HP Operations Smart Plug-in for Web Servers

for HP Operations Manager for Linux

Software Version: 6.01

Installation and Configuration Guide

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Copyright Notices

Trademark Notices

Documentation Updates

This guide's title page contains the following identifying information:

- Software Version number, which indicates the software version.

- Document Release Date, which changes each time the document is updated.

- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

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

This site requires that you register for an HP Passport and sign-in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

This guide contains Web Servers SPI information for HP Operations Manager for UNIX version 9.00 and HP Operations Manager for Linux version 9.01.

Support

You can visit the HP Software Support Online web site at:

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

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software Support Online provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the HP Software Support web site to:

- Search for knowledge documents of interest

- Submit and track support cases and enhancement requests

- Download software patches

- Manage support contracts

- Look up HP support contacts

- Review information about available services

- Enter into discussions with other software customers

- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Contents

1 Introduction

This guide contains Web Servers SPI information for HP Operations Manager for UNIX version 9.00 and HP Operations Manager for Linux version 9.01.

This guide describes the installation, configuration, and usage of the Web Servers SPI on HP-UX and Linux management server platforms.

The HP Operations Smart Plug-in for Web Server (WSSPI), provides powerful and centralized tools to monitor and manage the operation of the most widely used Internet servers. It consists of policies and tools specifically designed to integrate with the HP Operations Manager. The components of the Web Servers SPI are policies, tools and message groups.

Policies

They are designed to monitor important log files and vital processes of Internet servers. For more information on policies and policy groups, see Policies and Policy Groups on page 15.

Tools

They enable you to query the status of Internet servers and start and stop their processes as required. For more information on tools and tool groups, see Tools and Tool Groups on page 14.

Message Groups

Installation of the Web Server SPI creates two new message groups, which are as follows:

- WebSPI
- WebSPI-Internal

The following figure shows the Web Servers SPI Components.

Figure 1 Web Servers SPI Components

Web Servers SPI - Components

Policies
(Default and Customizable)

Policy Groups

- WebSPI Admin
- WebSPI Apache
- WebSPI Sun ONE

Policy Subgroups

WebSPI Admin
- WebSPI- InternalErrorLog

WebSPI Apache
- WebSPI-AP-BusyProcessesRate
- WebSPI-AP-BytesPerReq
- WebSPI-AP-BytesPerSec
- WebSPI-AP-CODALOG
- WebSPI-AP-CPUUsage
- WebSPI-AP-LogMon
- WebSPI-AP-MEMUsage
- WebSPI-AP-NUMRequests
- WebSPI-AP-ProcMon
- WebSPI-AP-ResponseTime
- WebSPI-AP-Discovery

WebSPI Sun ONE
- WebSPI-SO-CPUUsage
- WebSPI-SO-ErrorRate
- WebSPI-SO-LogMon
- WebSPI-SO-MemoryUsage
- WebSPI-SO-ProcMon
- WebSPI-SO-ResponseTime
- WebSPI-SO-ThreadRate
- WebSPI-SO-Discovery

Tools
(Default)

Tool Groups

- WebSPI Admin
- WebSPI Apache
- WebSPI Sun ONE

Message Groups

- WebSPI
- WebSPI-Internal

2 Installing and Removing the Web Servers SPI

Installing the Web Servers SPI

Prerequisites

The following sections list the hardware and software requirements for installing the Web Servers SPI.

Hardware Requirements

The Web Servers SPI is installed on the HPOM management server. Hence, the hardware requirements for installing the SPI is the same as the HPOM management server. For information on hardware requirements, see the *HP Operations Manager for Unix Concepts Guide*.

Software Prerequisites

Ensure that the following components are installed before installing the Web Servers SPI:

On Management Server:

HP-UX

- HP Operations Manager for UNIX: 9.0x

- HP Operations SPI Data Collector (DSI2DDF): 2.40

- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.00

- HP Operations SPI Upgrade Toolkit (SpiSutk): 2.00

Linux

- HP Operations Manager for Linux: 9.0x

- HP Operations SPI Data Collector (DSI2DDF): 2.41

- HP SPI Self-Healing Services (SPI-SHS-OVO): 3.01

- HP Operations SPI Upgrade Toolkit (SpiSutk): 2.01

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

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

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

For more information on supported versions of HP Operations Manager, and Application Servers, see the Support Matrix (SUMA) link:

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

Prerequisite for CODA Data Logging

Install the DS12DDF component on the management server for the CODA data logging components to function effectively.

Prerequisite for Apache Software Foundation (ASF) Apache and HP Apache

The Web Servers SPI uses the `mod_hpspi` module to collect performance metrics. To load this module into the Apache web server, you must enable the `mod_so` module before configuring the web server. For additional information on instructions to enable the `mod_so` module, see the *Apache Administration Guide* .

Prerequisite for IBM HTTP Server

When you configure the Web Servers SPI for IBM HTTP Server using the **Tools → SPI for Web Servers → WebSPI Apache → Configure Apache Node** tool, the following lines are added in the `httpd.conf` file:

```
<Location /server-status>
SetHandler server-status
Allow from all
</Location>
```

These lines load the `mod_status` module and enable access to the `/server-status` Universal Resource Locator of the SPI. By default, the Web Servers SPI provides access to `/server-status` to all hosts. If you want to enable only a particular host to access the URL, replace `Allow from all` in the `httpd.conf` file with the following line:

```
Allow from <host name>
```
where, *<host name>* is the host from which communication must be restricted.

Ensure that the line `ExtendedStatus On` is present in the `httpd.conf` file. Do not enclose this line within any condition statements such as an `IfModule` condition statement.

▶ Perl 5.8 installation is a prerequisite to configure the Web Servers SPI for IBM HTTP Server. Verify that the Perl 5.8 executable file is present at `/usr/bin/perl`.

Prerequisite for Non-Root Agent User Support

To enable non-root agent user support on the agent node, follow these steps:

1 Change the agent user to non root using the `ovswitchuser` command.

2 Log in to the agent node as a root user.

3 Type: `cd /var/opt/OV/bin/instrumentation`. This is the agent command directory for the HTTPS agent. Run the `wsspi_perl_wrapper.sh wsspi_root.pl` command from it.

For more information about the non-root agent user, see *HP Operations HTTPS Agent Concepts and Configuration Guide*.

Installing the Web Servers SPI on the Management Server

The following sections describe how to install the Web Servers SPI on the local management server.

Installing the Web Servers SPI on the HP-UX Management Server

Perform the following tasks to install the Web Servers SPI on an HP-UX management server:

Mounting the DVD on HP-UX

To mount the DVD on HP-UX, follow these steps:

1   Log on as **root**.

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

3   Type the following command to create a directory to mount the DVD-ROM:
    mkdir /<mount_point>

    For example: **mkdir /dvdrom**

4   Insert the HP Operations Smart Plug-ins DVD into the DVD-ROM drive and mount it as user root by entering:
    mount -r -F cdfs /dev/<dvdrom_drive_name> /<mount_point>

    For example, on a local DVD-ROM, enter:
    mount -r -F cdfs /dev/dsk/c0t2d0 /dvdrom

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

Installing the SPI

Type the following command to install the Web Servers SPI on HP-UX:

swinstall -s /dvdrom/HPUX/HP_Operations_Smart_Plug-ins_HPUX.depot WSSPI

Installing the Web Servers SPI on the Linux Management Server

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

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

Installing the SPI through Graphical User Interface

To install the Web Servers SPI using X-Windows client software, follow these steps:

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

2   Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux 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 the following command:

    ./HP_Operations_Smart_Plug-ins_Linux_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** radio button and click **Next**. The Select Features window appears.

8   Select the **HP Operations SPI for Web Servers** check box and click **Next**. The Pre-Install Summary window appears.
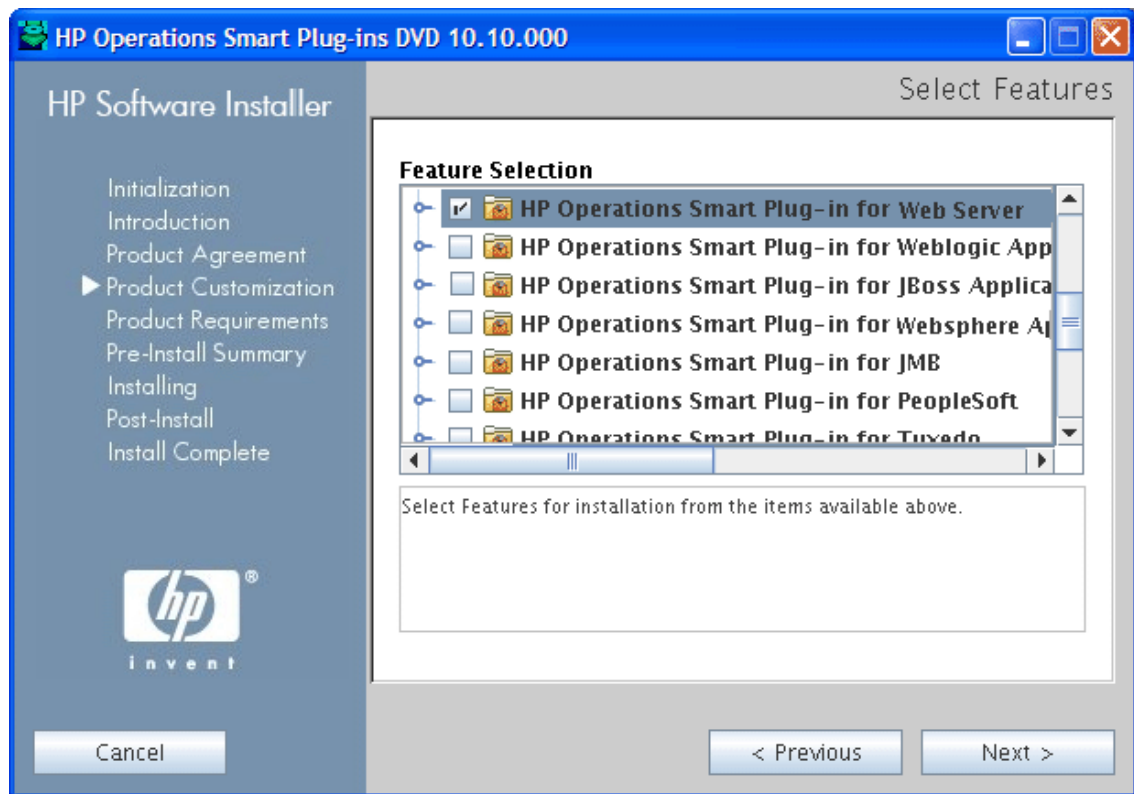
➤   By default, the HP Operations Smart Plug-in Common Components is selected.

The Install Check window opens.

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

10 Click **Install**.

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

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

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

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

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

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

Installing the SPI through Command Line Interface

To install the Web Servers SPI through command line interface, follow these steps:

When you have installed one SPI on the Linux 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 management server.

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

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

3 To start the installation, type the following command:

```
./HP_Operations_Smart_Plug-ins_Linux_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.

9 Press **Enter**. A series of messages 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.

Web Servers SPI Components

The Web Servers SPI installs the following components on the HPOM for UNIX management server:

- Message Groups
- Tools and Tool Groups
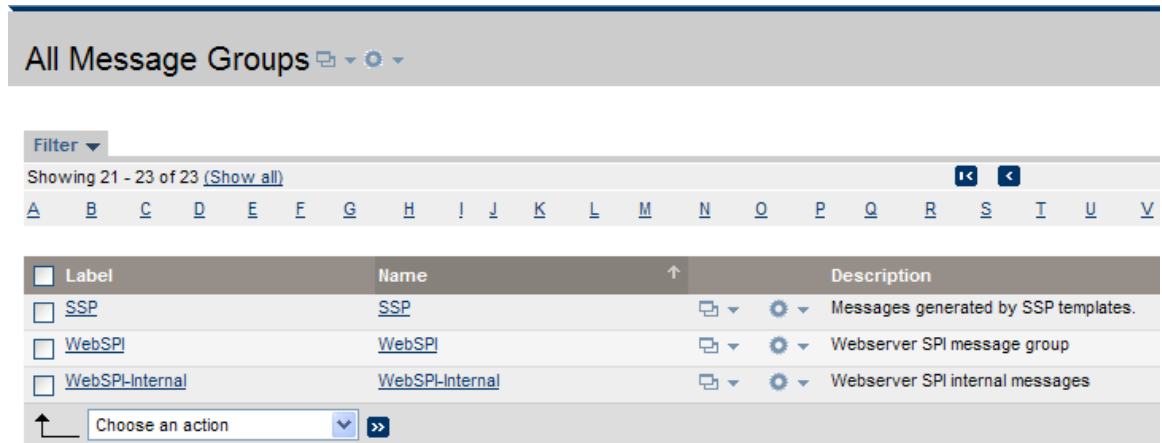- Policies and Policy Groups

Message Groups

Installation of the Web Servers SPI creates two new message groups, which are as follows:

- WebSPI
- WebSPI-Internal

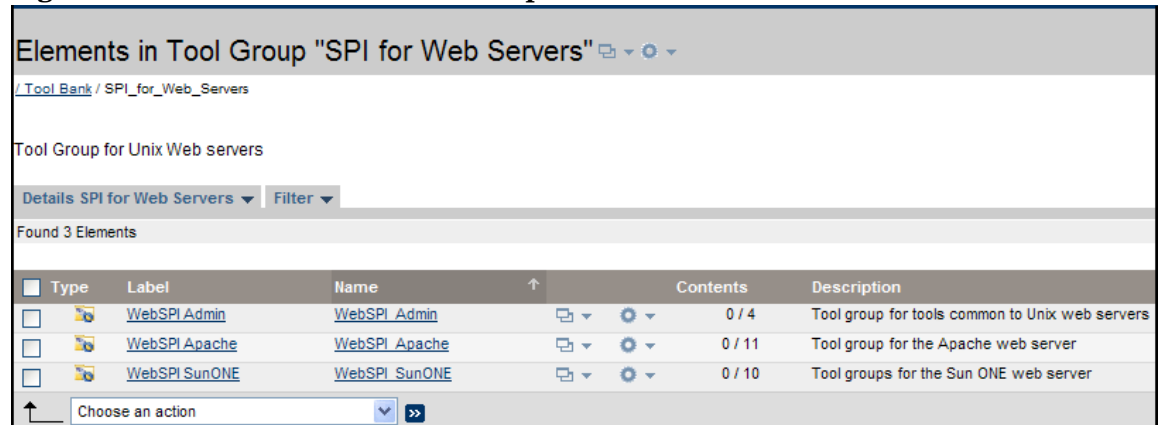The All Message Groups is illustrated in the following figure:

Figure 2   Web Servers SPI Message Groups

Tools and Tool Groups

Installation of the Web Servers SPI adds the tool group "SPI for Web Servers" to the Tool Bank. The "SPI for Web Servers" tool group is illustrated in the following figure.

Figure 3   Web Servers SPI Tool Groups

The tool group called "SPI for Web Servers" contains the following tools:

- WebSPI Admin
- WebSPI Apache
- WebSPI SunONE

The tool group contains the tools for administration and managing Sun ONE and Apache web servers. For more information on tools, see the following sections:

- Web Servers SPI Tools for Administration on page 23
- Web Servers SPI Tools for Managing Apache Web Server on page 24
- Web Servers SPI Tools for Managing Sun ONE Web Server on page 25

To ensure that the tools work properly, run the Configure Node tool on the appropriate managed node, to prepare it for the Web Servers SPI management.

Policies and Policy Groups

The Web Servers SPI adds a policy group called "SPI for Web Servers," as shown in Figure 4 on page 15. This policy group contains additional tool groups for monitoring Web Servers. Each policy group offers policies for log files and for process and performance metric monitoring.

The additional policy group WebSPI Admin contains a log file monitor for the internal error log of the Web Servers SPI. For more information on Web Servers SPI policies and policy groups, see the following sections:

- Web Servers SPI Tools for Administration on page 23
- Web Servers SPI Tools for Managing Apache Web Server on page 24
- Web Servers SPI Tools for Managing Sun ONE Web Server on page 25

Figure 4   Web Servers SPI Policy Groups

Before deploying the Web Servers SPI policies to a managed node, prepare the node for management by running the Configure Node tool for the appropriate node and installed web server.

Web Servers SPI Operator Responsibilities

The Web Servers SPI operators are assigned responsibilities to receive messages from WebSPI-Internal and WebSPI message groups, as shown in the following figure.

Figure 5   Web Servers SPI Operator Responsibilities

Responsibilities for User opc_adm

All / none -- New all/ none   **Node Groups**

Message Groups	hp_ux	midas_servers	midas_webapps	MSSPI	net_devices	SPIGEN-Di...	WSSPI-Di...
Hardware	✓	☐	☐	☐	✓	☐	☐
Job	✓	☐	☐	☐	✓	☐	☐
midas	☐	☐	☐	☐	☐	☐	☐
Misc	✓	☐	☐	☐	✓	☐	☐
NetWare	✓	☐	☐	☐	✓	☐	☐
Network	✓	☐	☐	☐	✓	☐	☐
NNMi	☐	☐	☐	☐	☐	☐	☐
OpC	✓	☐	☐	☐	✓	☐	☐
OpenView	✓	☐	☐	☐	✓	☐	☐
OS	✓	☐	☐	☐	✓	☐	☐
Output	✓	☐	☐	☐	✓	☐	☐
Performance	✓	☐	☐	☐	✓	☐	☐
Security	✓	☐	☐	☐	✓	☐	☐
SNMP	✓	☐	☐	☐	✓	☐	☐
SPIGEN	✓	☐	☐	☐	✓	☐	☐
SSP	☐	☐	☐	☐	☐	☐	☐
WebSPI	✓	☐	☐	☐	✓	☐	☐
WebSPI-	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐

To set or edit the Web Servers SPI Operator responsibilities, follow these steps:

1   Select **All Users** → **opc_adm**. The User "opc_adm" screen appears.

2   To change a User's responsibility, select **Edit Responsibilities...**. from the drop down list.

3   Assign responsibilities to the user based on your requirements and **Save**.

For additional information on user responsibilities, see *HP Operations for UNIX Concepts Guide*.

Removing the Web Servers SPI

To completely remove the Web Servers SPI, follow these steps:

Removing the Web Servers SPI Components from the HPOM for HP-UX Management Server

To remove the SPI, follow these steps:

1   Remove Web Servers SPI interactively, using the `swremove(1M)` GUI. To start `swremove(1M)`, type the following command at the command line:

```
/usr/sbin/swremove
```

The DISPLAY environment variable should be set correctly to your system.

2   Select the **WSSPI** bundle, mark for removal, and proceed with the uninstallation. Or, you can run swremove(1M) from the command line by entering the following:

```
/usr/sbin/swremove WSSPI
```

3   Check the following logfiles for problems that might occur during the uninstallation:

— /var/adm/sw/swagent.log

— /var/adm/sw/swremove.log

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

Removing the Web Servers SPI Components from the HPOM for Linux Management Server

You can remove the Web Servers SPI components by two ways:

• Graphical User Interface

• Command Line Interface

Removal of the SPI through the Graphical User Interface

To remove the Web Servers SPI using X-Windows client software, follow these steps:

When you have two SPIs installed on the Linux 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.

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

2   Insert the HP Operations Smart Plug-ins DVD into the DVD drive of the Linux 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 the following command:

./HP_Operations_Smart_Plug-ins_Linux_setup.bin

The introductory window appears.

5   Select a language from the drop-down list and click **OK**. The Application Maintenance window appears.

6   Select **Uninstall** radio button and click **Next**.

The Pre-Uninstall Summary window appears.

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

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

Removal of the SPI through the Command Line Interface

To remove the Web Servers SPI through command line interface, follow these steps:

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

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

3   To start the removal of the SPI, type the following command:

    `./HP_Operations_Smart_Plug-ins_Linux_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 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.

Removing the Web Servers SPI Message Groups from the HPOM Management Server

To delete the WebSPI-Internal and WebSPI message groups, follow these steps:

1   Open the All Message Groups.

2   Select the **Web Servers SPI** message groups by selecting the check box.

3   Select **Delete...** from the **Choose an Action** drop-down list. The Web Servers SPI message groups are deleted.

3 Web Servers SPI Policies and Tools

Overview

the SPI discovers the web servers running on the node and configures them with the SPI, after installation and distribution of the Web Servers SPI policies and instrumentation on a managed node. Each web server can be monitored and managed after configuration.

You can also use the SPI to configure web servers manually by following the appropriate instructions in Manually Configuring the Web Servers on page 20.

If you find that you need to adapt any default policy supplied with the Web Servers SPI, you can easily do so. For more information, see the *HP Operations Manager Concepts Guide* and the *HP Operations Manager Administrator's Reference*.

After you successfully install, re-install, or uninstall the Web Servers SPI from the managed node, as explained in Installing the Web Servers SPI on page 9, it is necessary to distribute the Web Servers SPI policies to the managed nodes.

➤ You must deploy the default `opcmsg`(1|3) policy for the appropriate platform on the node to receive the Web Servers SPI messages in the message browser of the management server.

If you receive error messages from your message browser stating that the tools are not working properly, ignore the messages until the managed nodes are configured properly.

Manually Configuring the Web Servers

If the Web Server SPI is not able to detect a web server instance on a managed node, you can configure the web server manually. Procedures for configuring the Apache and Sun ONE web servers manually are described below.

Apache Web Server

Make sure that the Apache web server is not running before configuring the SPI. To configure, follow these steps:

1   Select **Integrations → HPOM for Unix Operational UI**.

2   Select the managed node and right-click it.

3   Select **Tools → SPI for Web Servers → WebSPI Apache → Configure Apache Node**. A message prompts for the `httpd.conf` path.

4   Enter the complete path to the `httpd.conf` file.

    If Perl is not installed, you must configure the Apache web server by adding the additional parameter named module to the configuration tool as follows: **`httpd.conf module`**. This method might not work with Apache versions later than 2.0.55. Specify the tag for the Server Name as follows: *<ServerName> <IPAddress>:<Port>*

    The web server configuration utility accesses the file. If the file is readable and is a valid `httpd.conf` file, the SPI configures the web server.

Sun ONE Web Server

Make sure that the Sun ONE web server is not running before configuring the SPI. To configure, follow these steps:

1   Select **Integrations → HPOM for Unix Operational UI**.

2   Select the managed node and right-click it.

3   Select **Tools → SPI for Web Servers → WebSPI SunONE → Configure Sun ONE Node**.

    A message prompts for the `magnus.conf` path.

4   Enter the complete path to the `magnus.conf` file.

    The web server configuration utility accesses the file. If the file is readable and is a valid `magnus.conf` file, the SPI configures the web server.

Web Servers SPI Discovery Policies

A Web Servers SPI discovery policy is a schedule policy, which detects the web servers running on the managed nodes and constructs a service map. To view a service map, select **Integrations → HPOM for Unix Operational UI** and click the **Services** tab. There is one discovery policy for each supported web server:

- WSSPI-AP-Discovery - This policy detects any new instances of the Apache web server.

- WSSPI-SO-Discovery - This policy detects any new instances of the Sun ONE web server.

All discovery policies must be distributed to the management server after distributing instrumentation to the managed nodes. Ensure that the HP Operations agent has been installed on the management server before you deploy the discovery policies. The discovery policy is scheduled to run once a day, but you can use the HPOM policy administration window to change this interval.

To enable discovery, follow these steps:

1   Open the All Node Groups window.

2   Select the WSSPI-Discovery node group and select **Assign Nodes...** from the **Choose an Action** drop-down list and click ▶▶ to submit.

3   Select the managed nodes and click **OK**. The nodes are assigned to the node group successfully. The following message appears in the Admin UI: `assign for nodegroup was successful`.

4   Open the Policy Bank window and click **SPI for Web Servers → WebSPI Apache**.

5   Select the WSSPI-AP-Discovery policy and select **Assign to Management Server** from the **Choose an Action** drop-down list and click ▶▶ to submit. The policy is assigned to the management server successfully. The following message appears in the Admin UI: `assigntomgmtsv for node/layout group was successful`.

6   Select the WSSPI-AP-Discovery policy and click **Deployment → Deploy Configuration...**.

    The Selector window appears.

7   Select the management server by clicking **Select...** and click **Distribute**. The policy is distributed to the management server successfully. The following message appears in the Admin UI: `distribution was successful`.

8   Select the WSSPI-SO-Discovery policy and select **Assign to Management Server** from the **Choose an Action** drop-down list and click ▶▶ to submit. The policy is assigned to the management server successfully. The following message appears in the Admin UI: `assigntomgmtsv for node/layout group was successful`.

9   Click **SPI for Web Servers → WebSPI Sun ONE**.

10 Select the WSSPI-SO-Discovery policy and click **Deployment → Deploy Configuration...**.

    The Selector window appears.

11 Select the management server by clicking **Select...** and click **Distribute**. The policy is distributed to the management server successfully. The following message appears in the Admin UI: `distribution was successful`.

▶ The discovery policy schedules the discovery program to run at configured intervals. The program discovers any new instances of the web servers running on the nodes.

12 If new web server instances are discovered, the Web Servers SPI configures them.

The discovery program reads the file `/var/opt/OV/wsspi/conf/wsspi.cfg` and writes the XML file, which the system uploads to the Service Navigator database on the management server.

13 To view the service map, select **Integrations → HPOM for Unix Operational UI** and click the **Services** tab.

Figure 6   Sample Discovery Service Map
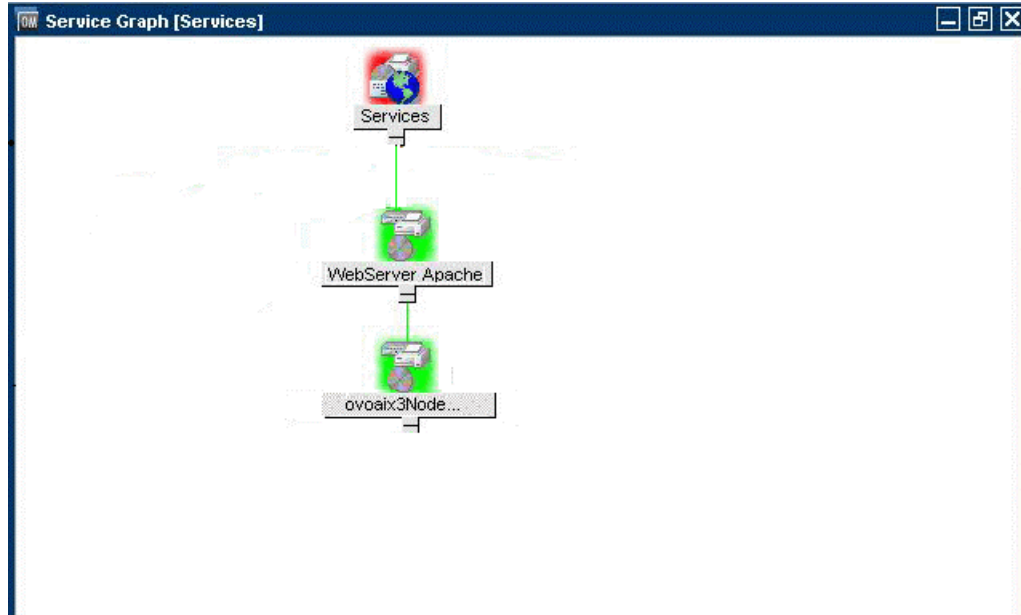
➤ If the service map is not displayed in the Operational UI, type the following command to assign the services to the operator:

`opcservice -assign <operator> <service>`

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

Web Servers SPI Tools for Administration

You will find the Web Server SPI tools for administration under the WebSPI_Admin tool group. Select **Tool Bank** → **SPI for Web Servers** → **WebSPI_Admin** or **All Tool Groups** → **SPI for Web Servers** → **WebSPI_Admin**. The tools are described as follows:

Tool	Description	Tool Input
Remove WebSPI	Removes the Web Server SPI instrumentation and configuration files from the node.	None
Show All Web Services	Displays the details of all the configured web services.	None
Show WebSPI History Log	Displays the Web Server SPI log file for all sites running supported web services.	None
Self-Healing Info	Gathers system information as well as configuration, log, and trace files of Web Servers SPI when a problem occurs in the Web Servers SPI. The information helps you troubleshoot the problem. For more information, see Using the Self-Healing Info Tool on page 31.	None

Web Servers SPI Tools for Managing Apache Web Server

You will find the Web Servers SPI tools for the Apache web server under the WebSPI_Apache tool group. Select **Tool Bank → SPI for Web Servers → WebSPI_Apache** or **All Tool Groups → SPI for Web Servers → WebSPI_Apache**. The tools are described as follows:

Tool	Description	Tool Input
Configure Apache Node	Configures Apache with Web Servers SPI. After configuration is complete, SPI will be able to monitor and manage web server instances. WS-SPI performance Apache module (`mod_hpspi.c`) collects web server performance data. To load `mod_hpspi.c`, enable Apache `mod_so` module before configuring web server. See *Apache Administration Guide* for instructions on enabling `mod_so`.	path to `httpd.conf`
UnConfigure Apache Node	Removes the configuration information of the specified Apache node.	IP address and port number
Start Apache	Starts the Apache web server.	IP address and port number
Stop Apache	Stops the Apache web server.	IP address and port number
Restart Apache	Restarts the Apache web server.	IP address and port number
Status of Apache	Displays the status of the Apache web server status.	IP address and port number
Show Apache Configuration	Displays the details of the Apache configuration.	IP address and port number
Show Apache Node Details	Displays the details of the Apache web server, such as server root, document root, and web server version.	IP address and port number
Show Apache Error Log	Displays the Apache web server error log file.	IP address and port number
Show Apache Access Log	Displays the Apache web server access log file.	IP address and port number
Compile Apache CODA config specs	Compiles the Apache CODA configuration specification files and creates the log file set.	None

▶ You will be prompted to enter an IP address as tool input only if the web server is configured to run on multiple IP addresses.

Web Servers SPI Tools for Managing Sun ONE Web Server

You will find the Web Servers SPI tools for the Sun ONE web server under the WebSPI_Sun ONE tool group. Select **Tool Bank** → **SPI for Web Servers** → **WebSPI_Sun ONE** or **All Tool Groups** → **SPI for Web Servers** → **WebSPI_Sun ONE**. The tools are described as follows:

Tool	Description	Tool Input
Configure Sun ONE Node	Configures Sun ONE with Web Servers SPI. After the configuration is complete, SPI is able to monitor and manage web server instances. WS-SPI collects performance data from web server SNMP agent; configure SNMP agent with Sun ONE web server before configuring web server with SPI.	path to magnus.conf
UnConfigure Sun ONE Node	Removes the configuration information of the specified Sun ONE node.	IP address and port number
Start Sun ONE	Starts the Sun ONE web server.	IP address and port number
Stop Sun ONE	Stops the Sun ONE web server.	IP address and port number
Restart Sun ONE	Restarts the Sun ONE web server.	IP address and port number
Status of Sun ONE	Displays the status of the Sun ONE web server.	IP address and port number
Show Sun ONE Configuration	Displays the details of the Sun ONE configuration.	IP address and port number
Show Sun ONE Node Details	Displays the details of the Sun ONE web server, such as server root, document root, and web server version.	IP address and port number
Show Sun ONE Error Log	Displays the Sun ONE web server error log file.	IP address and port number
Show Sun ONE Access Log	Displays the Sun ONE web server access log file.	IP address and port number

▶ You will be prompted to enter an IP address as tool input only if the web server is configured to run on multiple IP addresses.

Web Servers SPI Policy for Monitoring SPI Log Files

You will find the Web Servers SPI policy for monitoring the Web Servers SPI under the WebSPI Admin policy group. Select **Policy Bank → SPI for Web Servers → WebSPI Admin** or **All Policy Groups → SPI for Web Servers → WebSPI Admin**.

The policy, which is called WebSPI-InternalErrorLog, monitors the Web Servers SPI error log file. The policy sends a message to the HPOM message browser if any of the following message types appear in the error log file: Error, Info, or Warning.

Web Servers SPI Policies for Monitoring Apache Web Server

You will find the Web Servers SPI policies for monitoring the Apache web server under the WebSPI Apache policy group. Select **Policy Bank → SPI for Web Servers → WebSPI Apache** or **All Policy Groups → SPI for Web Servers → WebSPI Apache**. The following table describes the policies.

Policy	Description
WebSPI-AP-LogMon	Monitors the Apache web server's error log file. The policy sends messages to the HPOM message browser for the following conditions in the web server error log file: Alert, Critical, Error, or Warning.
WebSPI-AP-BusyProcessesRate	Computes the percentage of processes that are running serving requests versus the total number of web server processes.
WebSPI-AP-BytesPerReq	Computes the number of bytes that each request contains.
WebSPI-AP-BytesPerSec	Computes the Apache web server number of inbound bytes transferred per second.
WebSPI-AP-CODALOG	Collects data for each configured Apache web server and logs it into CODA. The metrics collected for each web server instance include the IP address, port number, CPU usage, memory usage, number of bytes transferred every second, number of bytes transferred for every request, and percentage of busy processes for the web server instance. By default, the policy runs every five minutes.
WebSPI-AP-CPUUsage	Computes the percentage of CPU used by the Apache web server.
WebSPI-AP-Discovery	Detects any new instances of the Apache web server.
WebSPI-AP-MEMUsage	Computes the percentage of total system memory used by the Apache web server.

Policy	Description
WebSPI-AP-NumRequests	Computes the number of requests processed by the Apache web server.
WebSPI-AP-ProcMon	Checks whether the Apache web server processes of the configured instance are running.
WebSPI-AP-ResponseTime	Computes the Apache web server response time.

Web Servers SPI Policies for Monitoring Sun ONE Web Server

You will find the Web Servers SPI policies for monitoring the Sun ONE web server under the WebSPI Sun ONE policy group. Select **Policy Bank** → **SPI for Web Servers** → **WebSPI Sun One** or **All Policy Groups** → **SPI for Web Servers** → **WebSPI Sun One**. The following table describes the policies.

Policy	Description
WebSPI-SO-LogMon	Monitors the Sun ONE web server's error log file. The policy sends messages to the HPOM message browser if any of these conditions occurs for the monitored web server instance: Alert, Critical, Emergency, Error, or Warning.
	These message types are suppressed: Notice and Info.
WebSPI-SO-CPUUsage	Computes the percentage of CPU used by the Sun ONE web server. A Critical message is sent to the HPOM message browser if CPU usage goes above 80%.
WebSPI-SO-Discovery	Detects any new instances of the Sun ONE web server.
WebSPI-SO-ErrorRate	Computes the number of errors generated as compared to the total number of requests.
WebSPI-SO-MemoryUsage	Computes the percentage of total system memory used by the Sun ONE web server. A Critical message is sent to the HPOM message browser if the memory usage goes above 70%.
WebSPI-SO-ProcMon	Checks whether the Sun ONE web server processes of the configured instance are running.
WebSPI-SO-ResponseTime	Computes the Sun ONE web server response time.
WebSPI-SO-ThreadRate	Computes the percentage of Sun ONE web server running threads compared to the total number of threads.

A Reference Information

Web Servers SPI Software Bundle

The Web Servers SPI principal bundle is a hierarchical structure made up of associated bundles, products, and filesets. If you are running the Web Servers on an HP-UX management server, you can view these software components using the `swinstall` GUI of SD-UX.

Table 1   Web Servers SPI Software Bundle and Filesets

	Name	Description
Web Servers SPI Product	SPI-WS	HP Operations Smart Plug-in for Web Servers
Web Servers SPI Filesets (contained in SPI-WS Bundle)	WSSPI-CORE	WSSPI—Common Core/Documentation for HPOM
	WSSPI-HPUX	WSSPI for HPUX
	WSSPI-LINUX	WSSPI for Linux
	WSSPI-SOL	WSSPI for Solaris
	WSSPI-AP-CORE	WSSPI for Apache Server Common Core
	WSSPI-AP-HPUX	WSSPI for Apache Server on HP-UX
	WSSPI-AP-LINUX	WSSPI for Apache Server on Linux
	WSSPI-AP-SOL	WSSPI for Apache Server on Solaris
	WSSPI-SO-CORE	WSSPI for Sun ONE Server Common Core
	WSSPI-SO-HPUX	WSSPI for Sun ONE Server on HP-UX
	WSSPI-SO-LINUX	WSSPI for Sun ONE Server on Solaris
	WSSPI-SO-SOL	WSSPI for Sun ONE Server on Linux

B Troubleshooting

This chapter provides problem descriptions and troubleshooting steps for the Web Servers SPI only. For general troubleshooting, see the *HP Operations Manager for UNIX Administrator Reference Volumes I and II*.

Tools and Monitors Report Missing Configuration

All tools except the Configure Node tool rely on a properly configured node. If you receive an error message, like the following, when starting a tool, your node has not yet been configured:

```
Configuration file /var/opt/OV/wsspi/conf/wsspi.cfg not found or no read
access.
```

This error probably occurred because you did not configure the node for management of the Apache web server. You must run the Apache configuration tool on this node before you are able to launch this tool.

You will also get error messages in the Message Browser if you deployed the process monitor policies on any node that is not configured. In both cases, run the Configure Node tool according to your web server until this tool succeeds.

Using the Self-Healing Info Tool

The Self-Healing Info tool gathers system information as well as configuration, log, and trace files of the Web Servers SPI when a problem occurs in the Web Servers SPI.

All the gathered information and files are placed in a pre-defined output directory, thereby facilitating faster troubleshooting. Also, the data collector is used to gather real-time data, which reduces the probability of troubleshooting with stale data.

Whenever you encounter a problem with the Web Servers SPI, run the data collector by launching the Self-Healing Info tool in the WebSPI Admin tool group.

▶ Prior to using the Self-Healing Info tool, turn on tracing, reproduce the problem, and then run the tool.

To launch the data collector on the node from where you want to gather data, drag the icon of the node and drop it on the Self-Healing Info tool in the WebSPI tool group window for the respective operating system. The output is placed as /tmp/SPI_WEBSERV_support.tar on UNIX nodes. You can submit this file to HP Support for assistance or use this file to identify and correct the problem you encountered.

▶ Depending on the Windows setting, the file might be a hidden file on some managed nodes. If you do not see the file, open Windows Explorer and from the **Tools** menu select the **View** tabbed page in the **Folder Options...**. Under **Hidden Files and Folders**, select **Show Files and Folders**.

Web Servers SPI Log Files

The Web Servers SPI provides two different log files, which are located in the directory `/var/opt/OV/wsspi/log` on the managed nodes.

Error Log

Error, warning, and information messages from actions, commands, and monitors are logged to the Web Servers SPI's error log file `/var/opt/OV/wsspi/log/wsspi_error.log`.

If you deploy the policy WebSPI_InternalErrorLog on the managed node, all new entries will be forwarded to the management server and displayed in the default text below:

```
Message Browser (Tool: WebSPI; Message Group: WebSPI-Internal; Object:
error_log).
```

Trace Log

If you enable tracing, the tracing information will be logged to `/var/opt/OV/wsspi/log/wsspi_trace.log`.

▶ The trace log is not localized.

Using Tracing

Tracing enables you to drill down to the source of problems by getting more information on what the scripts are processing. To enable tracing, follow these steps:

1   Log in to the managed node.

2   Locate and change the script you wish to trace:

   • For HTTPS: `/var/opt/OV/bin/instrumentation`

3   Open the script you wish to trace with a text editor.

4   Uncomment the line: `#WSSPI_TRC_LVL=<trace_level>`

5   Set trace level to a number between 0 and 9, where a trace level of 0 sets tracing off, and a trace level of 9 gives you the all available tracing messages.

The format of each trace message is as follows:

```
<date> <time> WSSPI(<trace_obj>-<pid>): <message>
```

Where the fields have the following meanings:

`<date>`	Current date, when the message has been added.
`<time>`	Current time, when the message has been added
`<trace_obj>`	Trace object, in general the name of the script that is the source of the trace message.
`<pid>`	Process ID of the script.
`<message>`	The message text. If the message is sent from a subfunction, this message contains the name of the function as prefix.

Sample Trace Files

A sample output of a trace file for the configuration of an Apache server with trace level 9 is listed below:

```
11/28/2001 10:22:22 WSSPI(wsspi_ap_conf.sh-28925): Configuration started: Command:
wsspi_ap_conf.sh
11/28/2001 10:22:22 WSSPI(wsspi_ap_conf.sh-28925): Running discovery in non-interactive
mode.
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBinUsingRpm(): No Apache RPM
package found.
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBinUsingPathes(): Searching
for Apache binary in the path /bin/httpd
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBinUsingPathes(): Searching
for Apache binary in the path /sbin/httpd
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBinUsingPathes(): Searching
for Apache binary in the path /usr/sbin/httpd
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBinUsingPathes(): Found Apache
binary: /usr/sbin/httpd
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getApacheBin(): No Apache binary in
predefined paths found.
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getHttpConfUsingProcess(): System is a
non-HP-UX system
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getHttpConfUsingProcess(): Found
configuration file in parameters: /etc/httpd/httpd.conf
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getServerRoot(): Found server root in
Apache configuration file:
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getHttpdPid(): Found pid file: /var/
run/httpd.pid
11/28/2001 10:22:32 WSSPI(wsspi_ap_conf.sh-28925): getHttpLog(): Found error log file: /
var/log/httpd/error_log
11/28/2001 10:22:33 WSSPI(wsspi_ap_conf.sh-28925): createLinks(): Created links to the
error log files in the directory /var/opt/OV/wsspi/link/apache.
11/28/2001 10:22:33 WSSPI(wsspi_ap_conf.sh-28925): writeConf(): Discovered information
about managed server written to /var/opt/OV/wsspi/conf/wsspi_apache.cfg.
11/28/2001 10:30:02 WSSPI(wsspi_ap_conf.sh-29659): Configuration started: Command:
wsspi_ap_conf.sh
11/28/2001 10:30:03 WSSPI(wsspi_ap_conf.sh-29659): Running discovery in non-interactive
mode.
11/28/2001 10:30:11 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinUsingRpm(): No Apache RPM
package found.
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinUsingPathes(): Searching
for Apache binary in the path /bin/httpd
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinUsingPathes(): Searching
for Apache binary in the path /sbin/httpd
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinUsingPathes(): Searching
for Apache binary in the path /usr/sbin/httpd
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinUsingPathes(): Found Apache
binary: /usr/sbin/httpd
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getApacheBin(): No Apache binary in
predefined paths found.
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getHttpConfUsingProcess(): System is a
non-HP-UX system
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getHttpConfUsingProcess(): Found
configuration file in parameters: /etc/httpd/httpd.conf
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getServerRoot(): Found server root in
Apache configuration file:
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getHttpdPid(): Found pid file: /var/
run/httpd.pid
11/28/2001 10:30:12 WSSPI(wsspi_ap_conf.sh-29659): getHttpLog(): Found error log file: /
var/log/httpd/error_log
11/28/2001 10:30:13 WSSPI(wsspi_ap_conf.sh-29659): getApacheBinParameters() determined
that Apache has been started with the following parameters: -f /etc/httpd/httpd.conf
11/28/2001 10:30:13 WSSPI(wsspi_ap_conf.sh-29659): createLinks(): Created links to the
error log files in the directory /var/opt/OV/wsspi/link/apache.
```

```
11/28/2001 10:30:13 WSSPI(wsspi_ap_conf.sh-29659): writeConf(): Discovered information
about managed server written to /var/opt/OV/wsspi/conf/wsspi_apache.cfg.
```

Node Configuration Problems

This section provides assistance with problems that might arise when you configure nodes.

Problem: `cp: Cannot create` *<apache home directory>*`/modules/mod_hpspi.so: Text`
`file busy`.

Solution: Stop the Apache web server and run the Configure Apache Node tool again.

Discovery Problems

This section provides assistance with problems that might arise when you use the Web Server SPI discovery program.

- **Problem**: System is unable to detect the web servers.

  Solution: Web server instances might not be running on the managed node. If no web server instances are running, the discovery program cannot detect them.

  For more information on the exact cause of the problem, check the WS-SPI internal error log file: `/var/opt/OV/wsspi/log/wsspi_error.log`.

- **Problem**: System is unable to create the Web Server SPI service map.

  Solution: Ensure that managed nodes are assigned to the WSSPI-Discovery node group and verify that the appropriate discovery policies are deployed to the management server.

- **Problem**: System is unable to run the discovery program on a managed node.

  Solution: Ensure that the node is assigned to the WSSPI-Discovery node group and that the HP Operations agent is running on the managed node.

  Also, be aware that the discovery program uses the opctranm tool to perform the discovery process. If multiple instances of opctranm are running simultaneously, ensure that the appropriate patch is installed on the management server:

  - For HP-UX, patch PHSS_30125
  - For Sun Solaris, patch ITOSOL_00266

  The discovery program exits if it encounters multiple, simultaneous instances of opctranm, without this patch.

Collection Problems

This section provides assistance with problems that might arise when you use the Web Server SPI collection program.

- **Problem**: The script fails to run as "^M" characters are present in the `wsspi_perfmon_sunone_iplanet.pl` file.

  Solution: Edit the `wsspi_perfmon_sunone_iplanet.pl` file by removing the "^M" characters.

Tools Problems

This section provides assistance with problems that might arise when you use the Web Server SPI tools.

- **Problem**: The Remove WebSPI tool does not remove the WebSPI completely.

  Solution: Delete the instrumentation files and WSSPI directory manually.

- **Problem**: The Self-Healing Info tool does not function on Solaris nodes.

  Solution: Edit the shs_perl file by removing this line "export MALLOC_CHECK_=0" on the Solaris node.

Miscellaneous

- **Problem**: Unexpected categories get created on installation of the SPI.

  Solution: You can ignore these categories such as WebSPI Apache and WebSPI Sun ONE.

Index

R

removing instrumentation, 23

requirements
    hardware, 9
    software, 9

responsibilities, operator, 15

S

schedule policies, 21

Self-Healing Info, 23

service map for web servers discovery, 22
    problems with, 34

Service Navigator console, displaying service map, 22

services, web, 23

software bundle, 29

software requirements, 9

Sun ONE web servers
    policies for monitoring, 28
    Web Servers SPI tools for, 25

T

too groups, 14

trace log file, 32

tracing
    enabling, 32
    purpose of, 32
    sample file output, 33

troubleshooting, 31

U

uninstallation
    from Linux management server, 17
    from UNIX management server, 16

UNIX management server
    uninstalling components, 16

W

web servers
    Apache
        configuring manually, 20
        policies for monitoring, 26
        tools for managing, 24
    running on multiple IP addresses, 24
    Sun ONE
        configuring manually, 20
        policies for monitoring, 28
        tools for managing, 25
    system unable to detect, 34

web services, displaying, 23

WSSPI-Discovery node group, 21

We appreciate your feedback!

If an email client is configured on this system, by default an email window opens when you click on the bookmark "Comments".

In case you do not have the email client configured, copy the information below to a web mail client, and send this email to **docfeedback@hp.com**

Product name:

Document title:

Version number:

Feedback: