Bank, the WebLogic SPI tools cannot be executed on remote nodes.

Check the WebLogic SPI Nodes for License Count

You can use an HPOM reporting utility to check the number of policies installed on your managed nodes. In reviewing the number of policies for each managed node, you can see the consistency of installed policies across the managed nodes. In addition, by running this report, you can also make sure that the number of licenses purchased complies 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 **WLSSPI License Check**.

4   Select an output destination and click **OK**. The report will be generated.

6 Integrating the WebLogic SPI with HP Reporting and Graphing Solutions

This chapter explains how to integrate the WebLogic Application Server SPI with different HP reporting and graphing products (these products must be purchased separately) which help to view performance and availability and analyze trend.

The WebLogic SPI can be integrated with the following HP reporting and graphing products:

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

  Working in conjunction with HP Reporter, the WebLogic SPI produces a variety of reports showing consolidated information on the WebLogic application server.

  For more information on how to integrate the WebLogic SPI with HP Reporter, see Integrating with HP Reporter on page 95. After you integrate the WebLogic SPI with Reporter, the HP Reporter generates reports every night, that show the performance and availability of the WebLogic application server on the 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 the HP Performance Agent, see the *HP Performance Agent for UNIX User Manual*.

  If you are using the HP Performance Agent, the WebLogic SPI automatically uses it. If you want to use the HP Operations subagent, CODA, that is included with HPOM (does not support HP Performance Agent), you must configure your managed nodes to do so. For more information, see Discovery and Collection in WebLogic Server Domains on page 53.

- **HP Performance Insight**: HP Performance Insight is a network management system that collects, processes, and reports data. The data is used to generate reports. For more information on HP Performance Insight, see the *HP Performance Insight Administration Guide*. For more information on the WebLogic SPI reports and how to integrate the WebLogic SPI with HP Performance Insight, see the *Application Server Report Pack User Guide*.

- **HP Performance Manager**: HP Performance Manager provides graphing capability to the WebLogic SPI metrics. This is not the version of HP Performance Manager that is included with HPOM.

  For more information on how to integrate the WebLogic SPI with HP Performance Manager, see Integrating with HP Performance Manager on page 98. After integrating the WebLogic SPI with HP Performance Manager, graphs are available the following day.

Integrating with HP Reporter

You should configure the WebLogic SPI (see Chapter 3, Configuring the WebLogic SPI) before integrating it with the HP Reporter.

If you are upgrading the WebLogic SPI report package, you must remove the old version before installing the new version. For information on how to remove the WebLogic SPI report package, see Install the New Report Package (Optional) on page 34.

You must install the WebLogic SPI report package on a Windows system running HP Reporter. To install the report package::

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\HP_REPORTER\WEBLOGIC_SPI\WLSSPI-Reporter.msi

2   Follow the instructions as they appear.

3   Check the Reporter status pane (see the following illustration) to note changes to the HP Reporter configuration.

    ➤   For Windows 2000 managed nodes, during 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 this message and continue.

The status pane (at the bottom of the HP Reporter window) shows information on the running programs and errors. You can check the status pane to see that HP Reporter has been updated with the WebLogic SPI reports.
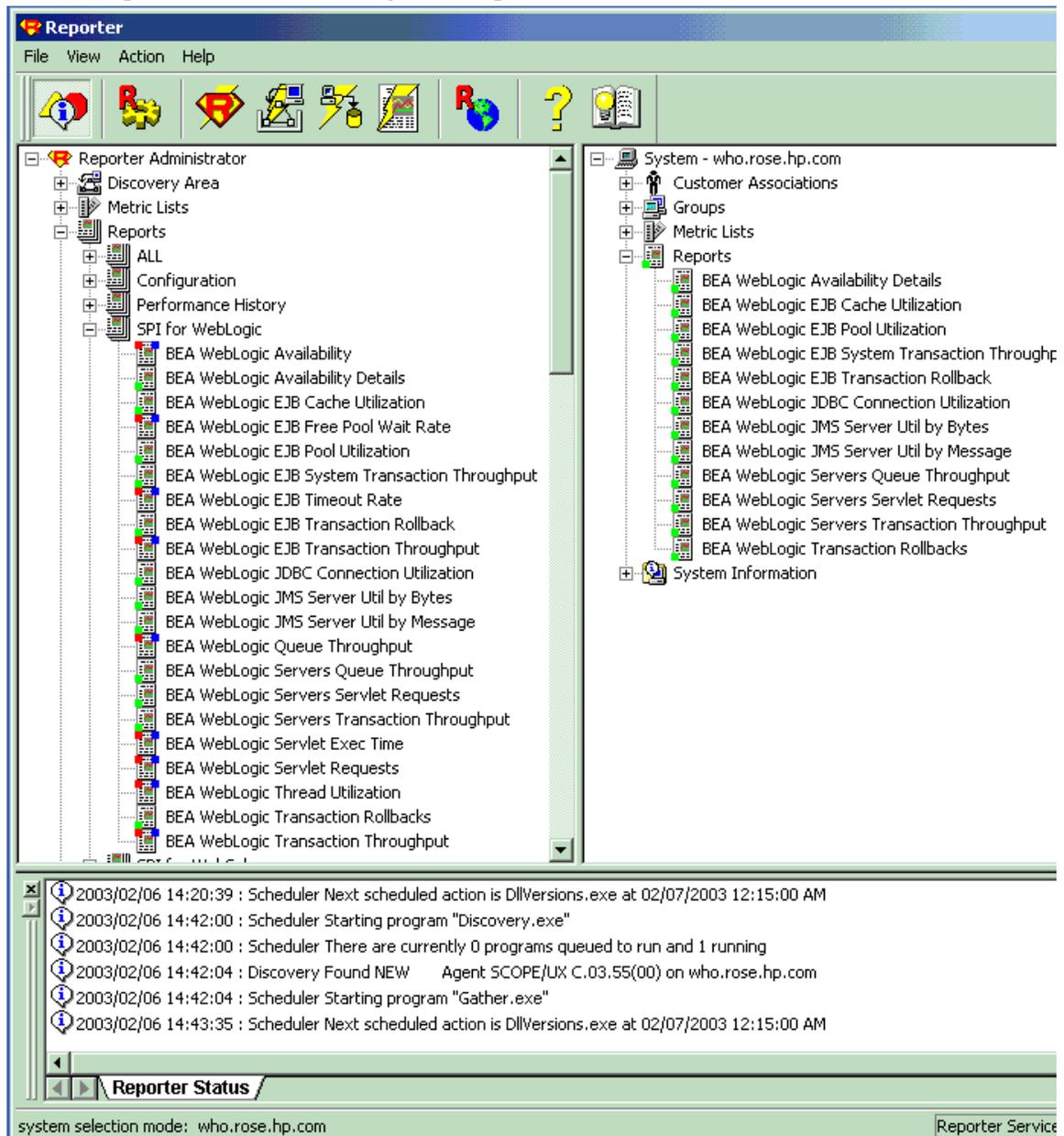
You can find instructions in the HP Reporter - Help menu for assigning the WebLogic SPI reports to the targeted nodes. To access Help, select Reports or Discovered Systems in the left panel of the Reporter main window and right-click it. Select Report Help or Discovered Systems Help from the submenu that appears and see the topic to assign a report definition to a Discovered Systems Group.

4   Add group and single system reports by assigning reports as desired. (For more information, see the HP Reporter Help menu or HP Reporter Concepts Guide.).

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

For information on the list of reports generated on integrating the WebLogic SPI with HP Reporter or HP Performance Insight, see *HP Operations Smart Plug-in for WebLogic Server Reference Guide*.

⛔ The browser crashes when the report is huge, and hence you will be unable to view the report (in HTML). The workaround is that the reports should be viewed as a pdf.

Integrating with HP Performance Manager

To integrate the WebLogic SPI with HP Performance Manager:

1   Install and configure the WebLogic SPI. Verify that you have set the GRAPH_URL property. For more information about the GRAPH_URL property, see Property Definitions on page 134.

2   If you are upgrading the WebLogic SPI graph package, you must remove the old version before installing the new version. For information on removing the WebLogic SPI graph package, see Install the New Graph Package (Optional) on page 34.

3   Install the graph package.

   If HP Performance Manager is running on a Windows system:

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

   `\WINDOWS\HP_PM\WEBLOGIC_SPI\HPOvSpiWlsG.msi`

   b   Follow the instructions as they appear.

   If HP Performance Manager is running on a HP-UX system, which is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, then the files are installed automatically when you install the SPI software):

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

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

   If HP Performance Manager is running on a Solaris system, which is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are automatically installed when you install the SPI software):

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

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

4   To graph any WebLogic Server metric, use the data source name `WLSSPI_METRICS`.

For information on how to view the graphs, see the *HP Performance Manager Administrator Guide*. You can view the graphs one day after the integration.

▶ To uninstall the graph package, follow the steps given in Upgrading the WebLogic SPI on page 32.

Viewing Graphs that Show Alarm Conditions

For graphing purposes, the WebLogic SPI organizes metrics according to type. When a message is generated for any metric appearing in a table, in the following section, you can view its chart along with other metric values.

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

1 In the HPOM message browser, double-click the message text. The Message Properties window appears.

2 Click **Perform Action**. The WebLogic SPI graph for the metric appears.

The value of this metric is charted along with the values of other metrics in the same group.

Viewing Graphs that Show Past or Current Conditions

To manually generate any of the four available graphs using the View Graphs tool:

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

2 Select a managed node for which you want to view the graphs.

3 Right-click on the node and select **Start** → **SPI for WebLogic Server** → **SPI Admin** → **View Graphs**. The View Graphs Output window appears.

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

HP Performance Manager graphs can be generated from most of the WebLogic SPI alarm messages by clicking **Perform Action** within the **Actions** tab in the Message Properties window. The operator action launches your Web browser, which displays a graph of the metric that generated the message, as well as the other related metrics.
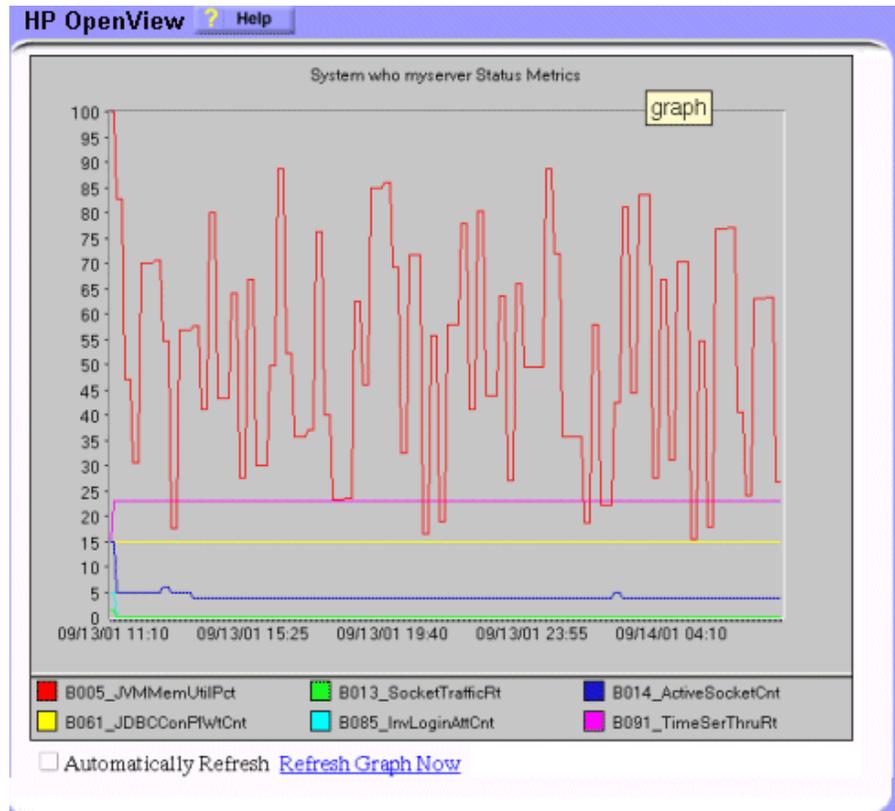
Specifying a Date Range

Within the web page display, you can specify a date range of one day, one week, one month, or one year.

Integration Example

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

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

To graph multi-instance data stored in a data source by reporting each OBJECTNAME for the METRICID for each SERVERNAME:

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

2 From the Performance Manager Java Interface window,

    a   Click the **Display** tab at the top of the window.

    b   In the Display pane, click the **Sources** tab.

    c   Click ⬚ button next to the Datasource box and select a data source.

    d   Click ⬚ button next to the Default Selection box and select the node on which the data source resides.

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

4 From the General pane,

    a   Select **line** from the Type field drop-down list. This generates a line graph.

    b   Enter a Date Range.

    c   Enter an interval using the Points Every field drop-down list.

    d   Select **Label (alphabetical)** option for the Metric Display Order, if you want the graph key to be sorted alphabetically.

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

6 From the Metric Selection window,

    a   Click **+** to expand the `WLSSPI_RPT_METRICS` data source options tree.

    b   Select the VALUE checkbox.

    c   Click **OK**.

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

8 From the Metric Properties window,

    a   In the Label 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 box. The Metric Filter window appears.

9 From the Metric Filter window,

    a   Select **METRICID** from the first field, drop-down list.

    b   Select **=** from the second field drop-down list (if it isn't already selected).

    c   Enter a metric number (for example, 11) in the third field box and click **OK**.

10 From the Metric Properties window,

    a   In the Filter 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 box, you can edit this item in the graph template file. See step 13 for more information.

b   Click **OK**.

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

12   From the Save As window,

a   Enter a family (for example, **WLSSPI_Graphs**) in the Family box. The family name serves as a group to organize the graphs.

b   Enter a name (for example, **metric_11**) in the Name box to uniquely identify the graph.

c   Entering text into the Category box is optional.

d   Click **OK**. The information is saved in a graph template file named
```
VPI_GraphsUser<family>.txt (for example,
VPI_GraphsUserWLSSPI_Graphs.txt).
```

13 Edit the graph template file. This 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 the following:

```
#*********************************************
#* OpenView Performance Manager
#* user Defined Graph Templates
#* Last Updated: 07/25/04 04:31_30 AM by [1.2.3.4] moo1
#*********************************************
FAMILY: WLSSPI_Graphs

GRAPH: Metric11
GRAPHBACKGROUND: None
DATERANGE: 1 day
GRAPHMULTIPLEGRAPHS: Yes
POINTSEVERY: raw
DATASOURCE: mwa
SYSTEMNAME: moo1

CLASS: WLSSPI_RPT_METRICS:WLSSPI_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
POINTSERVERY: raw
DATASOURCE: mwa
SYSTEMNAME: moo1

CLASS: WLSSPI_RPT_METRICS:WLSSPI_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:** at the end of the first section of each graph (in the preceding example, add **SUMFROMRAW:** after SYSTEMNAME: moo1). This enables HP Performance Manager to summarize data from the data source and cannot be added using the interface.

b   If you were unable to edit the Filter box in the Metrics Properties window, edit the FILTER field.

c   Save the file. The graph file may look similar to the following:

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

CLASS: WLSSPI_RPT_METRICS:WLSSPI_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
POINTSERVERY: raw
DATASOURCE: mwa
SYSTEMNAME: moo1
SUMFROMRAW:

CLASS: WLSSPI_RPT_METRICS:WLSSPI_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.
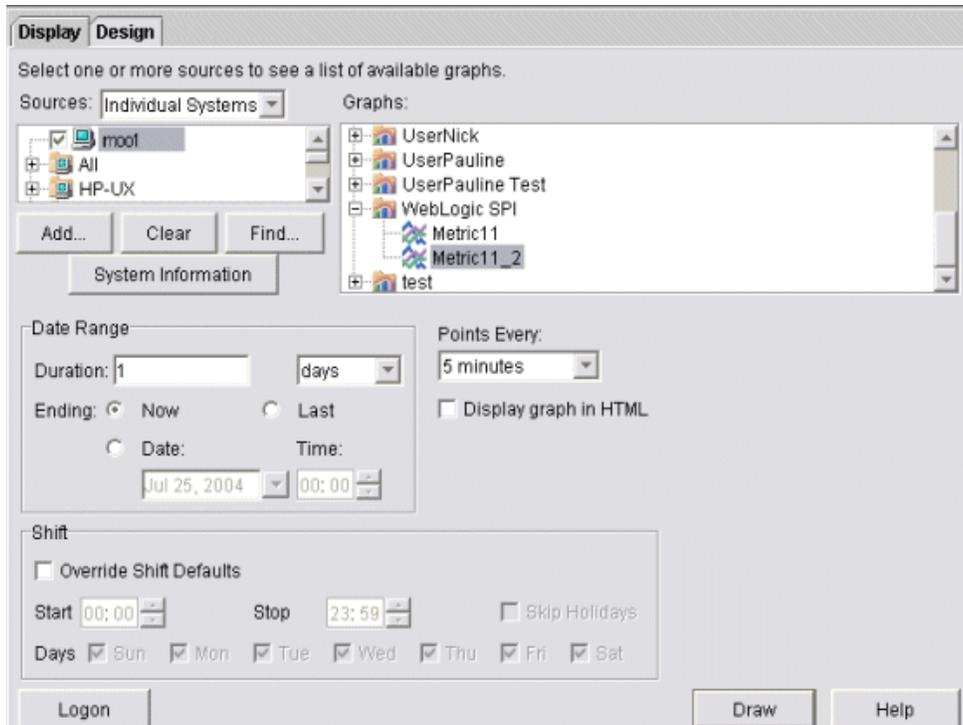
15 In the Display tab window,

   a   Navigate to the server on which the data source resides (It is mentioned in the box below the Sources box).

   b   In the Graphs box, navigate to the family of graphs and select the graph you created.

   c   Enter information into the Date Range dialog box and Points Every box.

   d   Click **Draw**. The following graph appears.

Figure 27 Graph
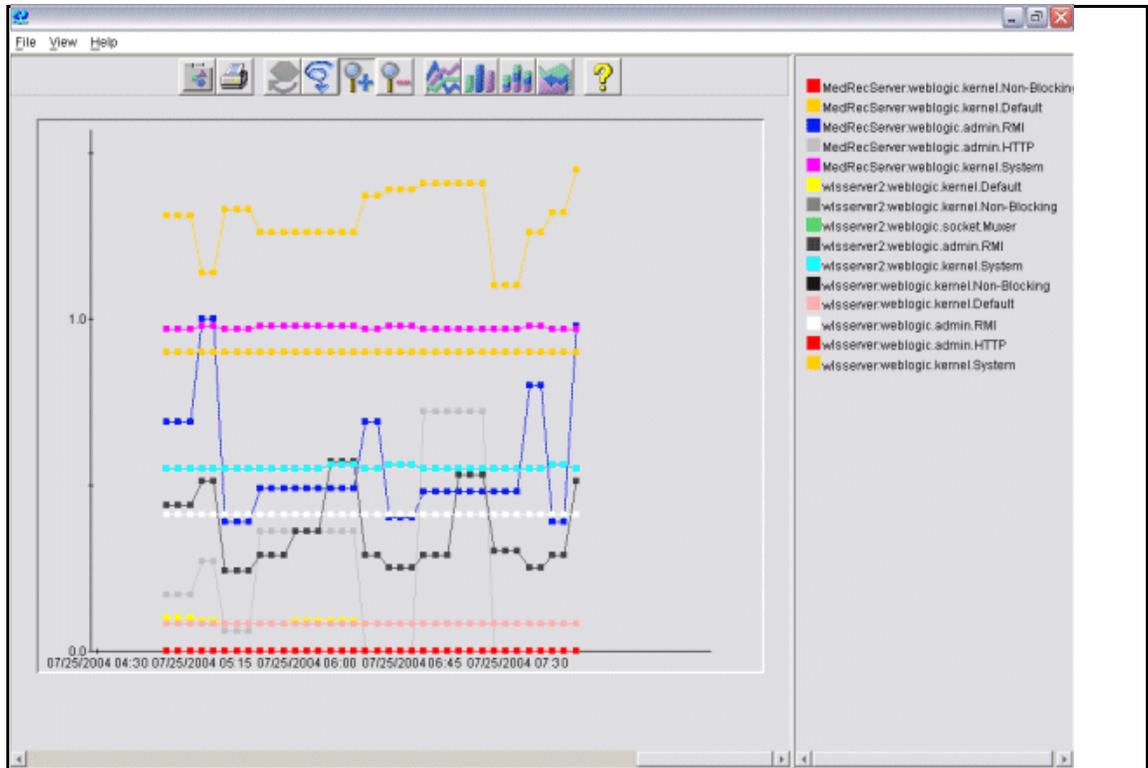
If you edit the graph from the Design tab, the `SUMFROMRAW:` entry is deleted from the graph template file. You must edit the graph template file and re-enter it.

16 To enable graphing from the SPI:

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

b   Select the nodes which you want to enable for graphing.

c   Right-click on the nodes and select **Start → JMX Metric Builder → WLSSPI → UDM Graph Enable**. Graphing will be enabled from the SPI.

7 Troubleshooting

This chapter provides information on basic troubleshooting and overview on error messages for the Oracle WebLogic AS SPI.

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 using this tool, see Self-Healing Info on page 59.

➤ 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 `/opt/OV`)

File Type	Log
Filename	*/<%OvInstallDir%>*/log/wlsspi <managed_node>_disc_server.log
Description	Records the updates done by the WLSSPI 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	*<Agent_Dir>*/wasspi/wls/log/wasspi_perl.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 on 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 Tracing on page 60. Three archived files of size 10 MB are maintained.

Directory	*<Agent_Dir>*/wasspi/wls/log/Discovery.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 on 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 Tracing on page 60. Three archived files of size 10 MB are maintained.

Directory	*<Agent_Dir>*/wasspi/wls/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 on 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 Tracing on page 60. Three archived files of size 10 MB are maintained.

Directory	*<Agent_Dir>*/wasspi/wls/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 Tracing on page 60. Three archived files of size 10 MB are maintained.

Troubleshooting the Discovery Process

Problem: The WLSSPI discovery policy fails to discover JDBC for WebLogic Application Server.

Solutions: Edit the properties of the application server to include the port number in the JDBC URL.

For example: `SERVER1_JDBC=examples-demo#jdbc:pointbase:server://122.0.0.1:9082/ demo#examples-dataSource-demoPool#122.0.0.1#demo`

Problem: The WLSSPI Discovery policy does not automatically discover and update the WebLogic 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 a WebLogic application server is installed on the managed node. If an application server is not installed, install an application server, and complete the configuration tasks listed in Chapter 3, Configuring the WebLogic SPI.

3   Verify the WebLogic application server status. The application server must be running. See Verify the Application Server Status on page 38 for more information.

4   Verify that the LOGIN and PASSWORD properties are set and that the WebLogic user configured has the correct permissions. See Chapter 3, Configuring the WebLogic SPI for more information.

5   Verify the Java home directory (see Verifying the Java Home Directory on page 111).

6   If you are running WebLogic Server 9.x or later and did not save the domain configuration file (for example, `config.xml`) in the default directory (*<BEA_Home_Dir>*/ `user_projects/domains/`*<WebLogic_Domain_X>*/, where *<BEA_Home_Dir>* is the directory that contains the `registry.xml` file), do *one* of the following:

•   Manually set the server using the Discover or Configure WLSSPI tool.

•   Manually set ADMIN_PORTS, the port numbers of the WebLogic Admin servers listed in the domain configuration file, using the Discover or Configure WLSSPI tool. The global LOGIN and PASSWORD must be set for the node on which these WebLogic Admin servers are running.

7   If you are running multiple versions of WebLogic Server on the same system, set the HOME property.

8   On a UNIX managed node, verify that BEA_HOME_LIST directory path name do not include spaces. The discovery process currently does not support spaces in directory names.

9   Verify that the Discover or Configure WLSSPI tool is not running. Only one process can access the configuration at a time. If Discover or Configure WLSSPI is running, other processes that must access the configuration (like the discovery process) hang until the configuration becomes available.

10 Check if the HPOM management server is suppressing duplicate messages:

   a   From the HPOM console, select **Actions Server Configure**. The Configure Management Server window appears.

   b   Look for the Suppress and count duplicate messages check box. If this box is selected, clear it.

11 Restart the HPOM management server:

    a Stop all HPOM GUIs that are running by selecting **File → Exit**.

    b Stop the HPOM management server processes.

    c Enter: **/opt/OV/bin/ovstop opc ovoacomm**

    d 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.

    e Enter: **rm -f /var/opt/OV/share/tmp/OpC/mgmt_sv/***

    f Restart the HPOM management server process.

    g Enter: **/opt/OV/bin/OpC/opcsv -start/opt/OV/bin/OpC/opcsv -status**

    h Restart the HPOM GUI. Enter: **opc**

- **Problem**: The WLSSPI Discover policy is adding inaccurate information to the configuration.

  Solutions:

    a Verify LOGIN and PASSWORD are correct. For more information, see Collect WebLogic Login Information on page 38.

    b Verify the Java home directory. For more information, see Verifying the Java Home Directory on page 111.

    c Update the configuration.

- **Problem:** In the SiteConfig file for Windows managed nodes, the value for BEA_HOME_LIST and JAVA_HOME appears as:

  BEA_HOME_LIST=Cbea

  JAVA_HOME= Cbeajrockit90_150_06

  The "\" character is removed from the path.

- **Solution:** Replace the character "\" with "/" or "\\" in the path for BEA_HOME_LIST and JAVA_HOME.

  For example, BEA_HOME_LIST=C:/bea or

  BEA_HOME_LIST=**C:\\bea**

- **Problem**: Service discovery is getting timed out.

  Solution: Service discovery for any Smart plug-in is dependent on the OVDEPLOY utility. For this utility the service discovery timeout setting is 10 minutes, stated in milliseconds as 60000. As a result, discovery fails if the process takes longer than 10 minutes to complete. If your smart plug-in service discovery process takes longer to complete, increase the timeout by running the following command on the management server:

  ovconfchg -ns depl -set CMD_TIMEOUT <new_value>

  as in

  ovconfchg -ns depl -set CMD_TIMEOUT 120000

▶ You can view the current timeout setting by running the command:
ovconfget

- **Problem**: Common components are remaining after un-installation.

  Solution: Any smart plug-in installation, in addition to installing the SPI, also installs programs common to other SPIs. Such programs are:

  DSI2DDF (for data collection purposes)
  SPI-SHS-OVO (Self-Healing Services for troubleshooting SPI problems)

  These programs are not automatically removed whenever you uninstall a smart plug-in because they are common components for all SPIs. However, if you are uninstalling all SPIs and want to remove these components, run the following commands on the management server:

  ```
  swremove DSI2DDF
  swremove SPI-SHS-OVO
  ```

▶ If any SPI remains, do not remove any of the preceding components.

Verifying the Java Home Directory

To successfully use the WLSSPI-Discover policy, the Java home directory (on both, Windows and UNIX managed node) must be configured correctly.

Although the WLSSPI-Discover policy searches for this information, if they cannot find this information or the information is not accurate, the WLSSPI-Discover policy does not function completely.

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

- JAVA_HOME is correctly defined in the configuration. To edit or view the configuration, launch the Discover or Configure WLSSPI tool (For more information, see Discover or Configure WLSSPI on page 58):

  a In the configuration editor, set the JAVA_HOME property. For more information on using the configuration editor, see Configuration Editor on page 125 .

  b Click **Save** to save the changes made to the configuration. Once you save your changes, you cannot automatically undo them.

  c Click **Finish** or **Next** to save any changes and exit the editor.

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

     ▶ If you click **Cancel** and have 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 WLSSPI tool, launch the Discover tool, click **Next** from the configuration editor, and then click **OK**.

  d Launch the Discover or Configure WLSSPI (select Launch Discover Tool option) on the managed nodes on which the JAVA_HOME property was added or edited. When the tool is run, the service map gets updated.

- Java is installed on each of the BEA home directories (each directory is listed in the file `beahomelist`).

- The JAVA_HOME system variable is correctly defined.

  On a Windows managed node:

a   From the Start menu, select **Settings** → **Control Panel**.

b   Double-click **System** and select the **Advanced** tab.

c   Select **Environment Variables...** and scroll through the System variables list. Verify the JAVA_HOME value. If JAVA_HOME does not exist, it is not defined.

On a UNIX managed node:

a   Type `echo $JAVA_HOME`.

b   Verify the output. If no output is returned, JAVA_HOME is not defined.

Troubleshooting the Configuration

- **Problem**: The WebLogic SPI configuration does not have complete or accurate information for a WebLogic managed server.

  Solution: Verify LOGIN and PASSWORD are correct. For more information, see Collect WebLogic Login Information on page 38. This is the most common reason for incorrect information for a WebLogic managed server running on a remote node (not running on a HPOM managed node).

- **Problem**: The `Server status is unknown (down)` message appears in the message browser, but the server is running.

  Solution: Check that you correctly set the PORT, PROTOCOL, and PASSPHRASE (if required) properties:

  — Verify that PROTOCOL is set to one of two values: t3 (for non-SSL) or t3s (for SSL).
  — If the application server is using SSL, verify that the PORT is set to a valid SSL port number and that PROTOCOL is set to t3s.
  — If the application server is not using SSL, verify that the PORT is set to a valid non-SSL port number and that PROTOCOL is set to t3.
  — If the keystore has a password defined, re-set the PASSPHRASE in case it has been typed wrong.

Troubleshooting the Collection

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

  Solution: Check the following:

  — 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/wls/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 the corresponding MBeans.

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

  Solution: Check the following:

— Verify that the SPIDataCollector instrumentation category is deployed on the managed node. This is required to create the datasource WLSSPI_METRICS.

— Verify that the WLSSPI-Performance policy is deployed on the node.

— Check if the `<servername>.dat` file is created in *<Agent_Dir>*`/wasspi/wls/datalog`.

— Check if the datasource WLSSPI_METRICS is created.

— Verify that **graph=yes** is specified in the *<Agent_Dir>*`/wasspi/wls/conf/MetricDefinitions.xml` for the metrics which are being monitored. Only the metrics which are specified as **graph=yes** in the `MetricDefinitions.xml` get logged. The default value is **no**.

- **Problem**: Configuration variable `SERVER`*<n>*`_START_CMD` is missing for the server "Default Server".

  Solution: Before you can successfully launch the Start WebLogic tool, you must set the START_CMD and USER properties. Set these properties using the Discover or Configure WLSSPI tool. For more information about this tool, see Discover or Configure WLSSPI on page 58.

- **Problem**: Configuration variable `SERVER`*<n>*`_STOP_CMD is` missing for the server "Default Server".

  Solution: Before you can successfully launch the Stop WebLogic tool, you must set the STOP_CMD and USER properties. Set these properties using the Discover or Configure WLSSPI tool. For more information about this tool, see Discover or Configure WLSSPI on page 58.

- **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. If you upgrade the WebLogic SPI without the SPI DVD, you must upgrade the SHS component also. You can download the SHS component from **http://support.openview.hp.com/self_healing_downloads.jsp**.

- **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 (version 3.01) from the SPI DVD. If you upgrade the WebLogic SPI without the SPI DVD, you must upgrade the SHS component also. You can download the SHS component from **http://support.openview.hp.com/self_healing_downloads.jsp**.

- **Problem**: Check WebLogic tool shows a wrong status for a server instance or does not give any output.

  Solution: If a server is up and running but Check WebLogic tool returns the server status as NOT_RUNNING (or does not give any output), turn ON the monitoring for that particular server by using the Start Monitoring tool.

- **Problem**: When launching the applications, the applications hang or there is no output.

  Solution: The applications 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 WebLogic Log tool lists duplicate (redundant) log file names.

  Solution: This problem occurs if there are duplicate entries in the `SiteConfig` file. Relaunch the Discover or Configure WLSSPI tool to remove the duplicate entries.

- **Problem**: Datasource not getting created on RHEL 4.0 platform.

  Solution: Make sure that you installed the latest version of DSI2DDF component (02.40.000) from the SPI DVD. If you upgraded the WebLogic SPI without the SPI DVD, you must upgrade the DSI2DDF component also. To get the latest DSI2DDF component contact HP Software Support.

- **Problem:** On Linux nodes, the Discover or Configure WLSSPI tool can fail without configuring the SPI on the managed Linux node. This happens because some of the configuration processes require uudecode to be present on the local node.

  Solution: Ensure that uudecode is installed on the target managed node. It is available in the SHARUTILS package.

- **Problem:** The "Start WebLogic" and "Stop WebLogic" tools fail on Windows nodes if the USER or SERVER<n>_USER configuration property is set. The tool is trying to run the "su" command, which is only available on UNIX.

  Solution: Do not set the USER or SERVER<n>_USER property when configuring the SERVER<n>_START_CMD or SERVER<n>_STOP_CMD properties for Windows nodes.

Troubleshooting Graphs

- **Problem:** Netscape fails to refresh graphing data. Specifically, when you use Netscape as the browser to graph your data (graphing capability included with Reporter 3.0 or higher), the browser fails to refresh when new selections are made.

  For example, in the HPOM console after you drag and drop a managed node onto the WLSSPI Admin tool - View Graphs, Netscape appears and displays a blank WLS SPI graphing page where you can accept or change the following default selections:

  Server: `MyServer_1`

  Graph Name: Serverstat

  Date Range: 7 Days (ending now)

  By clicking Draw, you successfully generate the graph.

  However, when you select a different server, let's say `MyServer_2`, you see that the graph that appears after you click the Draw button is the same graph/data as the one you just viewed (for `MyServer_1`).

  Solution: Perform the following steps:

  a   In Netscape from the Edit menu select Preferences● Advanced●Cache

  b   In the segment labeled Document in cache is compared to document on network, select radio button Never.

  c   After successfully generating the first WLSSPI graph, for any subsequent graphs, always change a minimum of two selections to refresh the data; for example select a different server and a different graph; or select a different graph and a different date range. Any two differing selections work to clear the current graph data from the browser cache.

▶   The underlined text Refresh Graph Now at the bottom of the Web page does not work; when clicked, it may return the error: `the parameter is incorrect.`

- Problem: The "View Graphs" tool does not work.

  Solution: On the OVPM Windows system, copy the file:

  `\Program Files\HP Openview\newconfig\WLSSPI_Graphs.txt`

  to:

  `\Program Files\HP Openview\newconfig\VPI_GraphsWLSSPI.txt`

Troubleshooting Miscellaneous

- **Problem**: The perl installed with the HPOM agent fails to find the HPOM perl modules if another application (such as Oracle Application Server) sets the PERL5LIB environment variable to point at locations that do not include the HPOM perl lib location.

  Solution1: Set the `PERL5LIB` system environment variable:

  a   Prepend `C:\Program Files\HP OpenView\nonOV\perl\a\lib` (the HPOM perl lib path) to the PERL5LIB system environment variable.

  b   Kill the HPOM agent: opcagt **-kill**

  c   Restart the HPOM agent: opcagt **-start**

  d   Check the HPOM environment: ovdeploy -**cmd set**

  If the `PERL5LIB` variable is not set correctly in the HPOM environment but the system variable is set correctly, reboot the system.

  Solution 2

  a   Delete the `PERL5LIB` system environment variable.

  b   Reboot the system.

  c   Run the Discover tool.

  Solution 3: Run discovery on the target node. Enter the following:

  a   `cd /var/opt/OV/bin/instrumentation`

  b   `wasspi_perl -S wasspi_wls_discovery.pl`

  Note : The service map is not generated when the discover script is run locally (is not run from the HPOM management server).

- **Problem**: The `wls.log` file grows very large

  Solution: Limit the size of the data saved to the log file each time the logfile encapsulator is run. In the `SPIConfig` file

  (located in `/var/opt/OV/wasspi/wls/conf/` or `/var/opt/OV/conf/wls/` on UNIX platforms and `/usr/OV/wasspi/wls/conf/` on Windows platforms), add the following:

  # maximum number of lines to save to the log file / run

  LOG_LINE_LIMIT=16667

  `# maximum number of characters to save from each log file / run`

  LOG_SIZE_PER_FILE_LIMIT=600000

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

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

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

- **Problem:** The Web browser cannot be launched from an operator action after you have correctly configured the WLSSPI as instructed in the 'WebLogic SPI Configuration from the *Management Server*' task in Chapter 3.

  Solution: Perform these steps:

  a Stop and restart the agent from a user other than root by entering the following commands on the managed node:

  opcagt –kill

  opcagt –start

  b Run the operator action.

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

  Solution: Change the character set of the WLSSPI Error Log template and redeploy the template.

  For example, change the character set from "Shift-JIS" to "Japanese EUC."

- **Problem:** When the WebLogic Server is started, multiple WLSSPI-0011.1: % of execute threads used (<VALUE>%) too high messages are displayed in the message browser.

  Solution: These messages can be safely ignored when the WebLogic Server is being started.

- **Problem:** The Start Weblogic tool completion takes a long time.

  Solution: It will take time to start the Weblogic application server on the node based on the number of servers that need to be started. If it is taking too long, close this tool. Run Check WebLogic tool to know the weblogic server status.

Error Messages

The WebLogic SPI error messages contain the following information:

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

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

For more information on error messages, see Appendix C, Error Messages.

8 Removing the WebLogic SPI

This chapter provides instructions on how to remove the WebLogic SPI components from different environments.

Removing the SPI components

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

1. Remove the WebLogic SPI Software from the HP-UX Management Server or Remove the WebLogic SPI Software from the Linux or Solaris Management Server

2. Delete the WebLogic SPI Message groups

3. Delete the WebLogic SPI User Profiles

4. Remove the Report Package (Optional)

5. Remove the Graph Package (Optional)

Remove the WebLogic SPI Software from the HP-UX Management Server

To remove WLS SPI from the HP-UX management server:

1. Open a terminal window and log on as root.

2. In the terminal window, type the following:

    `/usr/sbin/swremove WLSSPI`

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

Remove the WebLogic SPI Software from the Linux or Solaris Management Server

You can use one of the following ways to remove the SPI from the Linux or Solaris management server:

• Graphical User Interface

• Command Line Interface

Graphical User Interface

To remove the WebLogic AS SPI through the Graphical User Interface:

1. Log on as a **`root`** user.

2   Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.

3   Start the X-windows client software and export the DISPLAY variable by typing the following command:

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

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

    ./HP_Operations_Smart_Plug-ins_Linux_setup.bin

    or

    ./HP_Operations_Smart_Plug-ins_Solaris_setup.bin

    The introductory window opens.

5   Select the language from the drop-down list and click **OK**. The Application Maintenance window opens.

6   Select **Uninstall** radio button and click **Next**.

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

    The Pre-Uninstall Summary window appears.
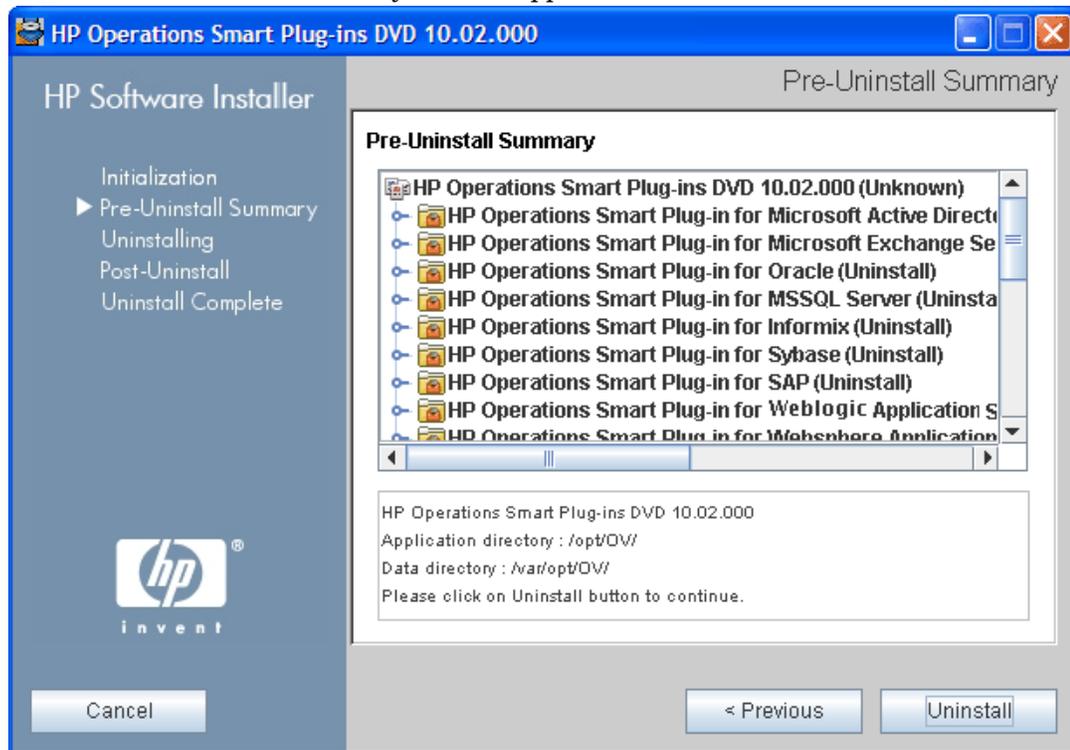
7   Click **Uninstall**.

    The Uninstalling window appears. The Uninstall Complete window opens once the SPI is uninstalled.

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

Command Line Interface

To remove the WebLogic AS SPI through Command Line Interface:

1 Log on as a **root** user.

2 Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux or Solaris management server. Mount the DVD if necessary.

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

./HP_Operations_Smart_Plug-ins_Linux_setup.bin -i console

or

./HP_Operations_Smart_Plug-ins_Solaris_setup.bin -i console

4 When the prompt, 'Choose Locale...' appears, press the number corresponding to the language you want to choose.

5 Press **Enter** to continue.

The Maintenance Selection screen appears.

6 Press the appropriate option (number) to start the removal of the SPI.

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

7 Press **Enter** to continue.

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

Delete the WebLogic SPI Message groups

To delete the WLS SPI Message grops::

1 From the Admin UI, open the All Message Groups window.

2 Select WebLogic and WLSSPI message groups check boxes.

3 Select **Delete...** from the **Choose an Action** drop-down list and click to submit.

The WebLogic SPI message groups are deleted.

Delete the WebLogic SPI User Profiles

To delete the WLS SPI User Profiles:

1 From the Admin UI, open the All User Profiles window.

2 Select the user profiles for the WebLogic SPI by selecting the check box.

3 Select **Delete...** from the **Choose an Action** drop-down list and click to submit.

The WebLogic SPI user profiles are deleted.

Remove the Report Package (Optional)

If you installed the WebLogic SPI report package on your Windows system running HP Reporter, remove it by following these steps:

1   On the Windows system running HP Reporter, from the Control Panel, double-click the **Add/Remove Programs** icon.

2   Select the WebLogic SPI report package and click **Remove**.

Remove the Graph Package (Optional)

If you have installed the WebLogic SPI graph packages on the HPOM management server and on your system running HP Performance Manager, remove them.

- On the HP-UX management server, run the following command:

  /usr/sbin/swremove WLSSPI-GRAPHS

- On the Solaris management server, run the following command:

  /usr/sbin/pkgrm HPOvSpiWlsG

- On a Windows system running HP Performance Manager:

  a   From the Control Panel, double-click the **Add/Remove Programs** icon.

  b   Select the WebLogic SPI graph package (HP Operations SPI for WebLogic Application Server - Graphing Component Integration) and click **Remove**.

- On an HP-UX system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are removed in Remove the WebLogic SPI Software from the HP-UX Management Server on page 117):

  a   Verify that the graph package is installed. Type **swlist | grep WLSSPI-GRAPHS**

  b   Type **swremove WLSSPI-GRAPHS**

- On a Solaris system running HP Performance Manager that is not the HPOM management server, follow these steps (if HP Performance Manager is installed on the HPOM management server, the files are removed in Remove the WebLogic SPI Software from the HP-UX Management Server on page 117):

  a   Verify that the graph package is installed. Type **/usr/bin/pkginfo HPOvSpiWlsG**

  b   Type **/usr/sbin/pkgrm HPOvSpiWlsG**

Removing the WebLogic SPI in a Cluster Environment

To remove the WebLogic SPI from each system in the cluster, follow the steps in Removing the SPI components on page 117.

A File Locations

You can find the WebLogic SPI configuration files and error logs in specific directories.

HPOM Management Server File Locations

Operating System	File	File Location
HP-UX and Linux	Configuration	`/opt/OV/wasspi/wls/conf`
Solaris	Configuration	`/opt/OV/wasspi/wls/conf`

Managed Node File Locations

These file locations are valid if you are migrating the UNIX or Windows node, on which WebLogic SPI is running, to non-root HTTPS agent environment.(UNIX only. If these directories do not exist, see the table in the Non-Root HTTPS Agent Environment on page 122 for file locations):

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

Non-Root HTTPS Agent Environment

On newly configured WebLogic 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/wlsspi`
HP-UX, Solaris, Linux	Error Logs	`/var/opt/OV/log/wlsspi`
AIX	Configuration	`/var/opt/OV/conf/wlsspi`
AIX	Error Logs	`/var/opt/OV/log/wlsspi`

B Configuration

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

Structure

For examples of the configuration, see Sample Configurations on page 144. The basic structure of the configuration is shown below. Lines preceded by # are 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. The 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> ...
}
```

You can use GROUP blocks to group together nodes having common properties. <group_name> denotes a group of nodes with common properties. If you repeat a GROUP block <group_name> within the configuration file, then the last definition takes precedence.

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

You can set the common properties using the NODE block.

▶ 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.

To view, set, or edit GROUP block properties, in the configuration editor, select **Default Properties** under 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 <nodename> (to set properties for a single node).

To set properties for a group, enter the <group_name> defined by the GROUP block and define the common properties.

To set properties for a single node, enter the <nodename> and define the properties.

<nodename> is the primary node name configured in HPOM.

If you repeat a property definition within the NODE block, the last definition takes precedence.

To view, set, or edit NODE block properties, in the configuration editor, select the Default Properties item under the <Node_Name> folder.

Server-Specific Properties

Apart from the high level properties, you can also view, set, or edit properties specific to a server. Each property specified as SERVER<n>_config_property refers to a specific WebLogic Server instance. When more than one WebLogic Servers are running on a given managed node, the number <n> differentiates the servers. Numbering begins at 1 and each WebLogic Server instance is assigned a unique number.

Property Precedence

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

1   SERVER<n>_property (server-specific)

2   NODE <node_name> {<property>} (property defined for a node)

3   GROUP <group_name> {<property>} (property defined for a group)

4   Global <property>

Configuration Editor

You can use the configuration editor to view and edit the configuration. You must update the configuration using the configuration editor only.

The main components of the configuration editor are:

- Tree
- Buttons
- Actions

Configuration Editor – Tree

The Configuration tree that appears in the left pane of the Configuration Editor window, shows the WebLogic SPI configuration in a tree structure.

The following is an example of the tree:

➤ If no application servers or groups are configured, the Application Servers and Groups folders do not appear. If you launch the Discover or Configure WLSSPI tool for the first time without selecting any node, the Nodes folder is not listed in the tree.
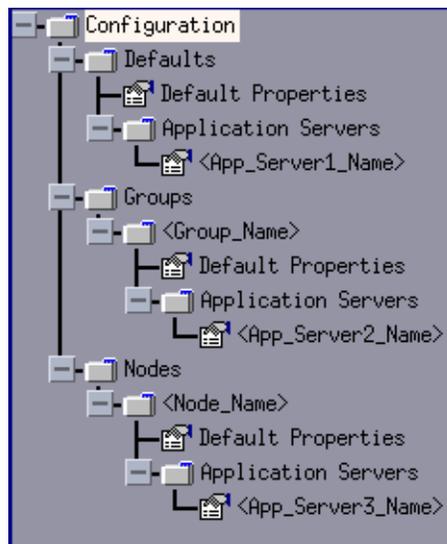
The icons are defined as follows:

 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
Application Servers	Contains a list of all the application servers. This folder can appear under Defaults (global properties), Group_Name (GROUP block), or Node_Name (NODE block).
<Application_Server_Name>	The server name as defined in the WebLogic Server.
Configuration	Contains all the WebLogic SPI configuration information for the WebLogic environment.
Default Properties	Lists the configuration properties that have been set. This item appears under Defaults (global properties), Group_Name (GROUP block), or Node_Name (NODE block).
Defaults	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 124).
Groups	Represents the GROUP block.
<Group_Name>	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 124).
Nodes	Represents the NODE block.
<Node_Name>	Represents a single node whose name matches the value returned by the HPOM variable **<$OPC_NODES>**. This value 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 124).

Configuration Editor – Buttons

You can use the buttons available in the WebLogic SPI configuration editor to perform several functions. The following table lists the buttons and their description:

Button	Description
Cancel	Exit the configuration editor.
	If you click **Cancel** (without saving the changes) after adding or removing an application server, node, or group or modifying a configuration property, the Confirm Cancel window opens. Click **Save and Exit** to save the changes before exiting, click **Exit without Save** to exit without saving the changes, or click **Return to Editing** to continue editing the configuration (changes are not saved).
Next	Exit the configuration editor.
	When you click **Next** the Confirm Operation window opens. This window contains a list of the nodes you selected before launching Discover or Configure WLSSPI tool. The selected managed nodes' configurations are updated with your changes. Changes made to the unselected node (not displayed in the Confirm Operation window) are saved to the HPOM management server's configuration. To save changes on those managed node's configuration, you must select the managed nodes, re-launch Discover or Configure WLSSPI, and then exit.
Finish	Exit the configuration editor.
	This button appears instead of the Next button if you launch Discover or Configure WLSSPI without selecting any nodes.
Save	Save changes to the HPOM management server's configuration and continue editing the configuration.
	You can also click **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. You can access the following Actions from the Actions menu, File menu, or by right-clicking on an item in the tree.

Action	Description	Selected Tree Item
Add Application Server	To add an application server. For more information, see Add Application Server on page 128.	🗋Application Servers 🗋Defaults 🗋*<Group_Name>* 🗋*<Node_Name>*
Add Group	To create a group to which you can assign nodes that have common properties. For more information, see Add Group on page 129.	🗋Any item in the tree 🖿Any item in the tree
Add Node	To add a managed node to the Nodes folder. For more information, see Add Node on page 129.	🗋Any item in the tree 🖿Any item in the tree

Action	Description	Selected Tree Item
Exit	To exit the configuration editor. This action is available from the File menu. If changes have not been saved, the Confirm Cancel window opens.	Any item in the tree Any item in the tree
Remove Application Server/Remove ALL App Servers	To remove one or all application servers listed. For more information, see Remove Application Server/ Remove ALL App Servers on page 130.	Application Servers *<Application_Server_Name>*
Remove Group/ Remove ALL Groups	To remove one or all the WebLogic SPI groups listed. For more information, see Remove Group/ Remove ALL Groups on page 130.	Groups *<Group_Name>*
Remove Node/ Remove ALL Nodes	To remove one or all managed nodes listed. For more information, see Remove Node/Remove ALL Nodes on page 130.	Nodes *<Node_Name>*
Save	To save changes to the configuration. This action is available from the File menu only if you make changes to the configuration.	Any item in the tree Any item in the tree
Set Configuration Properties	You can click **Set Configuration Properties** tab to set the WebLogic SPI configuration properties. For more information, see Set Configuration Properties Tab on page 131.	*<Application_Server_Name>* Default Properties
View Current Configuration	You can click **View Configuration Settings** tab to view the WebLogic SPI configuration properties. For more information, see Set Configuration Properties Tab on page 131.	Any item in the tree Any item in the tree

Add Application Server

You can add a WebLogic Server instance at the global properties, GROUP, or NODE level in the WebLogic SPI configuration.

If a node contains duplicate server names (the NAME property is set to the same value), you are prompted to set the ALIAS property (to uniquely identify each server). For more information about the ALIAS property, see Property Definitions on page 134.

To add an application server:

1   In the WLSSPI Configure Tool: Configuration Editor window, right-click one of the following items in the tree: Defaults (global properties level), Application Servers (global properties level), *<Group_Name>* (GROUP level), or *<Node_Name>* (NODE level) and select **Add Application Server**.

The WLSSPI Configure Tool: Configuration Editor: Add App Server window opens.

2   Enter the server name in the Application Server Name box. This is the name of the application server as defined in WebLogic Server and is case-sensitive. The WebLogic administration console displays the server names of all configured application servers in a domain. Use these names for the Application Server Name.

3   Enter the port name in the Application Server Port box. This is the port where the WebLogic Server listens. The WebLogic administration console displays the port numbers of all configured application servers in a domain. Use these for the Application Server Port.

4   Click **OK**. The NAME and PORT properties are set.

The application server is added and you can view its properties. You can also set additional configuration properties for this server. For more information, see Set Configuration Properties Tab on page 131.

5   Click **Save** to save your changes. If you do not want to add this application server, right-click the application server name, select **Remove Application Server**, and click **Save**.

Add Group

You can assign nodes with common properties to a group in the WebLogic SPI configuration.

To add a group:

1   In the WLSSPI Configure Tool: Configuration Editor window, right-click any item in the tree and select **Add Group**. The WLSSPI Configure Tool: Configuration Editor: Add Group window opens.

2   Enter the group name in the Group Name box. 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 active.

4   Click **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** drop-down list. For more information, see Set Configuration Properties Tab on page 131.

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 select **Save**.

Add Node

To add a managed node to the WebLogic SPI configuration:

1   In the WLSSPI Configure Tool: Configuration Editor window, right-click any item in the tree and select **Add Node**. The WLSSPI Configure Tool: Configuration Editor: Add Node window opens.

➤   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.

2   From the drop-down list, select a node to add.

3   Click **OK**. The node is added and the **Set Configuration Properties** tab for the node is active.

4   Set the configuration properties for this node using the **Select a Property to Set...** drop-down list. For more information, see Set Configuration Properties Tab on page 131.

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 select **Save**.

Remove Application Server/Remove ALL App Servers

To remove *one* WebLogic Server listed from the WebLogic SPI configuration:

1   Right-click the application server name and select **Remove Application Server**. The selected application server name is removed from the list and its configuration properties are removed from the configuration.

2   Click **Save** to permanently remove the application server from the configuration.

Click **Cancel** to cancel the removal of the application server (the application server name appears the next time you launch Discover or Configure WLSSPI). In the Confirm Cancel window, click **Exit without Save**.

To remove *all* application servers:

1   Right-click the Application Servers folder and select **Remove ALL App Servers**. The selected Application Servers folder and all application servers listed in the selected folder are removed (all configuration properties for the listed application servers are removed from the configuration).

2   Click **Save** to permanently remove the application servers.

Select **Cancel** to cancel the removal of all application servers (the Application Servers folder and all application server names listed in the folder appear the next time you launch Discover or Configure WLSSPI). In the Confirm Cancel window, click **Exit without Save**.

Remove Group/Remove ALL Groups

To remove one or all the WebLogic SPI groups listed from the WebLogic SPI configuration:

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 launch Discover or Configure WLSSPI). In the Confirm Cancel window, click **Exit without Save**.

Remove Node/Remove ALL Nodes

To remove *one* managed node listed from the WebLogic SPI configuration:

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.

Select **Cancel** to cancel the removal of the node (the node name appears the next time you launch Discover or Configure WLSSPI). In the Confirm Cancel window, click **Exit without Save**.

To remove *all* nodes:

1   Right-click the Nodes folder and select **Remove ALL Nodes**. The selected Nodes folder and all nodes listed in the selected folder are removed (all configuration properties for the listed nodes are removed from the configuration).

2   Click **Save** to permanently remove the nodes.

    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 launch Discover or Configure WLSSPI). In the Confirm Cancel window, click **Exit without Save**.

Set Configuration Properties Tab

You can use this tab to set the WebLogic SPI configuration properties at the global properties level or for the selected application servers, groups (GROUP level), or nodes (NODE level).

Items with the icon are the only items for which you can set configuration properties (Default Properties and *<Application_Server_Name>*).

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

Setting a Property

To set a property in the configuration:

1   In the configuration editor, select a property from the **Select a Property to Set...** drop-down list.

2   Click **Set Property**. The property and an empty value filed appear in the table.

3   Click the empty value field and enter a value.

4   Repeat steps 1 - 3 for each property to set.

5   Click **Save**.

▶   For the LOGIN and PASSWORD properties, when you click **Set Property**, a separate window opens. Enter the login and password values in this window.

For more information on individual properties, see Configuration Properties on page 133.

Modifying a Property

To modify a property (except LOGIN) in the configuration:

1   In the configuration editor, select the property you want to modify.

2   Double-click the value field and edit the value.

    If a node contains duplicate server names (the NAME property is set to the same value), you are prompted to set the ALIAS property (to uniquely identify each server). For more information about the ALIAS property, see Property Definitions on page 134.

3   Repeat steps 1 - 2 for each property to modify.

4   Click **Save**.

To modify the LOGIN property in the configuration:

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

2   Click **Set Property**. The Set Access Info for Default Properties window opens.

3   Enter the new password and verify password. Click **OK**.

4   Click **Save**.

For more information on individual properties, see Configuration Properties on page 133.

Removing a Property

To remove a property from the configuration:

1   In the configuration editor, select the property you want to remove.

2   Click **Remove Property**.

3   Repeat steps 1 - 2 for each property to remove.

4   Click **Save**.

View Current Configuration Tab

You can use this tab to view all the WebLogic SPI configuration properties set in the configuration on the HPOM management server or the WebLogic SPI configuration properties for the selected application servers, groups, or nodes.

To view the configuration properties of an item, in the configuration editor 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
Application Servers	View all configuration properties set for all the listed application servers.
<Application_Server_Name>	View all configuration properties set for the application 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. If you select 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 "<*>" that appears after the property.

If you clear the **View Inherited Properties** 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 a 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

The WebLogic SPI maintains a configuration that consists of property values that are discovered by the discovery process or are user defined. Table 8 lists the properties by the WebLogic SPI requirements. For description of the properties, see Table 9.

Property	Name of the Property
Requirements	Property requirements for specific components are the following:
	R - Required: The property must be set.
	C - Conditional: The property needs 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.
WebLogic SPI	The configuration requirements for the WebLogic SPI to work.
Discovery Process	The requirements for the discovery process to work.
Auto-Discovered	The property is automatically set by the discovery 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.

Property Definitions

Table 8   Properties Listed by the WebLogic SPI Requirements

Property	Requirements			Level of Configuration	
	WebLogic SPI	Discovery Process	Auto-Discovered	Default Properties	Application Server
HOME	R	R	✓	✓	✓
JAVA_HOME	R	R	✓	✓	✓
LOGIN	R	R		✓	✓
NAME	R		✓		✓
PASSWORD	R	R		✓	✓
PORT	R		✓		✓
ADDRESS	C	O	✓ [a]		✓
ADMIN_HOST	C		✓		✓
ADMIN_PORTS	C		✓		✓
ADMIN_PORTS	C	C		✓	
ALIAS	C				✓
BEA_HOME_LIST	R	R	✓	✓	
COLLECT_METADATA	C	O		✓	✓
GRAPH_URL	C			✓	
JMB_JAVA_HOME	C			✓	✓
JMX_CLASSPATH	C			✓	✓
KEYSTORE	C			✓	✓
LOGFILE	C				✓
NODE_NAMES	C	C			✓
PASSPHRASE	C			✓	✓
PROTOCOL	C			✓	✓
RMID_PORT	C			✓	
RMID_START_TIME	C			✓	
START_CMD	C				✓
STOP_CMD	C				✓
USER	C			✓	✓
URL_PATH	C				✓
VERSION	C		✓		✓
EXCLUDE_SAMPLES	O			✓	✓
MAX_ERROR_LOG_SIZE	O			✓	
TIMEOUT	O			✓	✓

Table 8   Properties Listed by the WebLogic SPI Requirements (cont'd)

| Property | Requirements | | Auto-Discovered | Level of Configuration | |
	WebLogic SPI	Discovery Process		Default Properties	Application Server
TYPE	O			✓	✓
UDM_DEFINITIONS_ SOURCE	O			✓	✓

a.   If a WebLogic Admin server is managing a remote WebLogic Server that is listening on a virtual IP address, you must configure the managed node on which the remote WebLogic Server is running with an alias in HPOM, for ADDRESS to be automatically discovered. To configure the virtual IP address in HPOM, see the Description section of the ADDRESS property.

➤ In Table 9, Application Server A is mentioned repeatedly. Application Server A represents the WebLogic Application Server for which you are setting the properties.

Table 9   Configuration Properties

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
ADDRESS	9.x, 10.x	**Conditional** Required if the server is running on a virtual IP address, is on a remote node, or is not using the primary IP address of that node.	The domain name or IP address where the server is listening. If ADDRESS is not set, the WebLogic SPI connects to the server using the node's primary address. **Example**: `SERVER1_ADDRESS = product.hp.com`
ADMIN_HOST	9.x, 10.x	**Conditional** Required if you want to start and stop the WebLogic console using the Start WebLogic Console tool.	Name of the node on which the WebLogic administration server, which is managing Application Server A is running. This property must be set to start the WebLogic Server Console tool. **Example**: `SERVER1_ADMIN_HOST=localhost`
ADMIN_PORTS	9.x, 10.x	**Conditional** Required if you want to start and stop the WebLogic console using the Start WebLogic Console tool.	The port of the WebLogic administration server managing Application Server A. Must be set in order to start the WebLogic Server Console tool. **Example**: `SERVER1_ADMIN_PORT=7005`

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
ADMIN_PORTS	9.x, 10.x	**Conditional** Required if the domain configuration file of the WebLogic Admin servers is not located in the default directory.	The port numbers of WebLogic Admin servers whose domain configuration file, `config.xml`, is not located in the following default directory: • For WebLogic 9.x, 10.x *<BEA_Home_Dir>*/ `user_projects/domains/` *<domain_name>* where, *<WebLogic_Install_Dir>* is the directory where the WebLogic Server is installed, *<BEA_Home_Dir>* is the directory that contains the `registry.xml` file, and *<WebLogic_Domain>* is the WebLogic domain name. If the WebLogic Admin server is listening on a virtual IP address, include this virtual IP address before the port number, separated by a colon. For example, *<virtual_ip_address>*: *<port_number>*. The LOGIN and PASSWORD for the WebLogic Admin servers must be set at the NODE block level. The LOGIN and PASSWORD must be the same for all WebLogic Admin servers running on the same node. The port numbers set by this property are the ports used by the WebLogic Admin servers.

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description

ALIAS	9.x, 10.x	**Conditional**
		
		Required if more than one application server on a system share the same server name.
			Unique name assigned to an application server on a managed node if more than one application server on a node share the same server name. The alias, if set, is the name used in messages, reports, and graphs (otherwise, NAME is used).
			
			If you modify the ALIAS, the data for the old alias is saved, but is not mapped to the new alias.
			
			Example:
			<pre>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
			}</pre>

BEA_HOME_LIST	9.x, 10.x	**Required**	This is the software registry used by all WebLogic products. It contains information on all WebLogic products installed on the system. If you do not use BEA's installation scripts to install the WebLogic Server, the software registry is not created. On a UNIX managed node, the software registry is created in the file `$HOME/bea/beahomelist`, where `$HOME` is the home directory of the user who installed the WebLogic Server. On a Windows managed node, the software registry is created in the file `beahomelist` or is defined by the BEAHOMELIST registry. On a UNIX managed node, directory names with spaces are not supported. If the software registry does not exist and this property is not set, the Discovery policies generate an error message.

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
COLLECT_METADATA	9.x, 10.x	**Conditional** Required if you want to use the MBean Explorer in the JMX Metric Builder tool.	Set the value of COLLECT_METADATA to **ON** to collect metadata (MBean information) displayed by the JMX Metric Builder tool. This metadata is used to create UDMs (user defined metrics). Metadata for each MBean server is saved in the following file: `/var/opt/ OV/wasspi/wls/metadata/` *<managed_node>*/ *<NAME|ALIAS>*.`xml`, `/var/opt/OV/metadata/wls/` *<managed_node>*/ *<NAME|ALIAS>*.`xml`, or *<Agent_Dir>*`\wasspi\wls\ metadata\`*<managed_node>*`\` *<NAME|ALIAS>*.`xml` where NAME and ALIAS are the properties set for the managed node and ALIAS is always used if it is set. **Default:** `OFF`.
EXCLUDE_SAMPLES	9.x, 10.x	**Optional**	Set the value to **true** to *not* discover WebLogic Server sample programs. This reduces the time taken by the discovery process. Sample programs are located in the following directories: WebLogic 9.x, and 10.x *<WL_Install_Dir>*`/samples/ domains/medrec` **Default:** false. **Example**: `EXCLUDE_SAMPLES = true`
GRAPH_URL	9.x, 10.x	**Conditional** Required if you want to use the View Graphs tool (HP Open View Performance Manager must be installed).	The URL used to launch HP Performance Manager. Set the GRAPH_URL property at the global level only. **Examples**: `GRAPH_URL = http://` <server_name>:<port_no>/OVPM (PM 8.10 on UNIX and Windows), the default port number is 8081.
HOME	9.x, 10.x	**Required**	The directory where the WebLogic Server is installed. **Example**: `HOME = /opt/bea/ wlserver6.0sp1`

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
HOME_LIST	9.x, 10.x	**Required**	List of directories where the WebLogic Server is installed. Each directory is separated by a semicolon. This list is used by discovery. On a UNIX managed node, directory names with spaces are not supported.
JAVA_HOME	9.x, 10.x	**Required**	The directory where Java, that is used by the collector, is installed. The java engine is expected to be `$JAVA_HOME/bin/java`. **Example**: `JAVA_HOME = /opt/bea/jdk130`
JMB_JAVA_HOME	N/A	**Conditional** Required if you are using the JMX Metric Builder.	The directory where Java (JDK 1.5 or higher) is installed. This java is used by the JMX Metric Builder on the HPOM management server. The JDK version must be 1.5 or later.
KEYSTORE	9.x, 10.x	**Conditional** Required if using SSL.	The fully-qualified path to the SSL trust keystore file. **Default**: WebLogic's demo keystore
LOGFILE	9.x, 10.x	**Conditional** Required only if the logfile names returned by WebLogic Server are not those desired to be monitored.	A comma-separated list of fully qualified file names of WebLogic Server log files. Setting this property overrides any logfiles that the SPI would otherwise be monitoring for this server. **Default**: `<home>/<NAME>/weblogic.log`
LOGIN	9.x, 10.x	**Required**	The WebLogic Server admin user configured at installation. **Example**: `SERVER1_LOGIN = johndoe`
NAME[a]	9.x, 10.x	**Required**	The server name as defined in the WebLogic Server. Use the WebLogic administration console to obtain this information. If a system shares the same server name (the value of NAME is the same within a NODE block), use ALIAS to uniquely identify each server. This name is used in messages, reports, and graphs unless `ALIAS` is set. **Example**: `SERVER1_NAME = exampleServer`

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
NODE_NAMES	9.x, 10.x	**Conditional** Required if a remote WebLogic Server is running on a virtual IP address.	The virtual IP address where the server is listening. If NODE_NAME is not set for the remote WebLogic Server, it is not automatically discovered. **Example**: SERVER1_NODE_NAMES = 15.19.20.21
NUM_SERVERS	9.x, 10.x	**Optional**	The number of WebLogic Servers on the managed node. **Example**: NUM_SERVERS = 3
PASSPHRASE	9.x, 10.x	**Conditional** Required if the configured keystore requires a passphrase for read operations.	The passphrase defined when the keystore was created on your WebLogic Server. If a keystore was not defined with a password, do not set this property. When you type in the PASSPHRASE, it displays as plain text in the interface. When you save the properties or change the view in the interface, the PASSPHRASE is encrypted. A PASSPHRASE must contain at least two characters.
PASSWORD	9.x, 10.x	**Required**	The password for the LOGIN. If LOGIN is configured, a password must be defined. **Example**: SERVER1_PASSWORD = johndoe123
PORT	9.x, 10.x	**Required**	The port the WebLogic Server listens on. Use the WebLogic administration console to get the port number. **Example**: SERVER1_PORT = 7001
PROTOCOL	9.x, 10.x	**Conditional** Required if using SSL on the application server port.	Specifies if the application server port is using SSL or non-SSL. Valid values are: • t3 for non-SSL • t3s for SSL If PROTOCOL is not set, it takes the default, which is t3. If PROTOCOL is set and you click **Set Property**, the default value becomes t3s. If an invalid PROTOCOL is set or it does not match the application port, HPOM reports the application server as down.

Table 9 Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
RMID_START_TIME	9.x, 10.x	**Conditional** Required if rmid takes longer than 30 seconds to start.	The amount of time, in seconds, to wait for rmid to start before timing out. **Default**: 30 (seconds) **Examples**: RMID_START_TIME = 60
START_CMD	9.x, 10.x	**Conditional** Required if you want to start the WebLogic Server from the HPOM console	This system command is run when the Start WebLogic tool is used. This command is run by USER, which must be set for the Start WebLogic tool to work. **Note:** This command must exit. That is, the WebLogic 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/weblogic start
STOP_CMD	9.x, 10.x	**Conditional** Required if you want to stop the WebLogic Server from the HPOM console	This system command is run when the Stop WebLogic tool is used. This command is run by USER, which must be set for the Start WebLogic tool to work. **Example**: SERVER1_STOP_CMD = / sbin/init.d/weblogic stop
TIMEOUT	9.x, 10.x	**Optional**	The maximum amount of time (in seconds) that the WebLogic SPI can take to connect to the WebLogic Server. When the specified time is exceeded, the WebLogic SPI sends an alarm to the message browser indicating that the WebLogic Server is unavailable. If metric B002_ServerStatusRep is being collected, the unavailability of the server is logged. If you do not want a time limit, set this property to -1. **Default**: 120 (seconds).

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
UDM_DEFINITIONS_SOURCE	9.x, 10.x	**Optional**	The path name or file name of the metric definitions XML file on the HPOM management server. If a path name is set, the `wasspi_wls_udmDefinitions.xml` file is the assumed file name of the UDM file. **Default**: `/opt/OV/conf/wlsspi/ wasspi_wls_udmDefinitions.xml`. **Example**: `SERVER1_UDM_DEFINITIONS_SOURCE = /opt/OV/conf/wlsspi/udm.xml`
URL_PATH	9.x, 10.x	**Conditional**	The path part of the JSR-160 connector server URL. **Example:** `SERVER1_URL_PATH=jndi/ weblogic.management.mbeanserve rs.domainruntime`
USER	9.x, 10.x	**Conditional** Required if you want to start and/or stop the WebLogic Server from the HPOM console	The system username for starting and stopping the WebLogic Server from the HPOM Console. **Default:** the username under which the HP Operations agent runs. **Example**: `USER = weblogic`

Table 9   Configuration Properties (cont'd)

Property	Applicable WebLogic Version	Required/ Conditional/ Optional	Description
VERSION	9.x, 10.x	**Conditional**	The version number of the WebLogic Server in the format *Major#* [*Minor#*] where: *Major#* - The primary version number (for example, 10.0) *Minor#* - The service pack installed (for example, 1 for SP1). If *Minor#* is not specified, the default value 0 is taken (no service pack installed).

a. The WebLogic administration console displays the server names and port numbers of all configured application servers in a domain. Use these names and numbers when defining NAME and PORT .

Sample Configurations

The following examples illustrate various features and utilization methods.

Example 1: Single Node/Two Servers

The following example is of two servers, an administration server and a managed server, running on a single node. The properties HOME and JAVA_HOME are global defaults that apply to all servers and nodes. When the configuration is saved, passwords are encrypted.

```
HOME = /opt/bea/wlserver_10
JAVA_HOME=/opt/bea/jdk131
NODE main.rose.hp.com
{
  SERVER1_NAME= adminserver
  SERVER1_PORT= 7001
  SERVER1_LOGIN= system
  SERVER1_PASSWORD = password
  SERVER2_NAME= managedserver
  SERVER2_PORT= 7005
  SERVER2_LOGIN= system
  SERVER2_PASSWORD= password
}
```

Example 2: Multiple Nodes/Repeated Properties

The following 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 129.

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 129.

▶   Properties set for a node take precedence over the same properties set for a group. For the complete order of property precedence, see Property Precedence on page 124.

In the example, the global default properties HOME and JAVA_HOME are overridden for node europa.rose.hp.com. Since the start command uses the system init command −/sbin/ init.d/weblogic start which runs, when the system starts all WebLogic Servers, you must set USER to root. In this environment, this command takes care of starting the servers with the correct user, such as weblogic.

```
HOME   = /opt/bea/wlserver_10
JAVA_HOME = /opt/bea/jdk131
USER   = root
GROUP production
{
  mercury.hp.com
  venus.hp.com
```

```
    mars.hp.com
    jupiter.hp.com
}
NODE production
{
  SERVER1_NAME= partsserver
  SERVER1_PORT= 7001
  SERVER1_LOGIN= system
  SERVER1_PASSWORD= password
  SERVER1_ADMIN_HOST= earth.rose.hp.com
  SERVER1_ADMIN_PORT= 7001
  SERVER1_START_CMD /sbin/init.d/weblogic start
  SERVER2_NAME= orderserver
  SERVER2_PORT= 7010
  SERVER2_LOGIN= system
  SERVER2_PASSWORD= moresecret
  SERVER2_START_CMD /sbin/init.d/weblogic start
}
NODE jupiter.rose.hp.com
{
  SERVER1_PASSWORD= different1password
  SERVER2_PASSWORD= different2password
}
NODE europa.hp.com
{
  SERVER1_HOME = /opt/bea/wls
  SERVER1_JAVA_HOME = /opt/bea/jdk132
  SERVER1_NAME= testserver
  SERVER1_PORT= 7100
  SERVER1_LOGIN= system
  SERVER1_PASSWORD= mypssword
}
```

Example 3: Multiple WebLogic Server Versions

This example shows how to set up an environment with two different versions of WebLogic
Server running on a single managed node. Note that SERVER1_HOME and
SERVER2_HOME are set to different directories for the different versions of WebLogic
Server.

```
NODE callisto.hp.com
{
  SERVER1_HOME = /opt/bea/weblogic90
  SERVER1_JAVA_HOME = /opt/bea/jdk131
  SERVER1_NAME= prodserver
  SERVER1_PORT= 7001
  SERVER1_LOGIN= system
  SERVER1_PASSWORD= mypssword
  SERVER1_HOME = /opt/bea/wlserver_10
  SERVER1_JAVA_HOME = /opt/bea/jdk131
  SERVER1_NAME= testserver
  SERVER1_PORT= 7100
  SERVER1_LOGIN= system
  SERVER1_PASSWORD= mypssword
}
```

Example 4: WebLogic Servers with Virtual IP Addresses

This example shows how to configure WebLogic Servers that have virtual IP addresses. ADDRESS is set to the name or IP address where the server is listening.

```
NODE saturn.hp.com
{
   SERVER1_HOME = /opt/bea/weblogic90
   SERVER1_JAVA_HOME = /opt/bea/jdk131
   SERVER1_NAME= partsserver
   SERVER1_PORT= 7001
   SERVER1_ADDRESS= juno.rose.hp.com
   SERVER1_LOGIN= system
   SERVER1_PASSWORD= mypssword
   SERVER2_HOME = /opt/bea/wlserver_10
   SERVER2_JAVA_HOME = /opt/bea/jdk131
   SERVER2_NAME= orderserver
   SERVER2_PORT= 7001
   SERVER2_ADDRESS= 15.15.1.1
   SERVER2_LOGIN= system
   SERVER2_PASSWORD= mypssword
}
```

Example 5: Non-default WebLogic Server Startup Location

This example addresses the case where the command that starts WebLogic Server does not cd to the HOME directory before it starts. The WebLogic SPI might not be able to locate the WebLogic Server log files to monitor. To make sure that the WebLogic SPI can monitor the log files, either set LAUNCH_DIR to the directory from which the server was run from, as on neptune (in the example), or set LOGFILES as on pluto (refer to the following example).

```
NODE neptune.hp.com
{
   SERVER1_HOME = /opt/bea/wlserver_10
   SERVER1_JAVA_HOME = /opt/bea/jdk131
   SERVER1_NAME= exampleServer
   SERVER1_PORT= 7001
   SERVER1_LOGIN= system
   SERVER1_PASSWORD= mypssword
   SERVER1_LAUNCH_DIR = /home/weblogic
}
NODE pluto.hp.com
{
   SERVER1_HOME = /opt/bea/wlserver_10
   SERVER1_JAVA_HOME = /opt/bea/jdk131
   SERVER1_NAME= exampleServer
   SERVER1_PORT= 7001
   SERVER1_LOGIN= system
   SERVER1_PASSWORD= mypssword
   SERVER1_LOGFILES =
/opt/bea/wlserver_10/config/mydomain/logs/weblogic.log,
/opt/bea/wlserver_10/config/mydomain/logs/wl-domain.log
}
```

► The SERVER1_LOGFILES are set on a single long line separated by commas.

C Error Messages

The WebLogic SPI error messages contain the following information:

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

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

WASSPI-1

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

WASSPI-2

Description	Cannot access the SPI configuration.
Severity	Critical
Help Text	**Probable Cause**
	A WebLogic SPI configuration file could not be located or accessed. Either they do not exist or there was a problem reading the files.
	Suggested Action
	1 Verify that the WebLogic SPI has been configured correctly by running the **SPI Admin →** **Verify** tool. If the configuration is not correct, run the **SPI Admin → Discover or Configure** **WLSSPI** tool.
	2 Refer to the text following the error message in the WLSSPI 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 **SPI 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	**Probable Cause** The WebLogic SPI data collector command line is incorrectly specified in a monitor policy. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI 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 **SPI 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. For more information on the WebLogic SPI data collector command line, refer to the *HP Operations Smart Plug-in for Oracle WebLogic Server Installation and Configuration Guide.*

WASSPI-4

Description	Error getting the metric definitions.
Severity	Critical
Help Text	**Probable Cause** The WebLogic 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. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI 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 **SPI 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 WLSSPI configuration file, run the **SPI Admin → Discover or Configure WLSSPI** 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 WebLogic, then reinstall the SPI for WebLogic. Run the **SPI Admin → Discover or Configure WLSSPI** tool. 4 If the problem is with a user-defined metric definitions file that is not shipped with the SPI for WebLogic, verify that this XML file adheres to the `MetricDefinitions.dtd` specification. Refer the *HP Operations Smart Plug-in for Oracle WebLogic Server Installation and Configuration Guide* for more information on writing user-defined metrics. Reinstall your user-defined metric definition file. Run the **SPI Admin → Discover or Configure WLSSPI** tool and verify that the UDM_DEFINITIONS_FILE property in the SPI configuration, is specified correctly. 5 If the underlying error is `ClassNotFound`, this is an internal error. Report this to HP Support.

WASSPI-5

Description	Error processing metric *<metric_number>*.
Severity	Major
Help Text	**Probable Cause** An error occurred while trying to collect data or perform calculations for the specified metric. **Suggested Action** Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. The error messages previous to this one might also provide more information about the problem. You can view the SPI error log for a managed node by using the **SPI Admin → View Error File** tool. The error message can be identified by the date/time stamp.

WASSPI-6

Description	Required property *<property_name>* is missing from the WebLogic SPI configuration.
Severity	Major
Help Text	**Probable Cause** The specified required property is missing from the WebLogic SPI configuration file. **Suggested Action** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that you have specified the correct server information for the WebLogic servers on this managed node. 2 Verify the property is specified correctly in the WebLogic SPI configuration file (`/var/opt/OV/wasspi/wls/conf/SiteConfig` on Unix platforms or `%OvAgentDir%\wasspi\wls\conf\SiteConfig` on Windows platforms) on the managed node in question.

WASSPI-7

Description	Unable to contact server *<server_name>* at url=*<URL>*, port=*<port>*.
Severity	Critical
Help Text	**Probable Cause**
	The specified server is not running at the specified port.
	Suggested Action
	1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that you have specified the correct server information for the WebLogic servers on this managed node.
	2 Verify that the properties, SERVERx_NAME and SERVERx_PORT are specified correctly in the WebLogic SPI configuration file (`/var/opt/OV/wasspi/wls/conf/SiteConfig` on Unix platforms or `%OvAgentDir%\wasspi/wls/conf/SiteConfig` on Windows platforms) on the managed node in question.
	3 Verify that the WebLogic Server is running on the managed node.

WASSPI-8

Description	Error saving graphing or reporting data to file *<file_name>*.
Severity	Critical
Help Text	**Probable Cause**
	The specified graphing or reporting data file could not be found or an I/O error occurred when trying to access the file.
	Suggested Action
	1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI 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 **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem.
	4 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-9

Description	Unable to retrieve property *<property_name>*.
Severity	Critical
Help Text	**Probable Cause** A required property is missing from one of the WebLogic SPI configuration files. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI Admin → View Error File** tool. The error message can be identified by the date/time stamp. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that you have specified the correct information for the WebLogic servers on the managed node in question. 3 Verify that the missing property is now specified in the WebLogic SPI configuration file (`/var/opt/OV/wasspi/wls/conf/SiteConfig` on Unix platforms or `%OvAgentDir%\wasspi\wls\conf\SiteConfig` on Windows platforms) on the managed node in question.

WASSPI-10

Description	Encountered problem accessing file `<filename>`.
Severity	Critical
Help Text	**Probable Cause** The specified file could not be found, created, or accessed. This file could be a temporary file. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI 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 WebLogic SPI configuration file.
Severity	Major
Help Text	**Probable Cause** The number of WebLogic Servers specified in the WebLogic SPI configuration for the managed node in question is 0. **Suggested Action** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that you have specified the correct server name and port information for the WebLogic servers on this managed node. 2 Verify that the property, NUM_SERVERS, in the WebLogic SPI configuration file (/var/opt/OV/wasspi/wls/conf/SiteConfig on Unix platforms or %OvAgentDir%\wasspi\wls\conf\SiteConfig on Windows platforms) is set to the number of WebLogic Servers on this managed node.

WASSPI-12

Description	Command *<command>* returned error exit code *<exit code>*.
Severity	Critical
Help Text	**Probable Cause** A command started by the WebLogic SPI collector has returned an error (non-zero) exit code. **Suggested Action** 1 Identify the steps to reproduce the problem. 2 Run the **SPI Admin → Start Tracing** tool to turn on tracing. 3 Reproduce the problem. 4 Run the **SPI Admin → Stop Tracing** tool to turn off tracing. 5 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-13

Description	Exception occurred while running an opcmon process.
Severity	Critical
Help Text	**Probable Cause** The WebLogic SPI data collector attempted to run a process to execute an opcmon call. Either the process could not be created or was interrupted. **Suggested Action** For UNIX systems, make sure the kernel configurable parameters NPROC and MAXUPRC are set high enough to enable process creation.

WASSPI-14

Description	Unable to find file *<filename>*.
Severity	Critical
Help Text	**Probable Cause** A file required by the WebLogic SPI data collector could not be found. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI Admin → View Error File** tool. The error message can be identified by the date/time stamp. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool on this managed node.

WASSPI-15

Description	Error parsing XML document *<filename>*.
Severity	Critical
Help Text	**Probable Cause** An error occurred while parsing the specified XML document. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI 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. For more information about the correct format for a user-defined metric definition document, see the *HP Operations Smart Plug-in for Oracle WebLogic Server Installation and Configuration Guide*. 3 If the XML document is a document that is shipped with the WLSSPI, run the **SPI Admin → Discover or Configure WLSSPI** tool to reinstall the WLSSPI configuration files.

WASSPI-16

Description	A bad filter was specified for metric *<metric_number>*.
Severity	Major
Help Text	**Probable Cause** A metric filter is incorrectly specified in the metric definitions XML document. **Suggested Action** 1 If the metric is specified in an XML document that was provided by the user, correct the document. For more information about the correct format for a user-defined metric definition document, see the *HP Operations Smart Plug-in for Oracle WebLogic Server Installation and Configuration Guide*. 2 If the metric is a pre-defined metric that is shipped with the WebLogic SPI, run the **SPI Admin → Discover or Configure WLSSPI** tool to reinstall the WLSSPI configuration files.

WASSPI-17

Description	Could not access MBean server on server *<server_name>* at url=*<URL>*, port=*<port_number>*.
Severity	Critical
Help Text	**Probable Cause** A problem occurred while the WebLogic SPI data collector was requesting access to the JMX MBean server on the WebLogic Server. This could be caused by: 1 The JNDI lookup to find the JMX MBean server in the application server failed. 2 The login name specified in the WebLogic SPI configuration does not have the correct permissions in the application server. 3 The password specified in the WebLogic SPI configuration file is incorrect. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI Admin → View Error File** tool. The error message can be identified by the date/time stamp. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that the login name and password are correct for the server in question. 3 In the WebLogic Administration Console, verify that the user is a valid WebLogic user and has the correct permissions. To set the correct permissions, see the *HP Operations Smart Plug-in for Oracle WebLogic Server Installation and Configuration Guide*. 4 In the WebLogic Administration Console, verify that the MBean server (`weblogic.management.home.`*<server_name>*) is in the JNDI tree of the server in question. Right-click the server in the left pane to view the JNDI tree. If it is not there, restart the WebLogic Server.

WASSPI-18

Description	Error logging to datasource *<datasource_class_name>*. Logging process returned exit code *<exit_code>*.
Severity	Warning
Help Text	**Probable Cause**
	The ddflog process started by the WebLogic SPI data collector returned a non-zero error code.
	Suggested Action
	1 Identify the steps to reproduce the problem.
	2 Run the **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem.
	3 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-19

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

WASSPI-20

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

WASSPI-21

Description	Encountered problem instantiating factory implementation *<class name>*.
Severity	Critical
Help Text	**Probable Cause** The java property specifying the class name is incorrect or the class does not implement the AppServerFactory interface. **Suggested Action** Verify that the java property `appserver.implementation` is set to the fully qualified name of the class which implements the AppServerFactory interface. For example, if set on the java command-line: `-Dappserver.implementation=com.hp.openview.wasspi.WLSAppServerFactory`

WASSPI-23

Description	Error initializing collector analyzer for server *<server_name>*.
Severity	Critical
Help Text	**Probable Cause** An exception was encountered while preparing to monitor server *<server_name>*. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI 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 **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem. 4 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-24

Description	Error logging in to server *<server_name>* with login *<login>*.
Severity	Critical
Help Text	**Probable Cause** A security exception occurred while logging on to server *<server_name>*. **Suggested Action** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool on the managed node on which the error occurred and verify that you have specified the correct login and password properties. 2 Verify that the login has appropriate permissions.

WASSPI-26

Description	The data logging process for *<server_name>* timed-out.
Severity	Major
Help Text	**Probable Cause** Depending on your configuration, either HP Performance Agent or CODA failed to exit before the time-out. **Suggested Action** 1 Restart CODA using the command `opcagt -start`. 2 Restart HP Performance Agent using the command `mwa restart`.

WASSPI-27

Description	RMI collector unable to process *<command>*.
Severity	Warning
Help Text	**Probable Cause** An exception was encountered while performing an rmid-related operation. **Suggested Action** 1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI 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 **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem. 4 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-28

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

WASSPI-29

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

WASSPI-30

Description	Failed to start *<rmid_path>* on port *<port>*.
Severity	Critical
Help Text	**Probable Cause** The specified path is already in use. **Suggested Action** Run the **SPI Admin** → **Discover or Configure WLSSPI** tool. Set the RMID_PORT property to a port number, which is not in use currently.

WASSPI-31

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

WASSPI-32

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

WASSPI-33

Description	No actions matched server *<server name>*, version *<version>*.
Severity	Warning
Help Text	**Probable Cause** JMXAction elements define FromVersion and ToVersion tags, which do not match the server version. **Suggested Action** If the action is valid on the server, either adjust the JMXAction definitions FromVersion/ToVersion elements or the server's VERSION property.

WASSPI-34

Description	Metric *<metric id>* does not define any actions.
Severity	Warning
Help Text	**Probable Cause** The metric ID specified with the action -m option does not define a JMXActions element. **Suggested Action** Correct the action -m option if an incorrect metric ID was specified. Otherwise, add a JMXActions definition to the metric definition.

WASSPI-35

Description	Error executing action *<action command-line>*.
Severity	Major
Help Text	**Probable Cause** An unexpected error occurred while executing the action. **Suggested Action** View the managed node's errorlog to determine the root cause which is logged following the error message.

WASSPI-36

Description	MBean *<JMX objectname>* on server *<server name>*, does not expose operation *<operation name>*.
Severity	Warning
Help Text	**Probable Cause** An action's JMXCalls element defines an operation not exposed by the specified MBean. **Suggested Action** Correct the JMXCalls element or remove the operation from the element.

WASSPI-37

Description	MBean *<JMX objectname>* on server **<server name>**, does not expose attribute *<attribute name>* for write.
Severity	Warning
Help Text	**Probable Cause** An action's JMXCalls element defines a write attribute exposed by the specified MBean as read-only. **Suggested Action** If it is a custom MBean, update the MBean's management interface so the attribute is writable. Otherwise, remove the attribute definition from the JMXCalls element.

WASSPI-38

Description	MBean *<JMX objectname>* on server *<server name>*, does not expose attribute *<attribute name>*.
Severity	Warning
Help Text	**Probable Cause** An action's JMXCalls element defines an attribute not exposed by the specified MBean ObjectName. **Suggested Action** Correct the JMXCalls element or remove the attribute from the element.

WASSPI-39

Description	Error invoking operation *<operation name>* on MBean *<JMX objectname>*.
Severity	Major
Help Text	**Probable Cause**
	An unexpected error occurred while invoking an operation on the specified MBean. The managed resource might have thrown an exception.
	Suggested Action
	View the managed node's errorlog to determine the root cause which is logged following the error message.

WASSPI-40

Description	Error setting attribute *<attribute name>* on MBean *<JMX objectname>*.
Severity	Major
Help Text	**Probable Cause**
	An unexpected error occurred while setting an attribute on the specified MBean. The managed resource might have thrown an exception.
	Suggested Action
	View the managed node's errorlog to determine the root cause which is logged following the error message.

WASSPI-41

Description	Error getting attribute *<attribute name>* from MBean *<JMX objectname>*.
Severity	Major
Help Text	**Probable Cause**
	An unexpected error occurred while getting an attribute from the specified MBean. The managed resource might have thrown an exception.
	Suggested Action
	View the managed node's errorlog to determine the root cause, which is logged following the error message.

WASSPI-42

Description	Error running command *<command>*.
Severity	Critical
Help Text	**Probable Cause** A command started by the WebLogic SPI collector reported an error. **Suggested Action** 1 Identify the steps to reproduce the problem. 2 Run the **SPI Admin → Start Tracing** tool to turn on tracing. 3 Reproduce the problem. 4 Run the **SPI Admin → Stop Tracing** tool to turn off tracing. 5 Run the **SPI Admin → Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

WASSPI-43

Description	Error publishing event *<event-type>*.
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 errorlog to determine the root cause, which is logged following the error message.

WASSPI-201

Description	File *<filename>* not found.
Severity	Critical
Help Text	**Probable Cause** A configuration file could not be found. **Suggested Action** Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for the WebLogic servers on the managed node on which the error occurred.

WASSPI-202

Description	Cannot read file *<filename>*.
Severity	Critical
Help Text	**Probable Cause** 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** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for the WebLogic 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 *<filename>*.
Severity	Critical
Help Text	**Probable Cause** Permissions might be incorrect, or a file or directory might be corrupt. **Suggested Action** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for the WebLogic 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 *<message>*.
Severity	Critical
Help Text	**Probable Cause** There was a problem running opcmsg. opcmsg might be missing or not have permissions to execute. **Suggested Action** Confirm that the WLSSPI-Messages policy has been deployed on the managed node.

WASSPI-205

Description	Error sending `opcmon` *<command>*.
Severity	Critical
Help Text	**Probable Cause**
	There was a problem running `opcmon`. `opcmon` might be missing or not have permissions to execute (HPOM installation errors) or the system process table might be full.
	Suggested Action
	Confirm that HPOM is properly installed and deployed on the managed node.
	Make sure that the process table is not full. If it is, consider having the system administrator increase it.

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**
	1 Insufficient permissions.
	2 Insufficient disk space.
	3 File table problems.
	Suggested Action
	1 Verify that the permissions for the HP Operations agent user are correct.
	2 Verify that there is enough disk space to create files.
	3 Run the **SPI Admin → Discover or Configure WLSSPI** tool.

WASSPI-208

Description	WebLogic SPI must be configured before it can be used.
Severity	Critical
Help Text	**Probable Cause**
	The WebLogic SPI has not been configured on this node.
	Suggested Action
	1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for the WebLogic servers on the managed node on which the error occurred.
	2 Run the **SPI Admin → Verify** tool on the managed node to confirm that the SPI has been successfully configured.

WASSPI-209

Description	Cannot contact WebLogic Server.
Severity	Critical
Help Text	**Probable Cause**
	1 The server might be down or not responding.
	2 The WebLogic SPI might be configured incorrectly.
	Suggested Action
	1 Verify that the WebLogic Server is up and running properly.
	2 Run the **SPI Admin → Discover or Configure WLSSPI** tool.
	3 Run the **SPI Admin → Verify** tool on the managed node to confirm that the SPI has been successfully configured.

WASSPI-210

Description	Cannot configure the SPI.
Severity	Critical
Help Text	**Probable Cause**
	The SPI configuration process failed.
	Suggested Action
	1 Refer to the text following the error message in the WLSSPI error log to help identify the underlying cause of the problem. You can view the WLSSPI error log for a managed node by using the **SPI Admin → View Error File** tool. The error message can be identified by the date/time stamp.
	2 Run the **SPI Admin → Discover or Configure WLSSPI** tool.

WASSPI-211

Description	Cannot create directory *<directory>*.
Severity	Critical
Help Text	**Probable Cause**
	There are insufficient permissions for the HP Operations agent user to create the directory or there is insufficient disk space.
	Suggested Action
	Verify that the permissions are correct for the HP Operations agent user for this directory. Verify that there is enough disk space.

WASSPI-212

Description	WLS-5 monitor running on this node but no WLS-5 servers configured.
Severity	Critical
Help Text	**Probable Cause**
	The agent policy for WebLogic 5 is assigned to a node but the SPI configuration does not indicate that any WebLogic 5 servers are located on this node.
	Suggested Action
	1 If there are no WebLogic 5 server located on this node, unassign the WebLogic 5 policies from this node and redeploy agent to the managed node.
	2 If there is a WebLogic 5 server located on this node, run the **SPI Admin** → **Discover or Configure WLSSPI** tool.

WASSPI-213

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

WASSPI-214

Description	Cannot run program *<program_name>*.
Severity	Critical
Help Text	**Probable Cause** The program failed to run. The program might be missing, permissions might be incorrect, or the process table might be full. **Suggested Action** 1 Verify that the file exists. If it is a SPI program and the file is missing, run the **SPI Admin → Discover or Configure WLSSPI** tool with the managed node selected. 2 Verify that the permissions are correct for the HP Operations agent user.

WASSPI-215

Description	A WebLogic Server was not found in *<directory>*.
Severity	Critical
Help Text	**Probable Cause** The directory specified as HOME in the WebLogic SPI configuration does not exist on the managed node. **Suggested Action** 1 Verify that a WebLogic Server is installed on the managed node. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for HOME on the managed node on which the error occurred.

WASSPI-216

Description	Configuration variable *<name>* missing for server *<server_name>*.
Severity	Critical
Help Text	**Probable Cause** A required SPI configuration property was not found. **Suggested Action** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. 2 Verify that correct information has been specified in the configuration for the managed node on which the error occurred.

WASSPI-218

Description	WebLogic 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 **SPI Admin → Start Monitoring** tool.

WASSPI-219

Description	WebLogic monitoring has been turned ON for *<server_name>*.
Severity	Warning
Help Text	**Probable Cause** Collection has been turned on for the specified server. **Suggested Action** If desired, collection can be turned on by running the **SPI 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, it has not been configured. **Suggested Action** Log files: If there have never been any entries written to the file, no action is necessary. Otherwise, run the **SPI Admin → Discover or Configure WLSSPI** tool. Property files: Run the **SPI Admin → Discover or Configure WLSSPI** tool.

WASSPI-222

Description	*<filename>* 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, it is not properly configured. **Suggested Action** If the file is a configuration file, run the **SPI Admin → Discover or Configure WLSSPI** tool.

WASSPI-223

Description	Cannot read *<filename>*.
Severity	Critical
Help Text	**Probable Cause** 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** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that correct information has been specified for the WebLogic servers on the managed node on which the error occurred. 2 Verify that permissions are correct for the HP Operations agent user to read this file.

WASSPI-224

Description	`ddfcomp` returned an error configuring *<name>*.
Severity	Warning
Help Text	**Probable Cause** `ddfcomp` returned an error. This could be because neither HP Performance Agent nor CODA is installed on the system or because an error occurred while configuring the performance agent. **Suggested Action** 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 **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem. 4 Run the **SPI 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 Discover or Configure WLSSPI?
Severity	Critical
Help Text	**Probable Cause** The logfile list is empty. **Suggested Action** Run the **SPI Admin → Discover or Configure WLSSPI** tool on the selected managed node.

WASSPI-226

Description	Cannot read file *<filename>*.
Severity	Critical
Help Text	**Probable Cause** 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** 1 Run the **SPI Admin → Discover or Configure WLSSPI** tool. 2 Verify that you specified the correct information for the WebLogic 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 Operations performance agent is installed. Data source will not be configured.
Severity	Warning
Help Text	**Probable Cause** If a performance product is available, the SPI will integrate with it. This warning indicates that none is available. **Suggested Action** If you have a performance agent installed, verify that it is installed correctly and is running; reinstall if necessary. Otherwise, this message can be ignored.

WASSPI-228

Description	`ddflog` returned an error logging *<logfile-name>: <system-error-msg>*.
Severity	Critical
Help Text	**Probable Cause**
	`ddflog` returned an error. This could be because the SPI was not properly configured to support logging performance data.
	Suggested Action
	1 Redeploy SPI for WebLogic 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 **SPI Admin → Start Tracing** tool to turn on tracing. Try to reproduce the problem.
	4 Run the **SPI 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	Critical
Help Text	**Probable Cause**
	The directory does not exist, or the user under which the agent is running, does not have appropriate permissions to the directory.
	Suggested Action
	Run the **SPI Admin → Discover or Configure WLSSPI** tool on the selected managed node.

WASSPI-230

Description	Cannot get lock *<filename>* after *<time-interval>*.
Severity	Critical
Help Text	**Probable Cause**
	The lock file *<file>* was not cleared in the *<time>* indicated. This could be due to a very slow running or hung SPI process. There could also be a SPI process that had a lock was killed before the lock it had open had been cleared.
	Suggested Action
	Make sure no SPI processes are running. Manually remove the lock file.

WASSPI-231

Description	Error starting JRE *<JVM_file>*: *<message>*.
Severity	Critical
Help Text	**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. **Suggested Action** Check for other errors generated at the same time, they might indicate the real cause. If the specified file does not exist, check your JAVA_HOME or HOME variables by running the **SPI Admin → Discover or Configure WLSSPI** tool.

WASSPI-232

Description	Server *<name>* specified on command line, but not in configuration.
Severity	Critical
Help Text	**Probable Cause** 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 file. The collector only knows about servers listed in the configuration file. **Suggested Action** 1 Specify a correct server name on the command line. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool. 3 Verify the WebLogic Server names are correctly listed and spelled in the SPI configuration file.

WASSPI-233

Description	Cannot get advanced monitoring for WLS 5.x server *<name>*.
Severity	Critical
Help Text	**Probable Cause** An attempt was made to get metrics from a WebLogic Server version 5.0 instance. Metrics and advanced monitoring are not supported with WLS version 5.0. **Suggested Action** 1 Do not specify a WLS version 5.0 server on the command line of `wasspi_ca`. 2 Run the **SPI Admin → Discover or Configure WLSSPI** tool. Verify that you specified the correct server versions. 3 Upgrade WebLogic Server to version 6.0 or later.

WASSPI-234

Description	Error running program *\<file\>*, return value: *\<n\>*.
Severity	Critical
Help Text	**Probable Cause**
	The SPI attempted to run some tool or auxiliary program and encountered an error doing so. The tool or program is shown in the message as *\<file\>* and the return code from attempting to run it is shown as *\<n\>*.
	Suggested Action
	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.

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 with the `mwa restart server` command.

WASSPI-236

Description	Failure when running XSLT on *\<xml\>* with stylesheet *\<xsl\>: \<message\>*.
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 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	Setting up Data Source *<datasource>*.
Severity	Normal
Help Text	This is an informational message that indicates that a HP Performance Manager or HP Performance Agent datasource was set up.

WASSPI-238

Description	No User Defined Metrics found.
Severity	Warning
Help Text	**Probable Cause** The JMX Metric Builder g WLSSPI g UDM Graph Enable tool was run, but no UDM metrics had been defined. **Suggested Action** Check that the UDM XML file has been named correctly.

WASSPI-241

Description	Cannot delete file *<file>*.
Severity	Critical
Help Text	**Probable Cause** The SPI attempted to delete a file, but was unable to do so. 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.

WASSPI-244

Description	Configuration for node *<node>* is invalid.
Severity	Critical
Help Text	**Probable Cause**
	The configuration for the node is not in the expected format.
	Suggested Action
	Launch the **SPI Admin → Discover or Configure WLSSPI** tool from the HP Operations Manager console and select the node from the list. Verify that the properties configured for the node is valid. Re-initiate the Discovery process by selecting **OK** on the Confirm Operation window.

WASSPI-245

Description	Unrecognized variable *<var>* is configured for node *<node>*.
Severity	Critical
Help Text	**Probable Cause**
	An unexpected variable was configured for the node.
	Suggested Action
	Launch the **SPI Admin → Discover or Configure WLSSPI** tool from the HP Operations Manager console and select the node from the list. Look for the variable *<var>* included in the message and make sure that it is valid. Re-initiate the Discovery process by selecting **OK** on the Confirm Operation window.

WASSPI-247

Description	Failed to update the *<product>* configuration for node *<node>* in HPOM server.
Severity	Critical
Help Text	**Probable Cause**
	The configuration for the node is not in the expected format.
	Suggested Action
	Launch the **SPI Admin → Discover or Configure WLSSPI** tool from the HP Operations Manager console and select the node from the list. Verify that the properties configured for the node are valid. Re-initiate the Discovery process by selecting **OK** on the Confirm Operation window.
	If the problem still persists, call HP Support and provide the support representative with the following:
	1 The steps and other information on reproducing the problem.
	2 The trace files which are located in `%OvInstallDir%\install\WASSPI\WLSSPI\English\Discovery\log` directory.

WASSPI-248

Description	Cannot deploy *<policy>* policy group to *<node>*.
Severity	Warning
Help Text	**Suggested Action** Please see the section Deployment Troubleshooting in the *HP Operations Manager for Windows online help*. If the problem still persists, call HP Support.

WASSPI-249

Description	Cannot get the agent installation directory for *<node>*.
Severity	Critical
Help Text	**Suggested Action** Redeploy the WLSSPI discovery policy on the managed node. Make sure to uncheck the Deploy policy only if version is newer checkbox if selected. If the problem still persists, call HP Support and provide the support representative with the following: 1 The steps and other information on reproducing the problem. 2 The trace files which are located in `%OvInstallDir%\install\WASSPI\WLSSPI\English\Discovery\log` directory.

WASSPI-254

Description	Java exited with an error.
Severity	Critical
Help Text	**Probable Cause** While running the collector or other java application, either Java encountered an error of some kind, or the Java application had an error exit. **Suggested Action** Check for other errors generated at the same time, they might indicate the real cause. Review the SPI error log, it might give some other clues.

All Other Errors

Description	An unknown error appears in the WebLogic SPI error log.
Severity	Warning
Help Text	**Suggested Action** 1 Refer to the text following the error message in the WLSSPI 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 WLSSPI error log for a managed node by running the **SPI 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 **SPI Admin** → **Start Tracing** tool to turn on tracing. Try to reproduce the problem. 4 Run the **SPI Admin** → **Self-Healing Info** tool. Contact HP support with the information gathered by this tool.

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 configure 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 executed 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 may 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 have been 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 executed 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 may be on the system that contains the management software or it may 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 may 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.

policy

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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