# HP Operations Smart Plug-in for Microsoft® Exchange Server

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

Software Version: 13.08

## Installation and Configuration Guide

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Software Release Date: November 2010

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# Contents

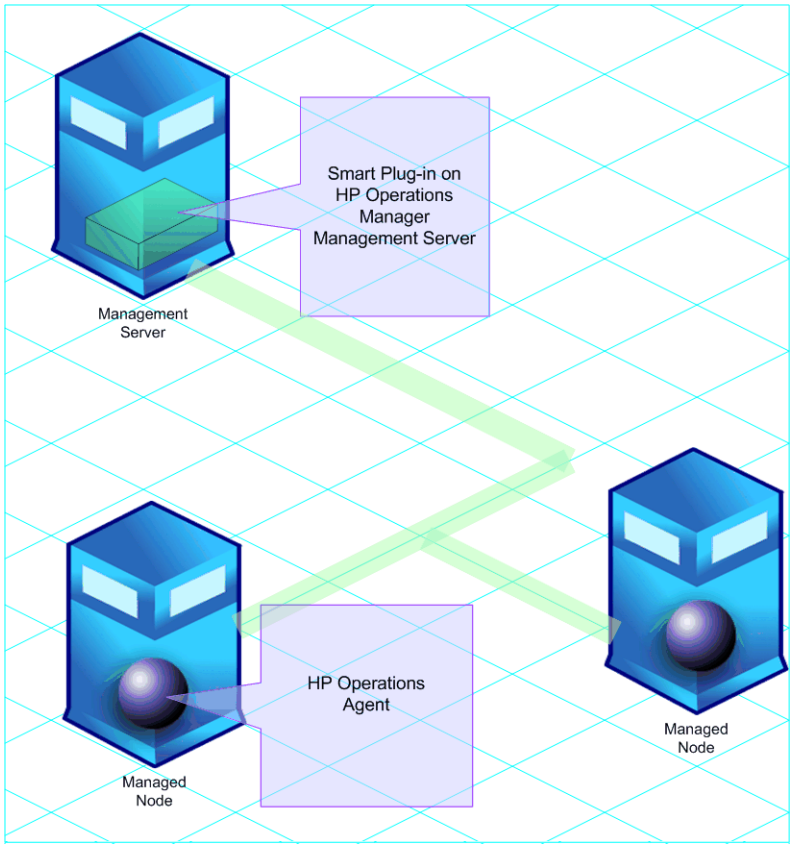
# 1 Introducing the Smart Plug-in for Microsoft Exchange

Smart Plug-in (SPI) is plug-in or add-in software for HP Operations Manager (HPOM). It functions as a modular component of HPOM and further improves its monitoring capabilities in managing your IT resources. SPIs help you to simplify the tasks of your environment by:

- Monitoring availability and health
- Detecting performance lapse
- Detecting, preventing, and solving problems
- Documenting problem solutions
- Generating reports

The following figure shows the HPOM-Client Server Architecture.

**Figure 1 HPOM Client-Server Architecture**



# About Smart Plug-in for Microsoft Exchange

The Smart Plug-in for Microsoft Exchange Server (Microsoft Exchange SPI) helps you to manage the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 in your environment. The Microsoft Exchange SPI provides information about the Microsoft Exchange 2007/Microsoft Exchange 2010 servers and updates you with the following:

- Availability of Microsoft Exchange Server and its roles.
- Monitoring events that occur on Microsoft Exchange Servers.
- Monitoring functions of different Microsoft Exchange Servers.
- Monitoring and reporting important metrics like Mail Flow Latency, Transport Agent Queue Lengths, Information Store DB Cache Size, and SPAM Statistics
- Providing ExBPA Integration

The Microsoft Exchange SPI helps you see the distributed Microsoft Exchange environment from a central, easy-to-use console. You can apply the performance and problem management processes that you use for networks and systems to monitor Microsoft Exchange Server 2007/ Microsoft Exchange Server 2010. The Microsoft Exchange SPI does the following functions:

- Increases Microsoft Exchange availability and performance.
- Reduces support costs associated with the Microsoft Exchange services.
- Improves capacity management and planning for Microsoft Exchange.

# Components of Microsoft Exchange SPI

The components of the Microsoft Exchange SPI are policies, tools, reports, and graphs. Each of these components contributes in enhancing the monitoring capability of the Microsoft Exchange SPI.

## Policies

Policies are pre-defined thresholds to monitor the Microsoft Exchange Server 2007 environment and improve monitoring schedules in the form of service map alerts and messages. Service map alerts are shown in service map while messages are available in message browser. The Microsoft Exchange SPI provides a range of polices. For more information on policies, see Chapter 4, Using Policies.

## Tools

Tools are the utilities to gather information and configure the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010. The Microsoft Exchange SPI tools enable you to perform certain tasks on managed nodes to simplify the process of monitoring the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010. For more information on tools, see Chapter 5, Using Tools.

### Reports

Reports represent a summarized data generated by policies. Data collected by the Microsoft Exchange SPIs are used to generate reports. For more information on reports, see Chapter 6, Integrating Microsoft Exchange SPI with HP Reporting and Graphing Solutions.

Microsoft Exchange SPI reports come in a separate package, `EXSPI-Reporter.msi`, which is available in the HP Operations Manager Application DVD-ROM. Use HP Reporter to generate and view Microsoft Exchange SPI reports.

### Graphs

Graphs are the pictorial representation of various metrics of the Microsoft Exchange Server 2007. Graphs contain the data that are collected by policies. For more information on graphs, see Chapter 6, Integrating Microsoft Exchange SPI with HP Reporting and Graphing Solutions.

For a complete list of policies, tools, reports, and graphs, see *HP Operations Microsoft Exchange SPI Reference Guide*.

# Functions of Microsoft Exchange SPI

After configuring the Microsoft Exchange SPI, you can view information about your Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 environment through the HPOM console in the form of:

- Service Map
- Message Browser
- Reports and Graphs
- HP Operations Topology Viewer Tool
- EXSPI Configuration Utility Tool

## Service Map

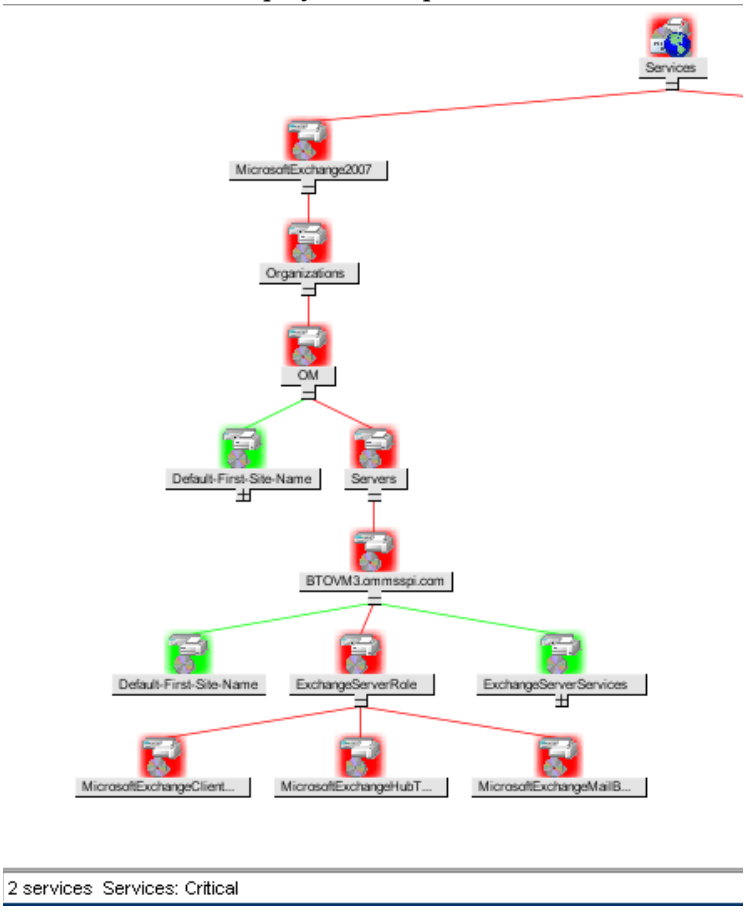
The map view of HPOM presents a graphical and structural view of the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 in your environment. The Microsoft Exchange SPI discovers the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 nodes and services and displays them in the map view. The map view displays the real-time status of the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 environment. The map view shows the severity levels of the problems in the Microsoft Exchange organization using color codes.

Map views are available only on console systems running a 32-bit version of HPOM.

Service map shows the newly added Microsoft Exchange nodes and the discovered Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 services. To view the services, log into the operational interface for operator:

1 Click **Services**. The service map appears.

2 Expand the hierarchy to view the specific servers of the Microsoft Exchange 2007. Expanding the servers further displays its components.

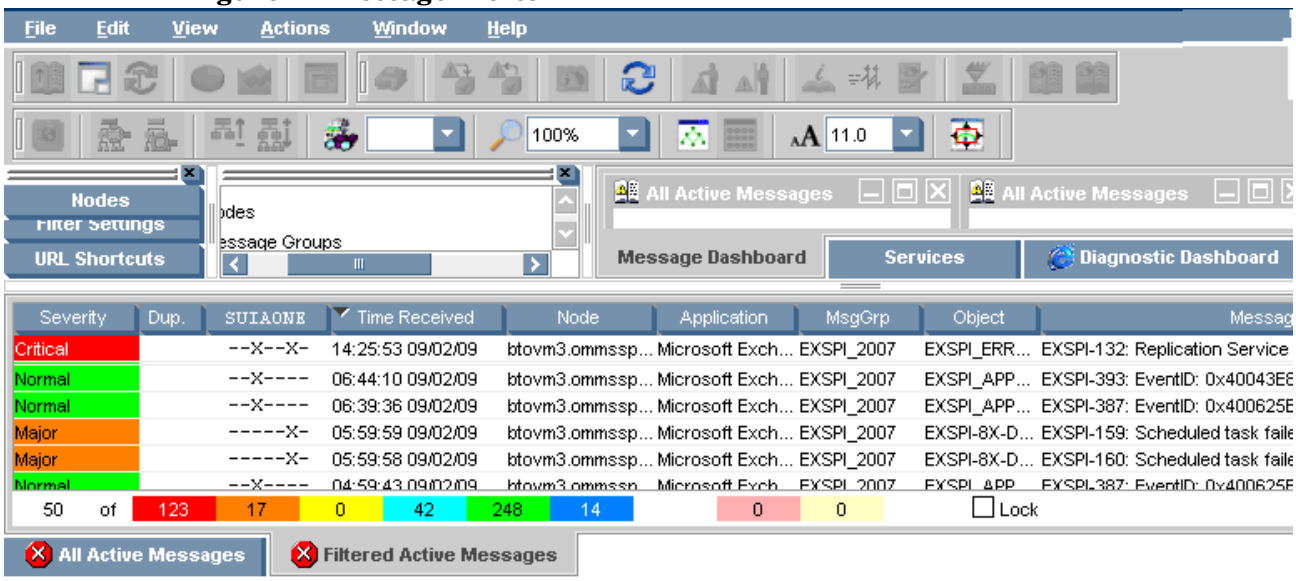



## Message Browser

The Microsoft Exchange SPI monitors events and services on the managed nodes (servers on which the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 is installed and the HP Operations agent is deployed) and generates messages. The messages are displayed on the message browser of HPOM console.

The following figure displays the Message Alerts in the message browser.

**Figure 2 Message Alerts**




## Reports and Graphs

Integrating the Microsoft Exchange SPI with the HP Reporter and the HP Performance Manager (HP PM) helps to generate reports and graphs based on the collected metric data. HP Reporter captures and formats data collected at nodes and generates web-based reports. HP PM generates graphs from near real-time data gathered from the managed nodes. You can access these graphs from the HPOM console if you install HP PM on HPOM management server.

## HP Operations Topology Viewer Tool

The Microsoft Exchange SPI enables you to view a Microsoft Exchange organization graphically with the help of three-dimensional maps of routing groups and server connections. From the topology view you can quickly view routing groups, Exchange servers, and their roles within your Microsoft Exchange organization. For more information, see HP Operations Topology Viewer on page 73.

## EXSPI Configuration Utility Tool

The EXSPI Configuration Utility tool enables you to edit the collection configuration data for Microsoft Exchange SPI. Using this tool you can create new collections and metrics and can modify them. For more information on the EXSPI Configuration Utility tool, see Additional Configuration Procedure on page 45.

To start the HP Topology Viewer and EXSPI Configuration Utility tools, you must install them on a Windows node (For HP Operations Topology Viewer, install on a 32-bits Windows system). These tools are not listed in the **Tool Bank**.

# Monitoring Microsoft Exchange Server 2007 and 2010 in SAN Environment

The Microsoft Exchange SPI can monitor the Microsoft Exchange Server 2007 and Microsoft Exchange Server 2010 configured to use Storage Area Network (SAN).

SAN ensures storage consolidation, movement towards centralized management of messaging systems, and real time mirroring of data. The Microsoft Exchange SPI monitors the Microsoft Exchange database (Information Store) configured on external SAN storage.

# 2 Installing and Upgrading Microsoft Exchange SPI

The Microsoft Exchange SPI is packaged with the HP Operations Smart Plug-ins DVD. You must install the Microsoft Exchange SPI on the HPOM management server.

## Installation Packages

The Microsoft Exchange SPI version 13.08 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 Microsoft Active Directory SPI installation package includes the following:

- SPI Package
- Graph Package
- Reporter Package

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

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

### SPI Package

The SPI package contains all the functionalities of the Microsoft Exchange SPI. Install the package file on an HPOM server. You can find the SPI package at the following locations in the respective DVDs:

For HP-UX: `<SPI DVD>\HPUX\HP_Operations_Smart_Plug-ins_HPUX.depot`

For Solaris: `<SPI DVD>\HP_Operations_Smart_Plug-ins_Solaris_setup.bin`

For Linux: `<SPI DVD>\HP_Operations_Smart_Plug-ins_Linux_setup.bin`

### Reporter Package

The HP Reporter gathers the data from the nodes managed by the SPI through the HPOM, stores the data in its local database, and creates `.html` reports based on the default SPI report policies. You can find the reporting package at the following directory:

`<SPI DVD>\WINDOWS\HP_REPORTER\EXCHANGE_SPI\EXSPI-Reporter.msi`

### Graphing Package

Graphs are drawn from metrics that are collected in the data sources created by the SPI. You can find the graphing package at the following directory:

```
<SPI DVD>\WINDOWS\HP_PM\EXCHANGE_SPI\HPOvSpiExG.msi
```

## Installation Environments

You can install the Microsoft Exchange SPI in the following environments:

- Standard installation of SPI components on an HPOM 9.0x or 9.10 Server.
- Standalone HP Reporter and HP Performance Manager.

## Installation Overview

Perform the tasks mentioned in the following sections to install the Microsoft Exchange Server SPI on HP–UX, Solaris, or Linux.

HP–UX only — If you are upgrading the Microsoft Exchange SPI from the previous version to 13.08, perform the steps in Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10, and then install the Microsoft Exchange SPI.

The following flowchart shows an overview of installing and configuring the Microsoft Exchange SPI on HP–UX, Solaris, and Linux.

**Figure 3 Flowchart on Installation and Configuration Steps**

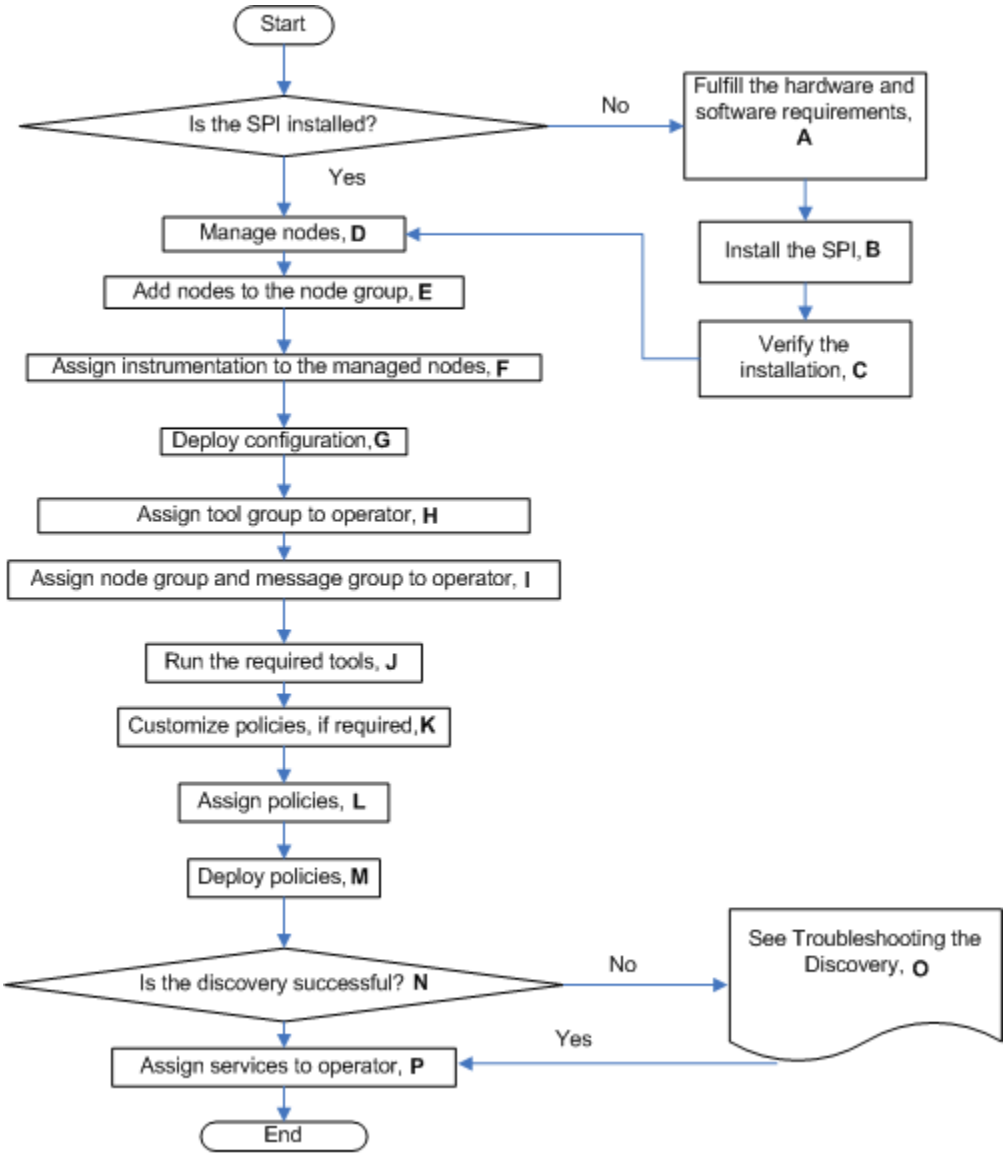



**Table 1 References of the Legends in Flowchart**

| Legend | References |
|---|---|
| **A** | Prerequisites to Install Microsoft Exchange SPI on page 19 |
| **B** | Installing Microsoft Exchange SPI on a Local Management Server on page 20 |
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| Legend | References |
|---|---|
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| **P** | Assigning Microsoft Exchange SPI Services to Operator on page 45 |

The following flowchart shows an overview of upgrading the Microsoft Exchange SPI on HP–UX.

**Figure 4 An Overview of Upgrade Steps (HP–UX only)**

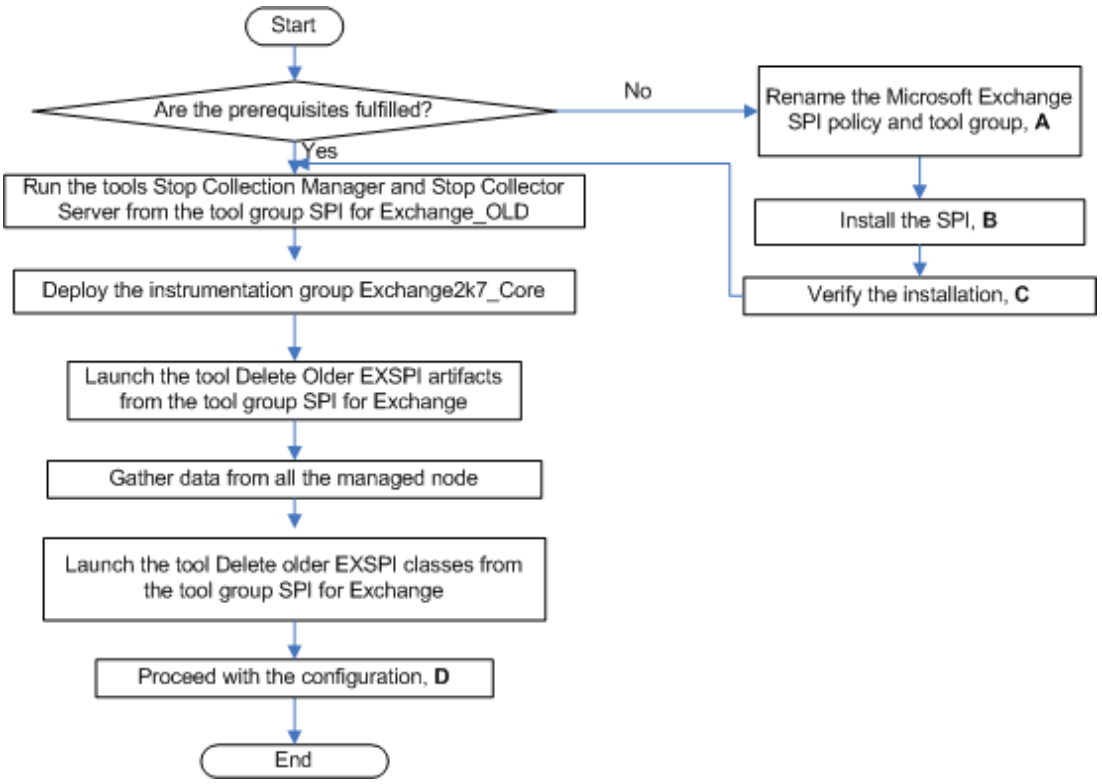


**Table 2 References of Legends of Flowchart (HP–UX)**

| Legend | References |
|---|---|
| **A** | Rename the Microsoft Exchange SPI policy group SPI for MS Exchange and tool group EXSPI ADMIN as SPI for Exchange_OLD. on page 25 |
| **B** | Installing Microsoft Exchange SPI on HP–UX on page 21 |
| **C** | Verifying the Installation of Microsoft Exchange SPI on page 24 |
| **D** | Configuring Microsoft Exchange SPI on page 29 |

# Prerequisites to Install Microsoft Exchange SPI

Fulfill the hardware and software requirements before installing the Microsoft Exchange SPI. Also, ensure that you install the HPOM management server before installing the Microsoft Exchange SPI. It is not necessary to stop HPOM sessions before beginning the Microsoft Exchange SPI installation.

## Hardware Requirements

Ensure that there is at least 200 MB Free Hard-Disk space. For information on hardware requirements, see the *HP Operations Manager for UNIX Installation Guide*.

## Software Requirements

Ensure the following software requirements are met:

Apply the following hotfix:

— Change Request: QCCR1A97866

**For HP–UX:**

On the management server:

- HP Operations Manager for UNIX: 9.0x or 9.10
- HP Reporter 3.80 for EXSPI-Reporter
- HP Performance Manager 8.20 for EXSPI-Graphs
- HP Operations SPI Data Collector (DSI2DDF): 2.40
- HP SPI Self-Healing Services. (SPI-SHS-OVO, automatically installed while installing the SPI using SPIDVD): 3.00
- HP Operations Smart Plug-in Upgrade Tool Kit 2.00

  You can install these products from the HPOM Smart Plug-ins DVD.
- A 32-bit Windows system for OVTV and a Windows system with .Net Framework 3.x and above for EXSPI Configuration Utility tool.
- Service Navigator to view the Microsoft Exchange Server 2007 Service Map.

On the managed node, HP Performance Agent: 5.00 (if you want to use for data logging)

**For Solaris:**

On the management server:

- HP Operations Manager for Solaris: 9.0x or 9.10
- HP Reporter 3.80 for EXSPI-Reporter
- HP Performance Manager 8.21 for EXSPI-Graphs
- HP Operations SPI Data Collector (DSI2DDF): 2.41
- HP SPI Self-Healing Services. (SPI-SHS-OVO, automatically installed while installing the SPI using SPIDVD): 3.02
- HP Operations Smart Plug-in Upgrade Tool Kit 2.02

  You can install these products from the HPOM Smart Plug-ins DVD.
- A 32-bit Windows system for OVTV and a Windows system with .Net Framework 3.x and above for EXSPI Configuration Utility tool.
- Service Navigator to view the Microsoft Exchange Server Service Map.

On the managed node, HP Performance Agent: 5.00 (required if you want to use HP Performance Agent for data logging).

**For Linux:**

On the management server:

- HP Operations Manager for Linux: 9.0x or 9.10
- HP Reporter 3.80 for EXSPI-Reporter
- HP Performance Manager 8.21 for EXSPI-Graphs
- HP Operations SPI Data Collector (DSI2DDF): 2.41
- HP SPI Self-Healing Services. (SPI-SHS-OVO, automatically installed while installing the SPI using SPIDVD): 3.01
- HP Operations Smart Plug-in Upgrade Tool Kit 2.01

  You can install these products from the HPOM Smart Plug-ins DVD.
- A 32-bit Windows system for OVTV and a Windows system with .Net Framework 3.x and above for EXSPI Configuration Utility tool.
- Service Navigator to view the Microsoft Exchange Server 2007 Service Map.

On the managed node, HP Performance Agent: 5.00 (required if you want to use HP Performance Agent for data logging).

# Installing Microsoft Exchange SPI on a Local Management Server

The HP Operations Smart Plug-ins DVD contains the Microsoft Exchange SPI.

## For HP–UX

This section describes steps required to install the Microsoft Exchange SPI on the management server:

### Mounting the DVD

To mount the SPI DVD on HP-UX:

1. Log on as user root.
2. Set the user root's umask by entering:

   **`umask 027`**
3. Create a directory to mount the DVD:

   **`mkdir /<mount_point>`**

   For example: **`mkdir /dvdrom`**
4. Insert the DVD into the disk drive and mount it as user root by entering:

   **`mount /dev/<dvdrom_drive_name> /<mount_point>`**

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

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

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

### Installing Microsoft Exchange SPI on HP–UX

You can install the Microsoft Exchange SPI on a standalone management server or on management cluster servers or both.

#### Installing Microsoft Exchange SPI on a Standalone HPOM Management Server

To install the Microsoft Exchange SPI on the HPOM management server from the command line interface, perform the following steps:

1. Insert the SPI DVD into the DVD-ROM drive of the management server.
2. Run the following commands:
   - For an HP-UX 11.x management server:

     **`swinstall -s /cdrom/HPUX/HP_Operations_Smart_Plug-ins_HPUX.depot EXSPI`**

The installer installs Microsoft Exchange SPI on the management server.

## For Solaris and Linux

You can install the Microsoft Exchange SPI on the Solaris or Linux Management Servers using the following interfaces:

- Graphical User Interface
- Command Line Interface

**Installing the SPI using the Graphical User Interface**

To install the Microsoft Exchange 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 Solaris or Linux management server DVD drive. 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:

For Solaris:

**./HP_Operations_Smart_Plug-ins_Solaris_setup.bin**

For Linux:

**./HP_Operations_Smart_Plug-ins_Linux_setup.bin**

The Initialization window opens.

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

The Introduction (Install) window opens.

6 Click **Next**.

The License Agreement window opens.

7 Select **I accept the terms of the License Agreement** and click **Next**.

The Select Features window opens.

8 Select the **HP Operations Smart Plug-In for Microsoft Exchange Server** and click **Next**.

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

> While installing the SPIs on HPOM for Solaris or Linux, select the previously installed SPIs, if any. If you do not select the previously installed SPIs, the installer automatically removes the previously installed SPIs and installs the selected ones.

The Install Checks window opens.

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

10 Click **Install**.

> Select **Force reinstallation** to reinstall the selected components.

11 When the installation is complete, click **Done**.

### Installing the SPI using the Command Line Interface

To install the Microsoft Exchange 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 Solaris or Linux management server DVD drive. Mount the DVD, if necessary.

3 To start the installation, type the following command:

For Solaris:

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

For Linux:

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

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

   The HP Software Installer content appears.

5 Press **Enter** to continue.

   The Introduction content appears.

6 Press **Enter** to continue.

   The License agreement content appears.

7 When the License agreement prompt, **'I accept the terms of the License Agreement'** appears, type **Y** and press **Enter** to accept the terms and continue with the installation.

   The Feature selection options list appears.

   While installing the SPIs on HPOM for Solaris or Linux, select the previously installed SPIs, if any. If you do not select the previously installed SPIs, the installer automatically removes the previously installed SPIs and installs the selected ones.

8 Type the number corresponding to the feature you want to install and press **Enter**.

   The installer selects the other required features.

9 Press **Enter** to continue.

   The Install Requirements Checks content appears.

10 Press **Enter** to continue.

   The Pre-Installation Summary content appears.

11 Press **Enter** to continue.

   The selected features are installed.

When the installation is complete, a message appears stating that the installation is completed successfully.

# Installing Microsoft Exchange SPI on HPOM Cluster Servers

Before installing the Microsoft Exchange SPI in a cluster environment, ensure that HPOM for UNIX 9.0x or 9.10 is installed on each system of the cluster.

The HPOM console does not function properly until you install the Microsoft Exchange SPI on all the nodes in the HPOM cluster.

To install the Microsoft Exchange SPI on cluster servers, perform the following tasks:

Task 1: At the first cluster-aware management server, select and install Smart Plug-ins.

Complete the steps described in Installing Microsoft Exchange SPI on a Local Management Server on page 20 before proceeding to the next management server.

Before starting, ensure that sufficient disk space is available on each management server for the Microsoft Exchange SPI. Cancelling the installation process before the completion leads to partial installations and require manual removal of the partially installed components.

Task 2: At the next cluster-aware management server, install pre-selected Smart Plug-ins.

Repeat the steps described in Installing Microsoft Exchange SPI on a Local Management Server on page 20 on each management server in the cluster and continue to every management server until you have finished.

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

# Verifying the Installation of Microsoft Exchange SPI

To verify the proper installation of Microsoft Exchange SPI, perform one of the following steps:

1. Check the Policy Bank which contains **SPI for Exchange** policy group. For this, click **Policy Bank → SPI for Exchange**. The SPI for Exchange policy group is displayed.
2. From the command prompt of HPOM 9.0x or 9.10 server, browse to **<OVO_DATADIR>/share/databases/OpC/mgd_node/instrumentation** location. You can see the Instrumentation groups **Exchange2k7__Core, Exchange2k10_Core, Exchange2k7_Discovery, Exchange2k10_Discovery,** and **Exchange2k7_Collector**. All EXSPI instrumentation files are in these directories.

   To get the value of <OVO_DATADIR>, run the command **opcagt -type -verbose** on HPOM on UNIX 9.0x or 9.10 Server.

# Migrating Microsoft Exchange SPI 12.00 from HPOM for UNIX 8.0 to HPOM for UNIX 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 Microsoft Exchange SPI 12.00 is installed) to HPOM for UNIX 9.0x or 9.10. Some SPI specific data, however, must be migrated manually. You can migrate HPOM from one system to another.

## Migrating 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, follow these steps:

1. After completing migrating HPOM for UNIX 8.x 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 for Microsoft Exchange SPI:
   - /opt/OV/EXSPI
   - /opt/OV/www/htdocs/ito_op/images
2. Copy the files present in /opt/OV/EXSPI and files with signature exspi* from /opt/OV/www/htdocs/ito_op/images on HPOM for UNIX 8.x system into the respective folders that you have created in HPOM for UNIX 9.0x or 9.10 server.

## Limitations and Workarounds

These are the following limitations and workarounds for Microsoft Exchange SPI 12.00 support on HPOM for UNIX 9.0x and 9.10:

- Microsoft Exchange SPI 12.00 is not supported on HPOM for UNIX 9.0x or 9.10, when HPOM for UNIX 8.x on Solaris is migrated to HPOM for UNIX 9.0x or 9.10 on HP-UX IA.
- SPI discovery does not work as Service Discovery Framework (SDF) and is not supported on HPOM for UNIX 9.0x or 9.10.
- After you complete the migration, to start the interfaces related to SPI, install X-Windows client software on the system from which you will launch the HPOM for UNIX 9.0x or 9.10 server operator interface.
- If you want to install any patches that are available, you must install the latest patch available for Microsoft Exchange SPI 12.00 on the HPOM for UNIX 8.x server before starting the migration.
- Installing patches that would be released in the future for Microsoft Exchange SPI 12.00 is not supported on HPOM for UNIX 9.0x or 9.10 after migration. However, patch can be installed on the HPOM for UNIX 8.xx server and migrated to HPOM for UNIX 9.0x or 9.10 environment.
- Graphs cannot be launched using an “automatic action” or “Operator-initiated action” of alerts on HPOM for UNIX 9.0x or 9.10 system after the migration.

# Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10

You can upgrade the Microsoft Exchange SPI on a standalone HPOM for UNIX 9.0x or 9.10 server or on a HPOM for UNIX 9.0x or 9.10 cluster servers or both.

➤ Delete service discovery policy **Exchange 2007 Discovery** from the management server before upgrading from Microsoft Exchange SPI 12.00 to EXSPI 13.08

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.

## Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10 Server

To upgrade the Microsoft Exchange SPI on a standalone HPOM for UNIX 9.0x or 9.10 Server:

1. Rename the Microsoft Exchange SPI policy group **SPI for MS Exchange** and tool group **EXSPI ADMIN** as **SPI for Exchange_OLD**.
2. Install the Microsoft Exchange SPI 13.08. See Installing Microsoft Exchange SPI on HP–UX.

3 Run the tools - Stop Collection Manager and Stop PowerShell Collector Server from the tool group **SPI for Exchange_OLD** on all the managed Microsoft Exchange servers. This stops collection manager and collector server on the nodes.

4 Deploy the instrumentation group **Exchange2k7_Core** to all the managed Microsoft Exchange 2007 server nodes. To deploy the instrumentation category see Assigning Instrumentation Categories to Exchange Nodes on page 30 and Deploying Configuration on page 31.

5 Launch the tool **Delete Older EXSPI artifacts** from the tool group **SPI for Exchange → Exchange 2007** on all the managed Microsoft Exchange 2007 server nodes to remove the previous version of the Microsoft Exchange SPI policies and instrumentation categories deployed on the nodes.

6 Gather data from all the managed node and perform the following steps on HP Reporter Server:

Ensure to perform the following steps before upgrading the Microsoft Exchange SPI reporter package to 13.0x on the HP Reporter Server.

a Ensure to install the .NET Framework 2.x (or higher) on the HP Reporter server. Insert the HP Operations Smart Plug-ins DVD on the HP Reporter server.

b Run the discovery command to discover all the managed nodes on the HP Reporter server. Check the `%OvDataDir%\trace.discover` file to ensure that all the Microsoft Exchange managed nodes are discovered.

c Open a command prompt and browse to the following path:

`<SPIDVD>/Windows/OV_REPORTER/EXCHANGE_SPI/`

d Ensure that all the Microsoft Exchange managed nodes are discovered by the HP Reporter, and then run the following command:

**`EXSPI_run_gatherCODA.exe`** <reporter_system_dsn> <reporter_db_username> <reporter_db_password>

In this instance, <reporter_system_dsn> is the system DSN for the HP Reporter database; <reporter_db_username> and <reporter_db_password> are the user name and password to access the HP Reporter database.

e Check the `%OvDataDir%\trace.gather` file for any errors. Ensure that the data is collected for all the metric lists from all the managed Microsoft Exchange nodes.

7 Launch the tool **Delete older EXSPI classes** from the tool group **SPI for Exchange → Exchange 2007**on all the managed Microsoft Exchange server nodes to delete the previous version of the Microsoft Exchange SPI data store on the managed nodes.

8 Proceed to configure the Microsoft Exchange SPI. See Configuring Microsoft Exchange SPI.

After ensuring that all the managed nodes are being monitored by Microsoft Exchange SPI 13.08, launch the tool Cleanup older EXSPI artifacts from server from the tool group **SPI for Exchange → Exchange 2007** on the management server node to delete the previous version of the Microsoft Exchange SPI instrumentation files from the management server.

## Upgrading Microsoft Exchange SPI on HPOM for UNIX 9.0x or 9.10 Cluster Servers

To upgrade the Microsoft Exchange SPI on cluster servers, perform the following tasks:

Task 1: At the first cluster-aware management server, select and install Smart Plug-ins.

Complete the steps in Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10 Server on page 25 before proceeding to the next management server.

Before starting, ensure that sufficient disk space is available on each management server for the Microsoft Exchange SPI. Cancelling the installation process before the completion leads to partial installations and require manual removal of the partially installed components.

Task 2: At the next cluster-aware management server, install pre-selected Smart Plug-ins.

Repeat step 1, step 2, and step 8 of Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10 Server on page 25 on each management server in the cluster. Complete the upgrade on every management server until you have finished.

## Support Statement for Co-Existence of different versions of Microsoft Exchange SPI on HPOM for UNIX 9.0x or 9.10

Read the following limitations before installing the Microsoft Exchange SPI 13.08 (from SPI DVD 2009 or SPI DVD 2010) on a HPOM 9.0x or 9.10, which has the Microsoft Exchange SPI 12.00 installed from SPI DVD 2008.

- Complete the migration process from HPOM 8.xx to HPOM 9.0x or 9.10 before upgrading the Microsoft Exchange SPI to version 13.08.
- If you have multiple versions of Microsoft Exchange SPI, version 12.00 and 13.08 on HPOM 9.0x or 9.10, you must move all the managed nodes to the Microsoft Exchange SPI version 13.08 as soon as possible.
- Monitoring a node by combination of SPIs from SPI DVD 2008 and SPI DVD 2009 or SPI DVD 2010 is not supported.
- If you have the Microsoft Exchange SPI 13.08 installed on HPOM 9.0x or 9.10 systems, which also have the Microsoft Exchange SPI 12.00, the newly added managed nodes must be configured using the Microsoft Exchange SPI 13.08. No configuration is possible on the existing or old managed nodes monitored by the Microsoft Exchange SPI 12.00.

  This is because the Microsoft Exchange SPI 12.00 configuration tools are overwritten by the Microsoft Exchange SPI 13.08 tools.
- Patches for the Microsoft Exchange SPI version 12.00 must be installed before you start the HPOM migration process. After the Microsoft Exchange SPI version 13.08 is installed, no patches or hot-fixes pertaining to the Microsoft Exchange SPI version 12.00 can be installed on the HPOM server.
- To run the interfaces related to the Microsoft Exchange SPI 13.08, you must install X-windows client software on the system from which you will launch the HPOM for UNIX 9.0x or 9.10 server operating interface.

# Verifying the Upgrade

To verify the upgrade of the Microsoft Exchange SPI, see Verifying the Installation of Microsoft Exchange SPI.

# 3 Configuring Microsoft Exchange SPI

The Microsoft Exchange SPI monitors the Microsoft Exchange Server by discovering the existing components of the Microsoft Exchange Server 2007 in your environment and maintaining the thresholds set up by the policies. After you install the Microsoft Exchange SPI, you must configure it to monitor the Microsoft Exchange Server 2007 nodes in your organization.

## Basic Configuration Procedure

Configure the Microsoft Exchange SPI by performing the tasks in the Administration interface.

Apply the hotfix: QCCR1A91176. This is for the **EXSPI-14X Exchange DatabaseCopy Status** policy to work. If you do not apply the hotfix then the discovery service map will not be updated immediately and it would be updated the next morning.

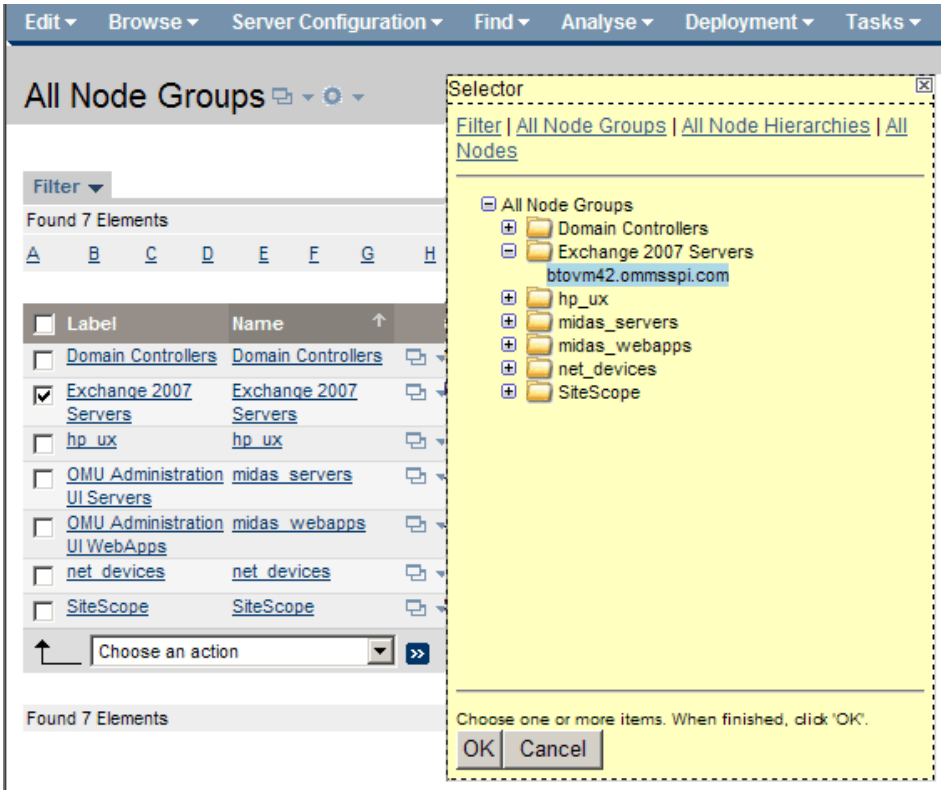
### Manage Exchange Server Nodes

To manage the Exchange Server (EXSPI) nodes, see section *Organizing Managed Nodes* in chapter 3 (*Configuring and Maintaining*) HPOM in the *HP Operations Manager for UNIX Concepts Guide*.

### Assigning Microsoft Exchange Nodes to Node Group

Assign the Exchange 2007 nodes to the Exchange_Server_2007 node group and Exchange 2010 nodes to Exchange_Server_2010 node group. To assign nodes, follow these steps:

1. Click **Browse** → **All Node Groups** and select the **Exchange_Server_2007/ Exchange_Server_2010** node group check box.
2. Select **Assign Nodes...** from the list, and click **Submit** . A Selector window appears.
3. Select the Microsoft Exchange nodes to be added in the Exchange_Server_ 2007/ Exchange_Server_ 2010 node group and click **OK**.




A message displays successful assignment of the nodes to the Exchange_Server_2007/ Exchange_Server_ 2010 node group.

## Assigning Instrumentation Categories to Exchange Nodes

Assign the following instrumentation categories to the Microsoft Exchange 2007 nodes:

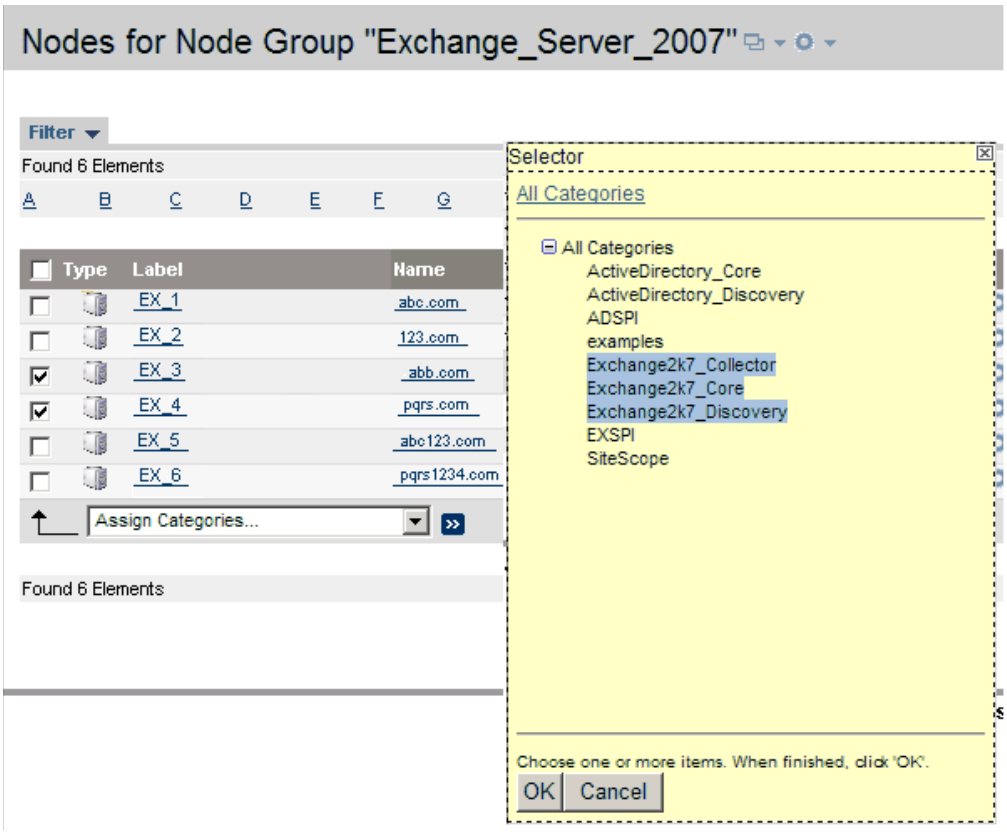
- Exchange2k7_Core
- Exchange2k7_Discovery
- Exchange2k7_Collector
- SPIDataCollector

Assign the following instrumentation categories to the Microsoft Exchange 2010 nodes:

- Exchange2k10_Core
- Exchange2k10_Discovery
- SPIDataCollector

To assign instrumentation to the Microsoft Exchange nodes, follow these steps:

1. Click **Browse** → **All Node Groups** and click **Exchange_Server_ 2007/Exchange_Server_ 2010** node group. The Exchange nodes are listed.
2. Select the Exchange nodes check boxes to assign the instrumentation categories.
3. Click **Assign Categories...** from the list and click **Submit** ». The Selector window opens.
4. Select **Exchange2k7_Core, Exchange2k10_Core, Exchange2k7_Discovery, Exchange2k10_Discovery, Exchange 2k7_Collector**, and **SPI Data Collector**, and then click **OK**.




The selected categories are assigned to the Microsoft Exchange nodes.

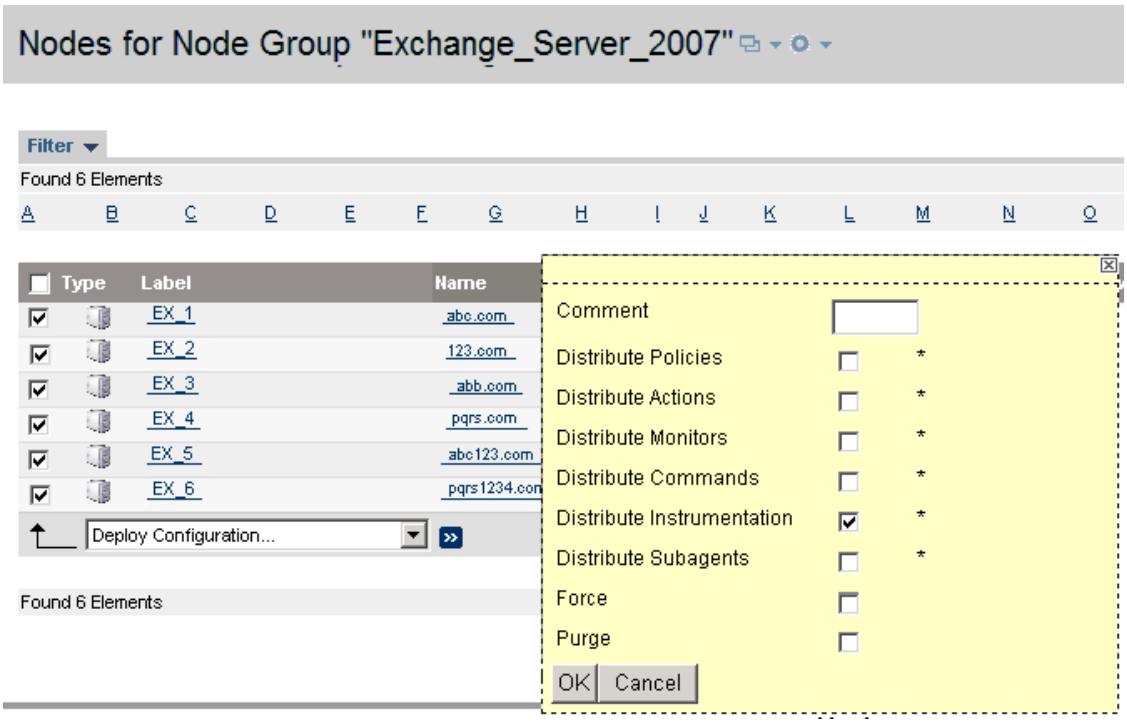
## Deploying Configuration

Configuration deployment fails, if the PowerShell prompt, with the Microsoft Exchange SPI pssnapin loaded, is kept open on managed node.

Ensure to stop the EXSPI Collector Server, (if it is already running on the managed node) before you deploy the instrumentation category *Exchange2k7_Collector*. Use the Stop PowerShell Collector tool to stop the collector server. Restart the EXSPI Collector Server after you deploy the instrumentation category. To start the collector server, use the Start PowerShell Collector tool. For more information, see Starting PowerShell Collector Tool (Only for Exchange 2007 Nodes)

Deploy configuration to one or more Exchange nodes. To deploy configuration, follow these steps:

1. Click **Browse** → **All Node Groups** and click **Exchange_Server_2007/Exchange_Server_2010** node group. The Exchange nodes are listed.
2. Select the Exchange nodes check box to deploy configuration.
3. Select **Deploy Configuration...** from the list and click **Submit** ». A box opens which indicates the categories of configuration.
4. Select only **Distribute Instrumentation** check box, and click **OK**.

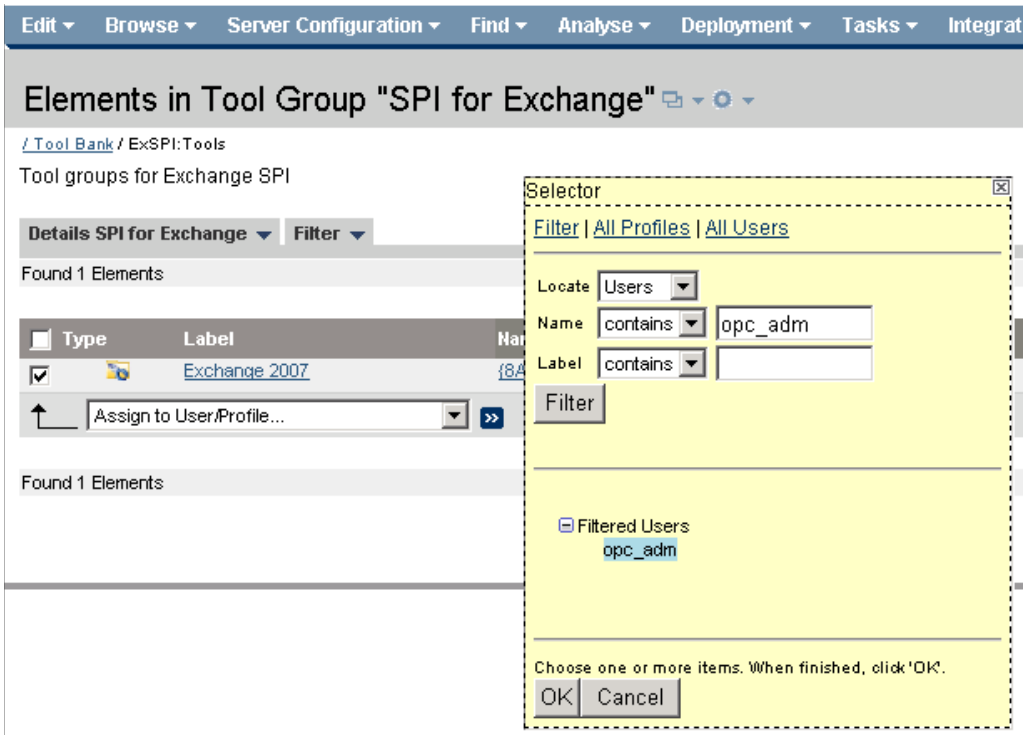



The instrumentation is successfully deployed on the Exchange nodes.

## Assigning Tool Group to Operator

Assign the Microsoft Exchange SPI tool group to the operator opc_adm (or any desired operator). To assign the tool group to an operator, follow these steps:

1. Click **Tool Bank**. The tool group SPI for Exchange is displayed.
2. Select the SPI for Exchange check box.
3. Select **Assign to User/Profile...** and click **Submit** ». The Selector window opens.
4. Type **opc_adm** (or any desired operator) in the **Name** box and click **OK**. The operator which you selected is displayed.
5. Select the **opc_adm** operator (or any desired operator) and click **OK**.




The Exchange 2007/2010 tool group is assigned to the operator opc_adm.

## Assigning Exchange Node Group and Message Groups to the Operator

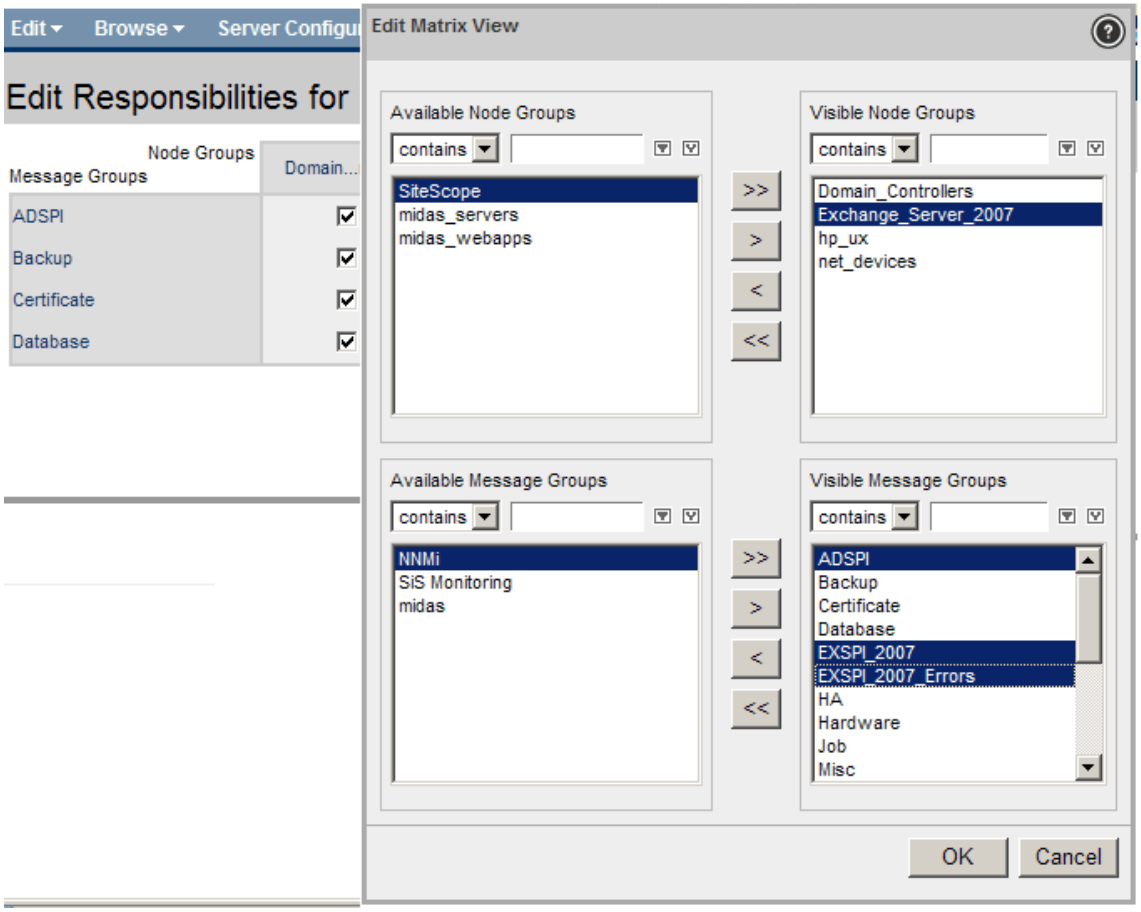
Assign Exchange_Server_2007 and Exchange_Server_2010 node group and EXSPI_2007, EXSPI_2007_Errors, EXSPI_2010, and EXSPI_2010_Errors message groups to one or more operators for HP Operations. This enables the operator to view messages, alerts, or both which are generated from the EXSPI nodes.

To assign the node group and message groups, follow these steps:

1. Click **Browse** → **All Users**. All the users as operators are listed.
2. Select one or more operators for EXSPI, for example, **opc_adm** check box and click **Edit Responsibilities...** from the Edit option .

   All the available nodes groups and message groups are displayed in the Edit Matrix View window.
3. Click **Edit View** and select the required node groups and message groups.

4 Click > to shift the selected groups from the Available list to the Visible list.




The **Exchange_Server_2007** and **Exchange_Server_2010** node group and the **EXSPI_2007, EXSPI_2010, EXSPI_2007_Errors, and EXSPI_2010_Errors** message groups are added to the list.

5 Select the **Exchange_Server_2007** and **Exchange_Server_2010** node group and the **EXSPI_2007, EXSPI_2010, EXSPI_2007_Errors, and EXSPI_2010_Errors** message groups check boxes to which now enables the opc_adm operator to use the message browser and to view the alert.

6 Click **Save**.

## Start Tools - Create DataSources, Register DataCollection, and Start PowerShell Collector

Run the following Microsoft Exchange SPI tools in each Microsoft Exchange node in the given order:

- *Create Data Sources:* The Create Data Sources tool creates databases either into the HP Operations agent's data store (embedded performance component-also known as CODA), or into the HP Performance Agent. For more information on starting the Create Data Sources tool, see Starting Create Data Sources and Register DataCollector Tools on page 37.

If you do not have the HP Performance Agent (HP PA) installed in your environment, the tool creates databases into the data store (CODA). The data store can store the data collected by individual collectors.

For more details on data logging, see Data Logging Scenarios.

If the managed node has both HP Performance Agent and CODA installed, then to create the data source in *CODA*, create an empty `nocoda.opt` file, and then customize the Create DataSources tool cmdline by adding -CODA option before you start the tool.

This tool checks for any existing EXSPI data source. If no data source exists, it displays an error message. This error message, however, can be ignored as the Create Data Sources tool continues to create a new EXSPI data source.

- *Register DataCollector:* The Register DataCollector tool registers necessary COM components on the nodes. Run this tool before you start monitoring the nodes. For more information on starting the Register DataCollector tool, see Starting Create Data Sources and Register DataCollector Tools on page 37.
- Run the *Edit XPL Configuration* tool.
- *Start PowerShell Collector* (Only for Exchange 2007 Nodes)

The Start PowerShell Collector tool starts the EXSPI Collector on the Exchange node. Start this tool as a user who has the following privileges:

- Exchange View-Only Administrator
- Exchange Server Administrator of all mailbox servers
- Local Administrator of all mailbox servers and
- READ+WRITE access to Microsoft Exchange System Object (MESO) of all mailbox servers

To grant READ+WRITE access to MESO to the user:

a. Open Active Directory Users & Computers snap-in on the DC of the domain to which the Microsoft Exchange Server is a member of.

b. Ensure that **View** → **Advanced Features** is selected.

c. Browse to Microsoft Exchange Systems Objects container, right-click, and select **Properties.**

d. Click **Security** tab, and then click **Advanced**.

e. Select **Add** button, type the name of user account to be delegated, and then click **OK**.

f. In the Apply to Drop down list, select **msExchSystemMailbox objects**.

g. Select the **READ PROPERTY & WRITE PROPERTY** check box.

h. Click the consequent **OK** buttons to close all the property sheets.

i. Wait for or force the AD replication.

## Starting PowerShell Collector Tool (Only for Exchange 2007 Nodes)

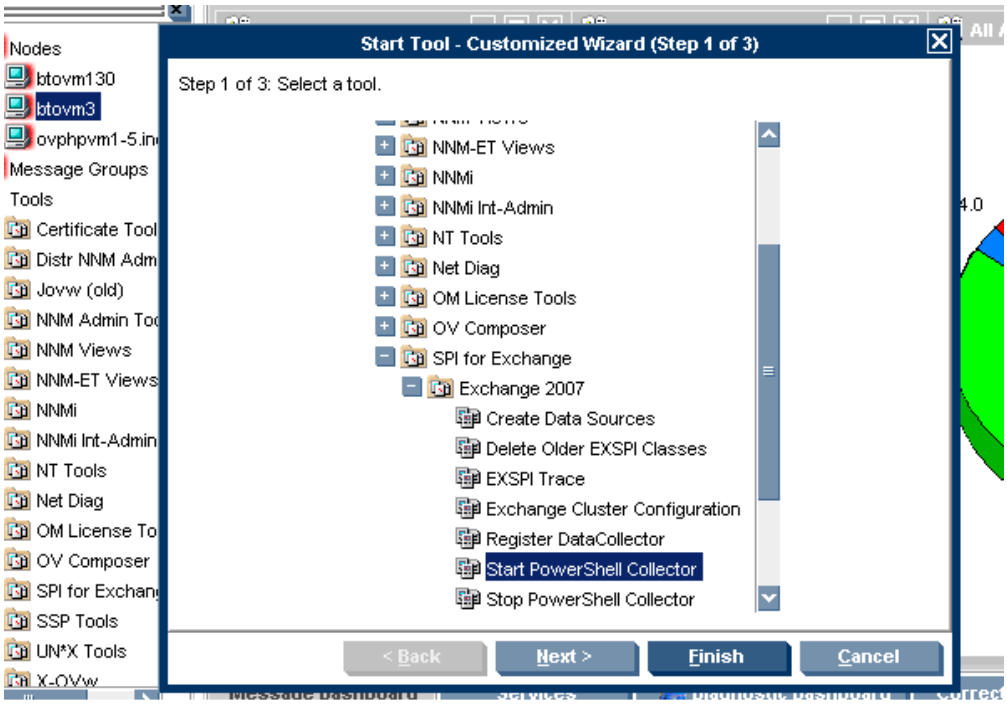
To start the Start PowerShell Collector tool, log into the operator's interface:

a. From the Administration interface, click **Integrations** → **HPOM for Unix Operational UI**. The login window appears.

b. Type the user name and password to log in.

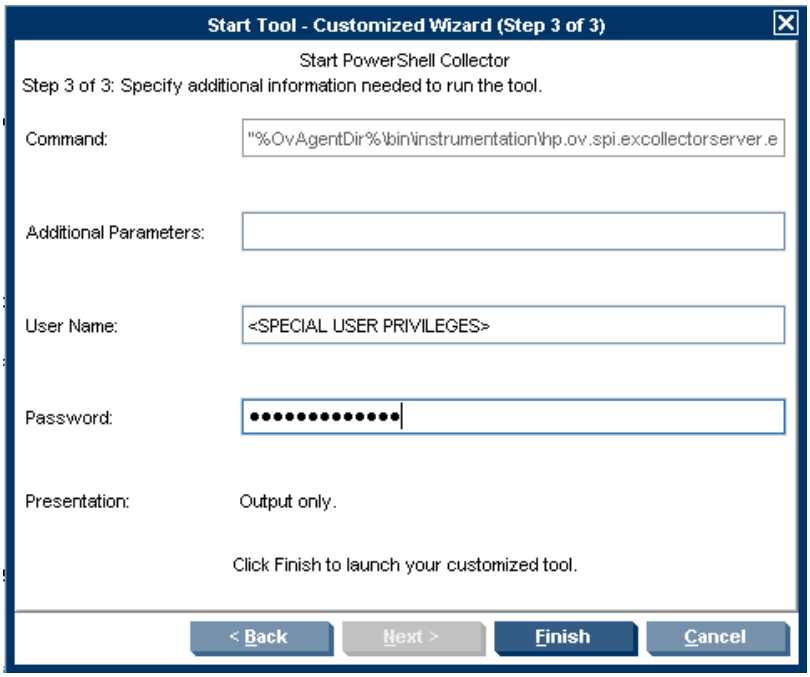
c. Right-click the node where the tool needs to be started and click **Start Customized...**.

d Expand **SPI for Exchange** → **Exchange 2007**, and select **Start PowerShell Collector** tool.




e Click **Next**.

f Enter the user credentials with the required privileges.




g Click **Finish**. The Start PowerShell Collector tool starts.

The Start PowerShell Collector tool does not return any output. The message `Tool Started. Please wait.` continues to be displayed. To check if the PowerShell Collector has started, close the tool output and check the Task Manager on the managed node.

### Starting Create Data Sources and Register DataCollector Tools

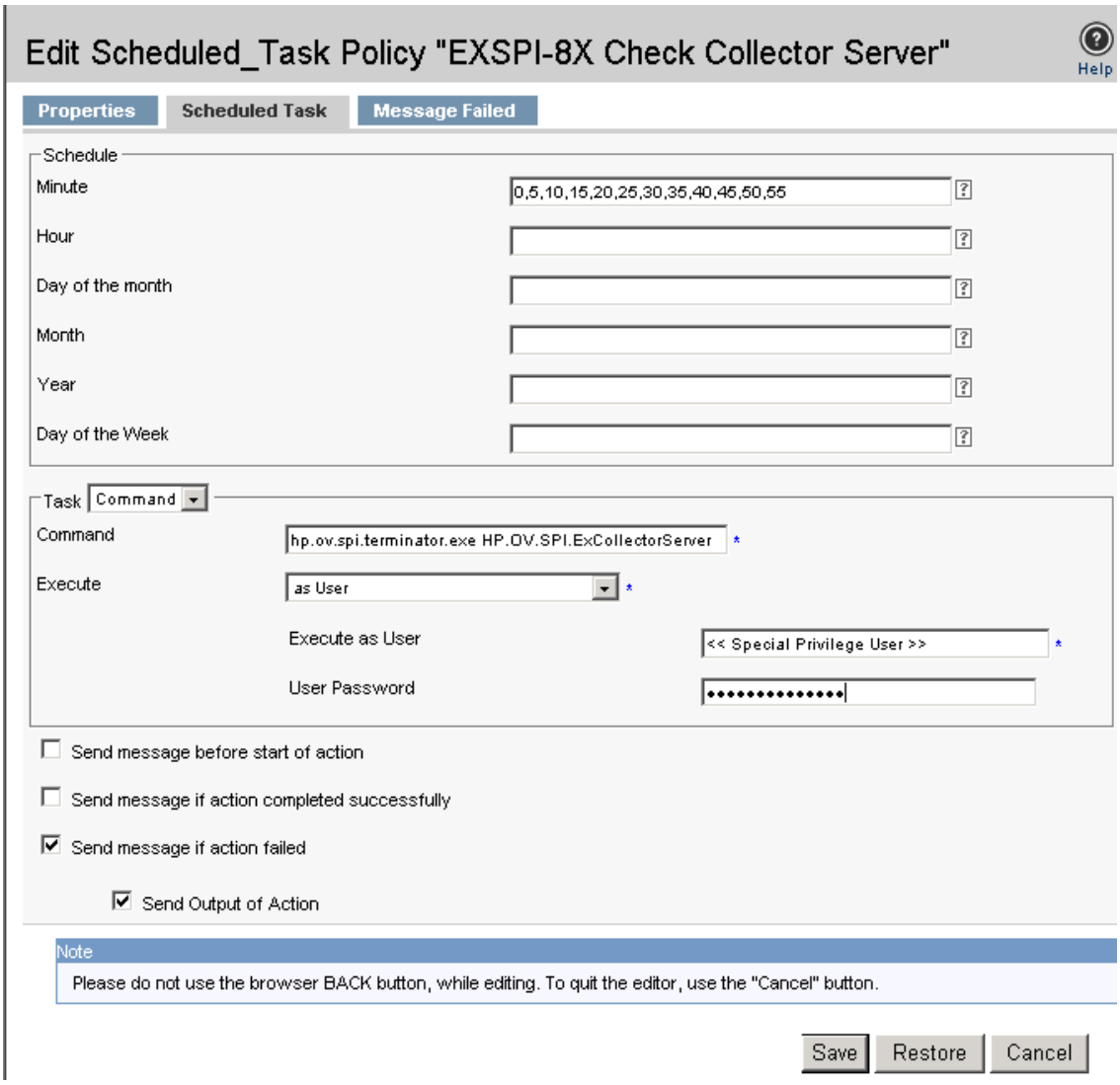
To start the Create Data Sources and Register DataCollector tools, follow these steps:

1. From the Administration interface, click **Integrations** → **HPOM for Unix Operational UI**. The login window appears.
2. Type the user name and password to log in.
3. Right-click the node where the tool needs to be started.
4. Select **Start** → **SPI for Exchange** → **Exchange 2007/ Exchange 2010** → **Create Data Sources** or **Register DataCollector**.

   A message "`Tool Started. Please wait.`" indicates the start of the selected tool.

## Specifying Credentials for EXSPI-8X Check Collector Server Policy

Specify the same credentials of the user who starts the Start PowerShell Collector tool for the policy EXSPI-8X Check Collector Server. To know the details of the privileges the user must have, see Start PowerShell Collector (Only for Exchange 2007 Nodes).



## Specifying Credentials for Collection Policies (Only for Exchange 2010 Policies)

- Modify the following policies to run as user with below mentioned privileges:

**User Privileges:**

1 Local Administrator of Exchange Server 2010

2 Server Management

3 View-Only Organization Management

4 Records Management

**Policies:**

| |
|---|
| EXSPI-14X-Dc-EdgeAgentLogBlockedData |
| EXSPI-14X-Dc-EdgeAgentLogBlockedRcpts |
| EXSPI-14X-Dc-HubAgentLogBlockedData |
| EXSPI-14X-Dc-HubAgentLogBlockedRcpts |
| EXSPI-14X-HubGetBlockedMailsCount |
| EXSPI-14X Check If Mailbox Circular Logging Disabled |
| EXSPI-14X Check If Public Folder Circular Logging Disabled |
| EXSPI-14X Check Mailbox Circular Logging Enabled |
| EXSPI-14X Check Outlook Anywhere Enabled |
| EXSPI-14X Check Outlook Anywhere Not Enabled |
| EXSPI-14X Check Public Folder Circular Logging Enabled |
| EXSPI-14X Check Tracking Log Settings |
| EXSPI-14X Dc-Get Top Destination Details |
| EXSPI-14X Dc-Get Top Recipient Details |
| EXSPI-14X Dc-Get Top Sender Details |
| EXSPI-14X Dc-Get Top Source Details |
| EXSPI-14X Dc-GetMailFlowLatency |
| EXSPI-14X Dc Replication Summary |
| EXSPI-14X Get Configuration of The Transport Agent |
| EXSPI-14X Get Exchange Availability |
| EXSPI-14X Get Mailbox Details |
| EXSPI-14X Get Mailbox IS Sum Data |
| EXSPI-14X Get Public Folder Details |
| EXSPI-14X Get Public IS Sum Data |
| EXSPI-14X Get Queue Data |

| |
|---|
| EXSPI-14X Get UMHuntGroup Details |
| EXSPI-14X Get UMMailbox Pin Details |
| EXSPI-14X Get UMServer Details |
| EXSPI-14X Get Unified Messaging Mailbox Details |
| EXSPI-14X GetUM IPGatewayDetails |
| EXSPI-14X Test Mapi Connectivity |
| Exchange 2010 Discovery |

- Modify the following policies to run as user with below mentioned privileges:

**User Privilege:**

  — Local Administrator of Exchange Edge Server 2010

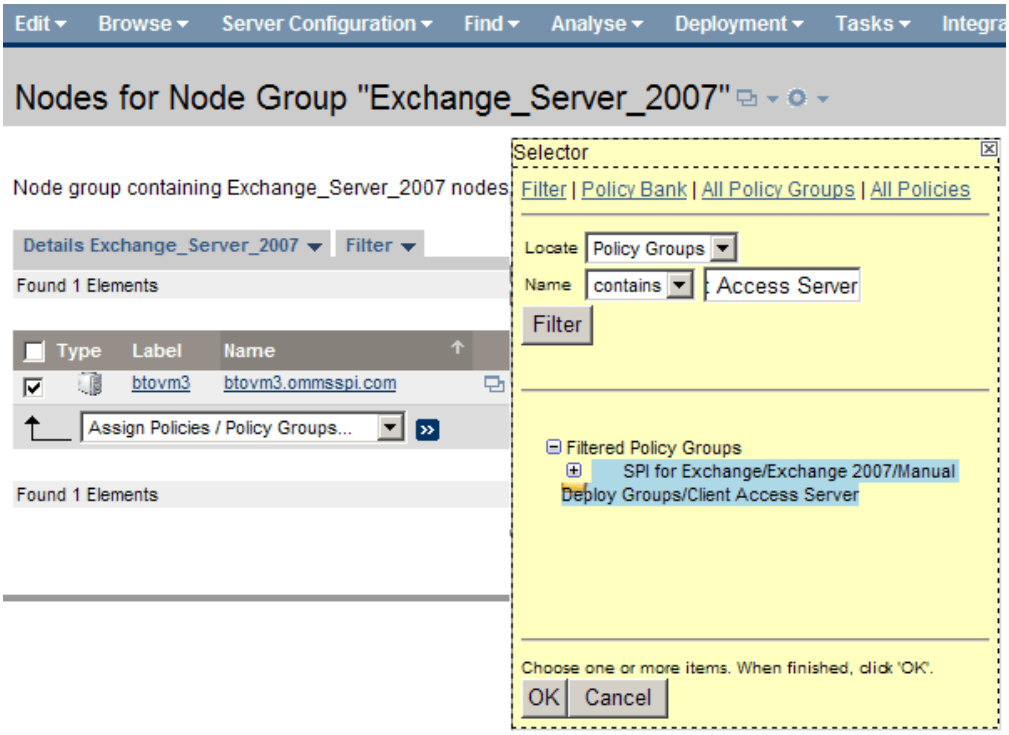
Policies:

| |
|---|
| EXSPI-14X-EdgeGetBlockedMailsCount |
| EXSPI-14X Edge Check Tracking Log Settings |
| EXSPI-14X Edge Get Configuration of The Transport Agent |
| EXSPI-14X Edge Get Queue Data |
| Exchange 2010 Discovery |

## Assigning Microsoft Exchange SPI Policies to Exchange Nodes

To assign Microsoft Exchange SPI policies to the Exchange nodes, follow these steps:

1. *If the Microsoft Exchange server nodes run on a cluster environment*, perform the steps as described in Editing Discovery Policy.
2. Click **Browse** → **All Node Groups** and click **Exchange_Server_ 2007/Exchange_Server_ 2010** node group. The Exchange nodes are listed.
3. Select the check box of the Exchange nodes to assign policies.
4. Click **Assign Policies / Policy Group...** from the list and click **Submit** ». The Selector window opens.
5. Select **Policy Groups** in **Locate** box and type the name of the policy group corresponding to the role being hosted on the Exchange server node in the **Name** box and click **Filter**. For more details, see Table 3.
6. Select **SPI for Exchange** →**Exchange 2007/Exchange 2010** →**Manual Deploy Groups** →***<policy group>*** and click **OK**.




All the Microsoft Exchange SPI policies of the policy group are assigned to the Exchange nodes hosting the appropriate role.

Assign only those policy groups on the managed nodes which host the roles that the policy group is related to. For example if the managed node hosts the Edge Server, deploy only the Edge Server policy group.

The following table lists the policy group for the specific Exchange server.

**Table 3 Server Role and the Policy Group to be deployed**

| Server Role | Policy Group |
|---|---|
| Mailbox Server | **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Mailbox Server** |
| Hub Transport Server | **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Hub Transport Server** |
| Edge Transport Server | **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Edge Server** |
| Client Access Server | **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Client Access Server** |
| Unified Messaging Server | **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Unified Messaging Server** |

Deploy the following policy groups for *all* the managed nodes irrespective of the specific server role:

- Discovery

  **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Discovery**

- Availability

  **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Availability**

- Collector Definition

  **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → Collector Definition**

Edit the EXSPI-8X Check Collector Server policy to run with the same privileges as required to run the Start PowerShell Collector tool. For more details, see the privileges (for the Start PowerShell tool) mentioned in Start Tools - Create DataSources, Register DataCollection, and Start PowerShell Collector.

- ExBPA Integration

  **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups → ExBPA Integration**

## Customizing Policies

You can customize one or more policies, if required, to suit the Microsoft Exchange Server environment.

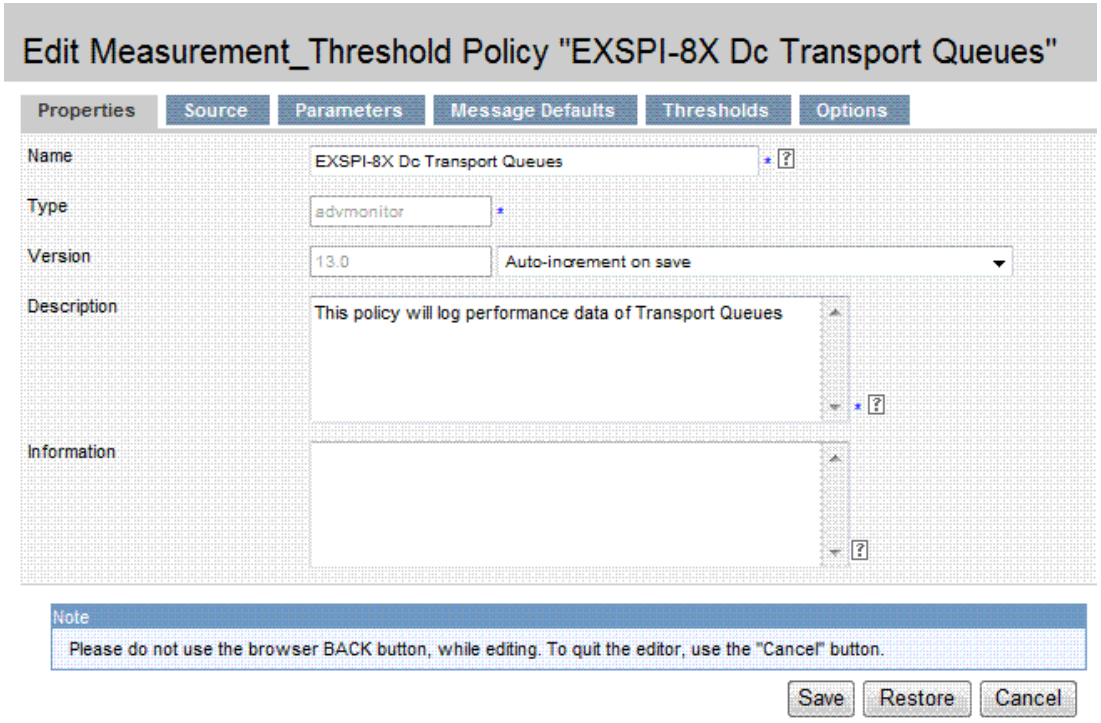
Use Smart Plug-in Upgrade Tool Kit 2.00 to retain the customization of the policies. See *HP Operations Smart Plug-in Upgrade Toolkit UNIX User Guide* for more details.

To customize a policy, follow these steps:

1. Click **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups**.
2. Click the policy group that contains the required policy. For example, **Edge Server**.
3. Select the policy check box. For example, select **EXSPI-8X DcTransport Queues** check box.
4. Select **Edit...** from the drop-down list.

   The **Edit Measurement_Threshold Policy "EXSPI-8X Dc Transport Queues"** window opens to enable you to edit the policy in terms of customizing its properties, settings parameters, or message threshold or all.

5 Click the **Properties** or **Parameters** or **Message Defaults** or **Thresholds** or **Options** or all tabs to modify the policy attributes and click **Save**.




The tabs enable you to perform the following actions:

a **Parameter** tab - selecting the default view or the design view.

b **Message Default** tab - using or not using the Instruction Text or the Instruction Text interface.

c **Threshold** tab - selecting the monitoring type between VBScript or perl.

d **Options** tab - setting the logging and processing options.

# Data Logging Scenarios

If you use Performance Agent as the data store, data source creation and data logging happens in Performance Agent, by default. There is no configuration required.

To create data sources and to log data into CODA, while Performance Agent is installed, perform the following steps:

1 Create a folder `dsi2ddf` in the path `%OvAgentDir%\Conf`, if it does not exist.

2 Create an empty file `nocoda.opt`.

3 Enter the names of the other data sources *except EX2007_DATA/EXSPI_DATA*, which are to be created and for which the data logging has to happen in Performance Agent into the file `nocoda.opt`.

The data source EX2007_DATA/EXSPI_DATA is created and data logging happens in CODA.

For more details on the data store metrics and policy logging details, see *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide*.

# Deploying Microsoft Exchange SPI Policies to Exchange Nodes

Configuration deployment fails, if the PowerShell prompt, with the Microsoft Exchange SPI pssnapin loaded, is kept open on managed node.

Deploy the Microsoft Exchange SPI policies to the Exchange nodes. For this:

1. Click **Browse** → **All Node Groups** and click **Exchange_Server_2007/Exchange_Server_2010** node group. The Exchange nodes are listed.
2. Select the check box of the Exchange nodes to deploy policies.
3. Select **Deploy Configuration...** from the drop down list and click **Submit**.

   A box opens which indicates the categories of configuration.
4. Select only **Distribute Policies** check box, and click **OK**.

All the other Exchange SPI policies are deployed on the Exchange nodes.

## Discovery Configuration Scenario

The Microsoft Exchange SPI discovers the services of the Microsoft Exchange 2007/ Microsoft Exchange 2010 Server and helps you to manage the Microsoft Exchange environment.

For non-clustered Exchange server nodes, create a copy of the Discovery policy before editing it. Perform the following steps to create a copy of the Discovery policy:

1. In the HPOM console, expand **Policy Management** → **Policy Groups** → **SPI for Exchange** → **en** → **Exchange 2007** or **Exchange 2010** → **Manual Deploy Groups** → **Discovery**
2. Right-click **exchange 2007 discovery** or **Exchange 2010 Discovery** from the pane.
3. Select **All Tasks**, and then click **Edit....** The edit window of the policy appears.
4. Click **File** → **Save As.**

   The **Save As** dialog box opens.
5. Edit the name of the policy as required and click **OK.**

   The new discovery policy is created.

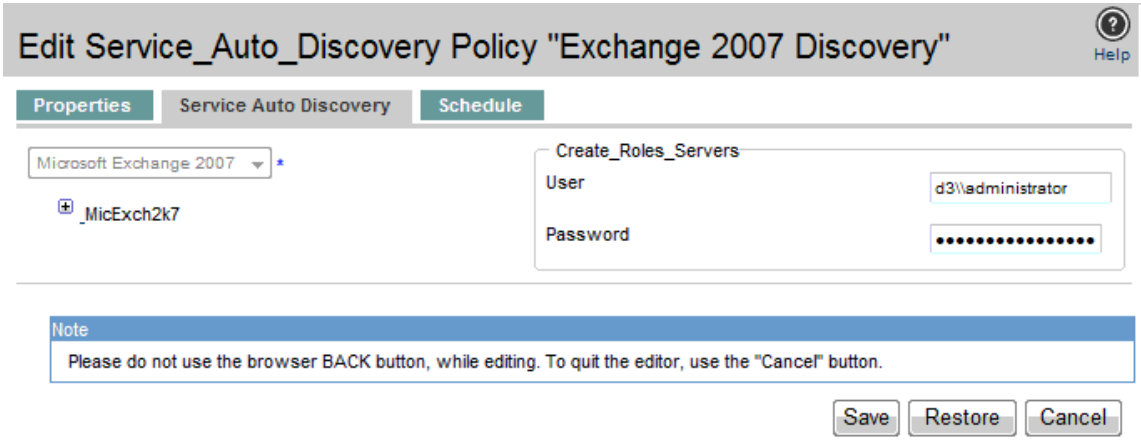
### Editing Discovery Policy

Perform the following steps *only for the clustered Exchange server nodes.*

To edit the Microsoft Exchange SPI Discovery policy, follow these steps:

1. Click **Policy Bank** → **SPI for Exchange** → **Exchange 2007/Exchange 2010** → **Manual Deploy Groups** → **Discovery.**
2. Select the **Exchange 2007 Discovery/Exchange 2010 Discovery** policy and click **Edit...** .

3 Enter the credentials of the Exchange Organization Administrator.




## Assigning Discovery Policy to Managed Nodes

Assign the Discovery policy to all the Exchange managed nodes. For this:

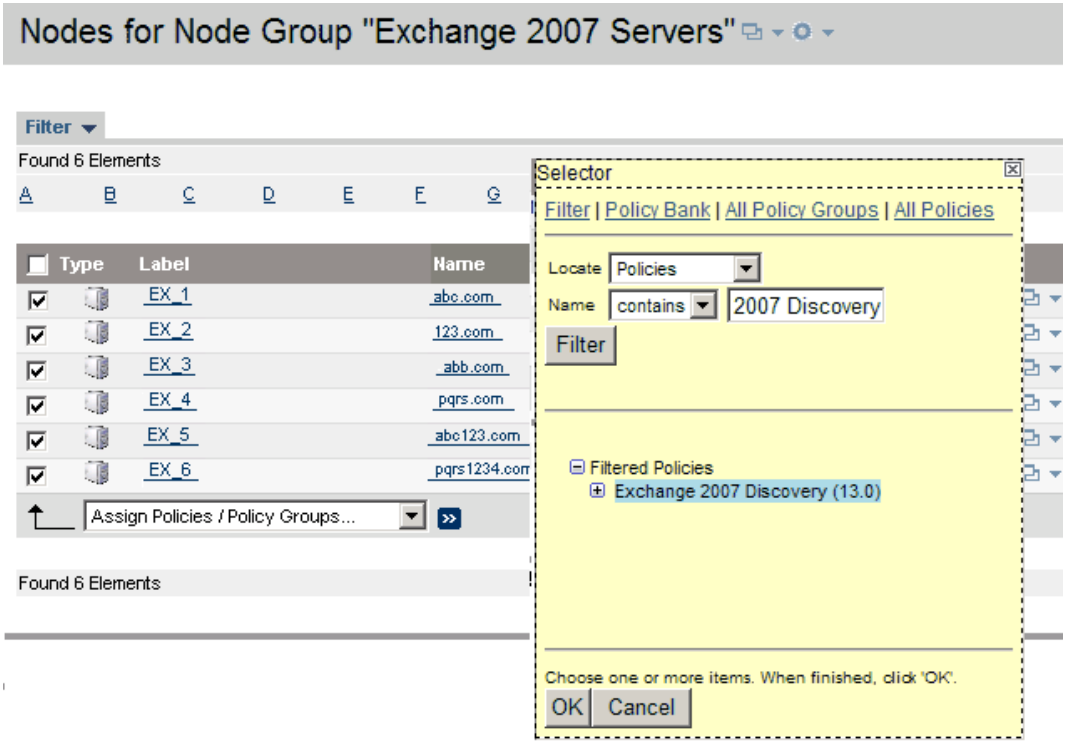
1 Click **Browse** → **All Node Groups** and click **Exchange 2007 Servers/Exchange 2010 Servers** node group. The Exchange nodes are listed.

2 Select the check box of the Exchange nodes to assign policies.

3 Click **Assign Policies / Policy Group...** from the drop down list and click **Submit** ». The **Selector** window opens.

4 Select **Policies** in **Locate** box and type **`Exchange 2007 Discovery/Exchange 2010 Discovery`** in the **Name** box and click **Filter**. The Exchange Discovery policy is displayed.

5 Click **Exchange 2007 Discovery/Exchange 2010 Discovery**, and then click **OK**.




The Discovery policy is assigned to the Exchange nodes.

### Deploying Discovery Policy to Managed Nodes

Deploy the Microsoft Exchange SPI Discovery policy to the Exchange nodes. For this:

1. Click **Browse** → **All Node Groups** and click **Exchange 2007 Servers/Exchange 2010 Servers** node group. The Exchange nodes are listed.
2. Select the check box of the Exchange nodes to deploy the Discovery policy.
3. Select **Deploy Configuration...** from the drop down list and click **Submit** . A box opens which indicates the categories of configuration. Select only **Distribute Policies** check box, and then click **OK**.

   The Discovery policy is successfully deployed on the Exchange nodes.

## Assigning Microsoft Exchange SPI Services to Operator

Assign the EXSPI discovered services to the operator opc_adm (or any desired operator) by running the command **`opcservice -assign <<operator_name>> MicExch2k7`** after EXSPI discovery is run. The service navigator now shows the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 service map.

## Viewing Service Map using Operator Interface

You can view the Microsoft Exchange SPI service map using the operator interface. To view the service map, click **Services**.

The service map shows the newly discovered services of the Microsoft Exchange Server 2007/ Microsoft Exchange Server 2010. Expand the hierarchy to view the specific services of the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010. For more information, see Service Map on page 11.

# Additional Configuration Procedure

You can enhance the monitoring capabilities of the Microsoft Exchange SPI on the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 nodes by customizing the data collection configuration. The Microsoft Exchange SPI data collectors follow a pre-defined data collection configuration to monitor the managed nodes. You can create and modify those new data collection configuration.

## Functions of EXSPI Data Collectors

The pre-defined data collection configuration is described in an XML file named as `spimetadata.xml`. Deploy the EXSPI-8X/14X Spimetadata Versioning policy to use the `spimedata.xml` file. The EXSPI data collectors follow the data collection configuration as defined in the `spimetadata.xml` file. This file consists of a component, that is, collection, which determines the data which is to be collected by an EXSPI data collector. The data collection configuration describes the complete workflow of collecting, storing, and alerting.

The EXSPI Data collector can collect *only* the data from Cmdlets available on the managed node.

A data collection configuration consists of the following components or building blocks:

- *MetricSet* — A metric is a measurement that defines a specific operational or performance characteristic of a system or an application. A MetricSet is a group of related metrics.
- *OpCMsg Calls* — An OpCMsg Call generates an alert message when a metric value does not match a pre-set value or range of values.
- *OpCMon Calls* — An OpCMon Call sends the collected data to a measurement threshold policy. The measurement threshold policy checks the data against some upper or lower threshold as defined within the policy and sends alarm to the message browser.
- *Data Store* — A Data Store defines the way in which the collected data can be stored into the data store (CODA or PA).

Each data collection configuration is associated with a scheduled task policy. Each collection is associated with a unique integer value called the collection ID. A request must be sent to the EXSPI Data Collector with the ID as one of the parameters to start the collection process. This is performed by the schedule task policy for each collection which executes a command **`HP.OV.SPI.ExScheduler -CID <ID>`**.

When you deploy a scheduled task policy on a managed node, the EXSPI data collector retrieves the following details from the data collection configuration:

- The cmdlets to be executed and the metrics to be collected from the Resultset.
- The name of the data store where the collected data is to be logged.
- The name of the monitor policy to which a particular metric has to be passed. This policy performs the threshold on this metric value.
- The set of rules in the `spimetadata.xml` file to be applied on the metrics and if required generate opcmsg.

## EXSPI Configuration Utility Tool

The Microsoft Exchange SPI provides the EXSPI Configuration Utility tool to modify the default data collection configuration specified in the `spimetadata.xml` file on the Microsoft Exchange Server 2007/2010 nodes by adding new data collection through its graphical user interface. You can add the components of the data collection configuration—MetricSet, OpCMsg Calls, OpCMon Calls, and data store—and modify the newly created collection configuration to monitor the managed nodes.

## Starting EXSPI Configuration Utility Tool

To launch the EXSPI Configuration Utility tool, follow these steps:

### For Exchange 2007 Nodes

1. Copy the file `<OVO_INSTALLDIR>/install/EXSPI/EXSPI_Console_2007.zip` to a windows system which has a .NET Framework 3.x or above.

   To get the value of <OVO_INSTALLDIR>, run the command **`opcagt -type -verbose`** on the HPOM for UNIX 9.0x or 9.10 Server.

2. Extract the `EXSPI_Console_2007.zip`.
3. Copy the contents of the EXSPI-8X SPImetadata Versioning policy from HPOM on UNIX 9.0x or 9.10 Server into an XML file and place the XML file in a folder.

4 Open the folder and double-click `HP.OV.SPI.Composer.exe` to start using EXSPI Configuration Utility tool.

5 Edit the XML file using EXSPI Configuration Interface as described in the Modifying a Collection.

6 After you complete editing the XML file, copy the contents of modified XML file to the EXSPI-8X SPIMetaData Versioning policy on the HPOM on UNIX 9.0x or 9.10 Server.

7 Save the policy and redeploy it on the managed nodes.

### For Exchange 2010 Nodes

1 Copy the file `<OVO_INSTALLDIR>/install/EXSPI/EXSPI_Console_2010.zip` to a windows system which has a .NET Framework 3.x or above.

To get the value of <OVO_INSTALLDIR>, run the command **`opcagt -type -verbose`** on the HPOM for UNIX 9.0x or 9.10 Server.

2 Extract the `EXSPI_Console_2010.zip`.

3 Copy the contents of the EXSPI-14X SPImetadata Versioning policy from HPOM on UNIX 9.0x or 9.10 Server into an XML file and place the XML file in a folder.

4 Open the folder and double-click `HP.OV.SPI.Composer.exe` to start using EXSPI Configuration Utility tool.

5 Edit the XML file using EXSPI Configuration Interface as described in the Modifying a Collection.

6 After you complete editing the XML file, copy the contents of modified XML file to the EXSPi-8X SPIMetaData Versioning policy on the HPOM on UNIX 9.0x or 9.10 Server.

7 Save the policy and redeploy it on the managed nodes.

## Viewing EXSPI Configuration Utility Tool

The EXSPI Configuration Utility tool provides you with an interface to perform necessary tasks to create new data collection configuration. The interface consists of the following elements:

- Menu bar
- Toolbar
- Left pane and right pane

### EXSPI Configuration Utility Menu bar

You can use the menu options in the menu bar to perform tasks like adding and removing an element of collection definition. You can also view a preview of every element (in the form of XML markups) by using the Preview menu option.

**Table 4 EXSPI Configuration Utility Menu bar**

| Menu | Options | Description |
|---|---|---|
| File | Save | Saves any changes that you make. |
| | Save as | Enables you to save the updated `spimetadata.xml` file on a different location and with a different name. |
| | Reload/ Cancel All Changes | Reloads the utility, cancels all unsaved changes. |
| | Exit | Exits the PowerShell collection configuration utility. |
| Edit | Delete Selected Collection | Deletes the selected collection configuration or component from this menu. |
| Insert | Add New MetricSet | Adds a new MetricSet to the list of available MetricSets. |
| | Add New Metric | Adds a new Metric to the list of available metrics in a particular MetricSet. This option is enabled only when you select a MetricSet. |
| | Add New Collection | Adds a new collection to the list of available collections. |
| | Add New DataStore | Adds a new DataStore to the list of available DataStores. |
| | Add New OpCMon Call | Adds a new OpCMon Call to the list of available OpCMon Calls. |
| | Add New OpCMsg Call | Adds a new OpCMsg Call to the list of available OpCMsg Calls. |

## EXSPI Configuration Utility Toolbar

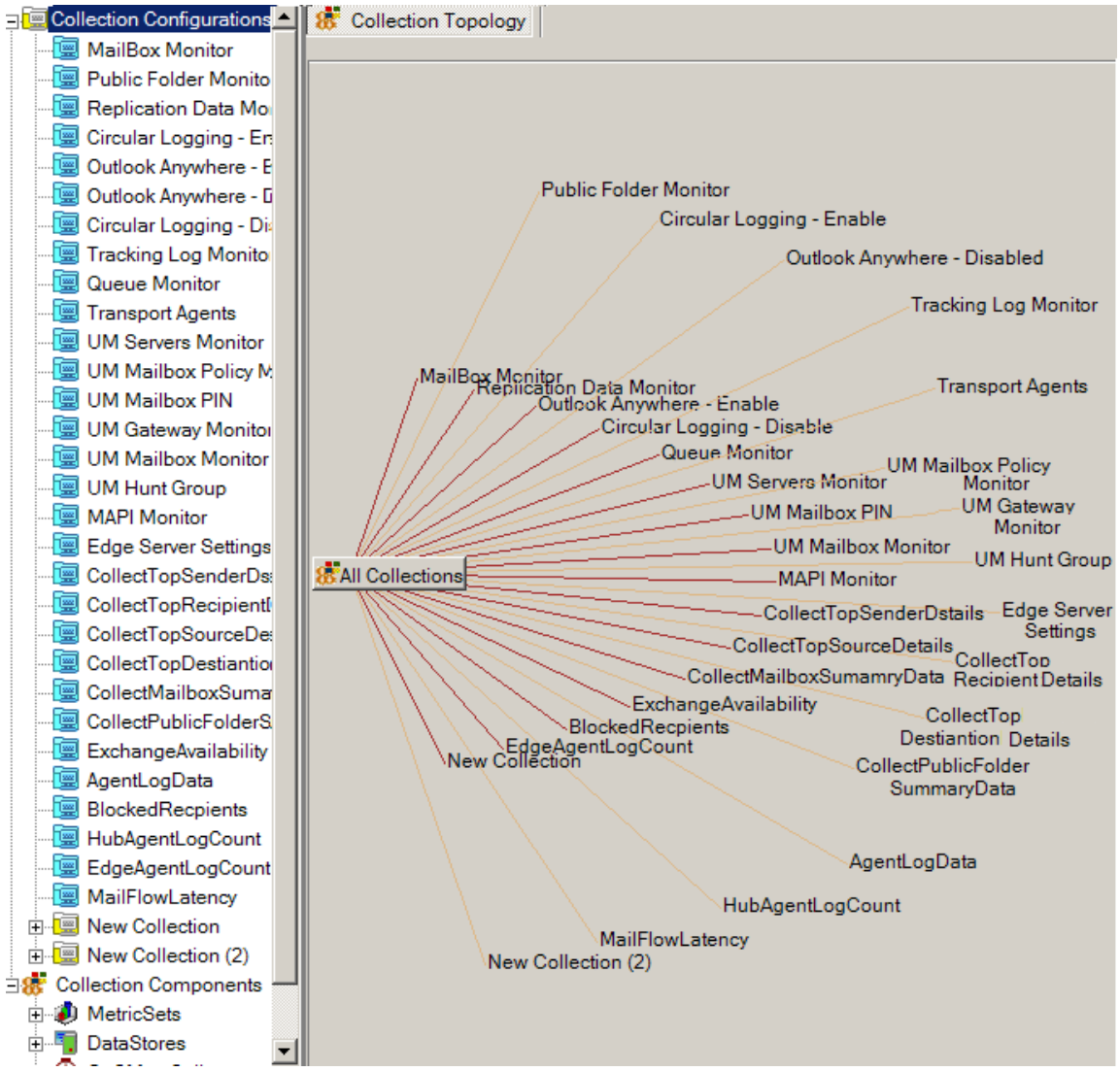
You can use the toolbar to add references to the collection elements—MetricSets, DataStores, OpCMsg Calls, and OpCMon Calls.

**Table 5 EXSPI Configuration Utility Toolbar**

| Icon | Tool Name |
|---|---|
|  | Add MetricSet |
|  | Add DataStore |
|  | Add OpCMsg Call |
|  | Add OpCMon Call |

## EXSPI Collection Configuration Utility Panes

The left pane lists all available metrics, MetricSets, collections, DataStores, OpCMsg Calls, and OpCMon Calls in a tree like structure. The right pane provides you an interface to view and modify properties and settings for every collection element.




If you modify the EXSPI Configuration Utility tool, ensure to deploy the EXSPI-8X/14X SPIMetaData Versioning policy on the managed nodes where the changed data collection mechanism takes effect. Even if you revert to the previous version of the EXSPI-8X/14X SPIMetaData Versioning policy, the interface shows the latest version.

## Saving Collection Configuration

To save the updated collection configuration, you can use the **Save** or **Save As** option.

### File and Save Option

When you open the file from the following location:

- From **OM for Windows** option: The configuration is read from the EXSPI-8X/14X SPIMetadata Versioning policy. When you save the updated configuration, the data is written back to the policy. This updates the version of the policy.

  To make this configuration available on the node, redeploy the policy.

Every time you save the file, a new version gets created. So avoid saving the file very often to limit numerous versions of the file.

- From the local disk: No versions are maintained if you save the file from local disk as the latest file overwrites the previous file.

### File and Save As Option

When you click **Save** → **Save As**, the file is saved irrespective of its location in the local disk. The **Save As** option, however, enables you to save only the local copy.

## Adding Collection Data

The EXSPI Configuration utility tool enables you to add the following components:

- MetricSet
- OpCMsg Call
- OpCMon Call
- DataStore
- Collection

Do not modify any default MetricSet or data store or both. You can however modify the newly added MetricSet, the DataStore, OpcMSg Call, and OpcMon Call.

### Adding a MetricSet

A MetricSet is a group of related metrics. The Microsoft Exchange SPI collects these metrics to monitor the health, availability, and performance of Microsoft Exchange Server 2007.

Each MetricSet can execute a Powershell command. The Powershell command can either be a single Cmdlet or a pipeline of Cmdlets. You can use either or all of the following Cmdlets:

- Default Powershell Cmdlets
- Microsoft Exchange Cmdlets
- EXSPI Internal Cmdlets
- User created cmdlets (See Using Additional Cmdlets)

To add a new MetricSet:

1 In the left pane, right-click **MetricSet** from **Collection Components**, and then click **Add New MetricSet** or click **Insert** → **Add New MetricSet** from the menu bar. A new MetricSet (with the name **New MetricSet**) appears in the list of MetricSets.

2 In the right pane, specify the MetricSet Name. For example **`GetMailBox`**.

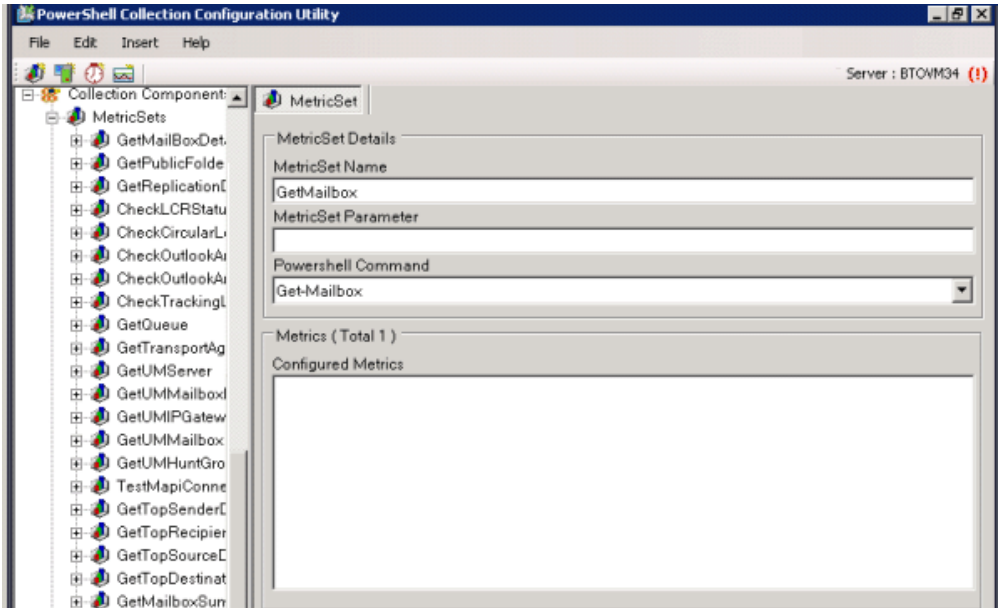
3 Select the PowerShell command from the list.

The list consists of the default Cmdlets available with the Microsoft Exchange Management PowerShell.

You can use the list for PowerShell commands *only* for a single command. For more than one PowerShell command (pipelined commands), you must manually type the required commands.

4 Click **Apply Changes**.

5 Click **File** → **Save**. The added MetricSet (**`GetMailBox`**) gets listed with the other MetricSets in the left pane.




For the MetricSet GetMailBoxDetails (which is required to collect Mailbox Details), the cmdlet can be Get-Mailbox or if we want to add filter and not want to log System Mailbox Details, it can be "Get-Mailbox | where {$_.DisplayName -notlike "SystemMailbox*" }".

After you add a new MetricSet, the EXSPI Configuration Utility adds a new metric template to the MetricSet. You can create new metrics and add these to the newly created MetricSet.

## Adding a Metric

After you add a MetricSet, you must now add or select metrics from the resultset of the powershell command specified in the MetricSet. If the command is a single Cmdlet, select the metrics from the list. If the command is pipelined command (more than one cmdlet) type these commands. Then type each metric name from the resultset of the last Cmdlet in the pipeline.

To add a new metric:

1 In the left pane, expand **MetricSets** from **Collection Components**.

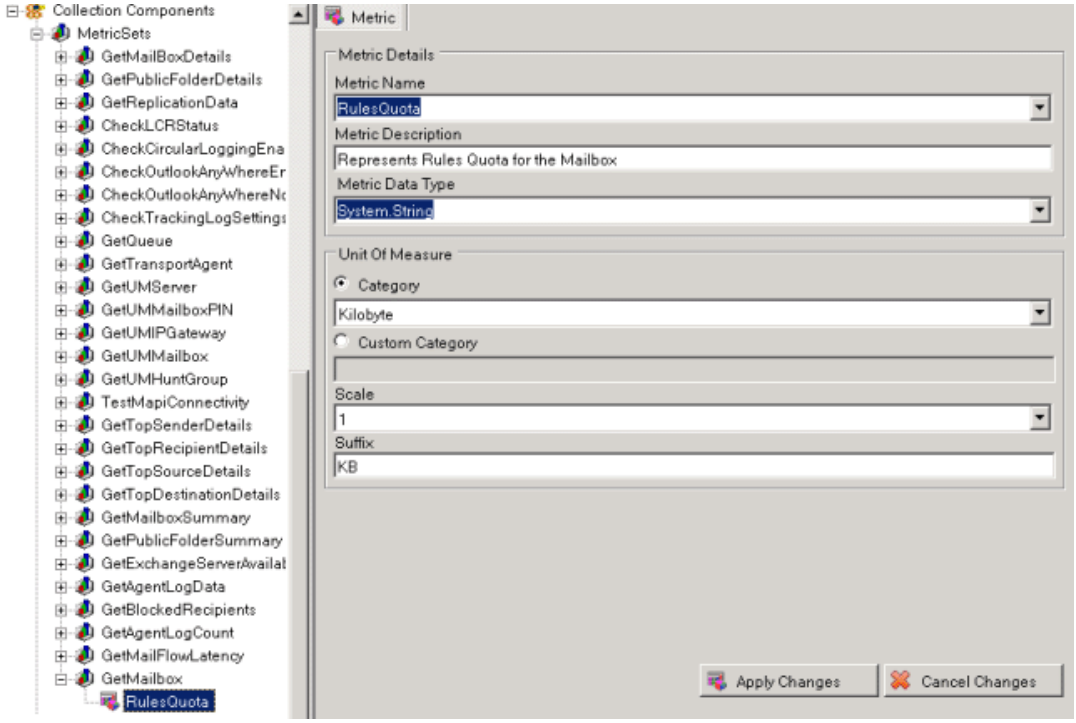
2 Right-click the MetricSet (for example **GetMailbox**), and then click **Add New Metric** or **Insert** → **Add New Metric** from the menu bar.

A new metric (with the name New Metric) appears in the list of metrics under the selected MetricSet enabling you to fill the following options (as shown in the table) on the right pane.

**Table 6 Metric Options**

| Option | Description |
|---|---|
| Metric Name | Select a metric name from the list of the available metrics or type the required metric name if it is not listed in the drop-down list. For example, **NextHopDomain**. |
| Metric Description | Type the description of the metric, RulesQuota (Example). |
| Metric Data Type | After you choose the metric, suitable data type appears by default. Do *not* change the default setting (RulesQuota). However, if you have typed the metric, then you must type the required metric data type also. |
| Category | Only in case of metrics which represents bytes/kilobytes you must mention a Category. For Example for the metricset GetMailbox the metric "RulesQuota" returns value in Kilo Bytes (KB). So the category to be selected is KiloByte. |
| Scale | To convert the metric value to a unit of your choice, specify the multiplying factor. For example, if the metric value is in the form of KB and you want to collect the metric in the form of bytes, specify `16` (example) in this field. This option is useful for the metrics which are representing the value in Bytes or KB and so on. |
| Suffix | Specify the element of the metric value that you want to eliminate. For example, if the metric value is appended with the unit B (as in 1200B), you can eliminate B by typing B in the Suffix text box.<br>This option is useful for those metrics which identifies memory size in bytes. Many of the Microsoft Exchange cmdlet metrics which return BYTES/KILOBTYES are suffixed with B/KB. As in the example of "RulesQuota" it is KB. To use the metrics for calculations we must remove the suffix. By mentioning the suffix here the collector removes the suffix from the metric before using it.<br>Specify one suffix for each metric. |

3 Click **Apply Changes** to save the metric. The added metric RulesQuota is listed in the MetricSet GetMailbox.




4 Continue adding the other metrics, if required.

## Adding an OpCMsg Call

If some metric values cross a certain threshold value, you can receive alert messages in the HPOM message browser. The EXSPI Data Collector Configuration enables you to specify the conditions on the metrics of a given metricset to generate alerts through the opcmsg call.

An OpCMsg Call is an element of a collection definition, which holds the following information:

- Threshold value (or range of values) for a metric.
- Alert message if the metric does not match the required value or crosses the range of values.
- Severity level (major, minor, normal, and warning) of the event when the metric does not match the limiting value.

You can apply the rules over the metrics for an alert only for a *single* MetricSet.

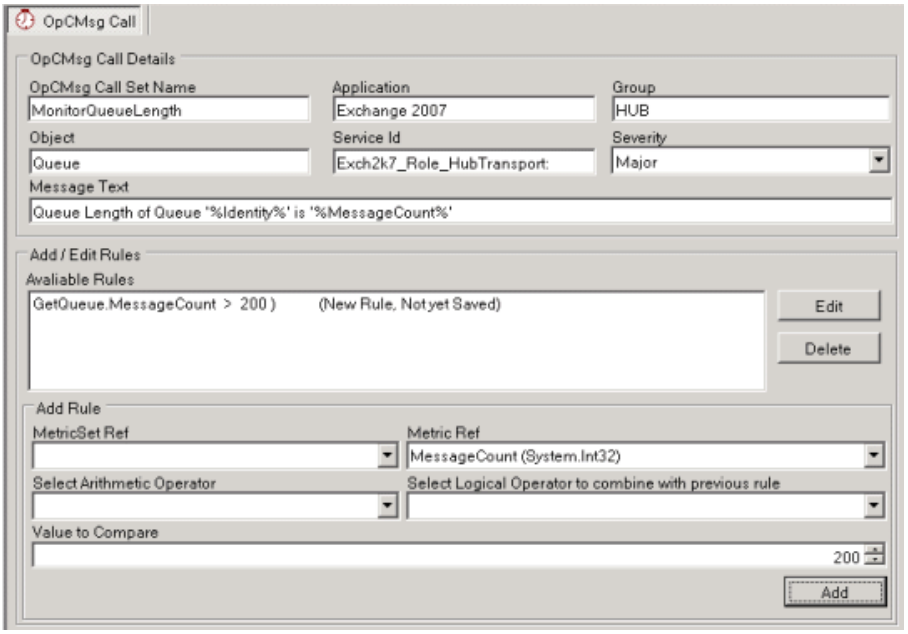
To add a new OpCMsg Call, follow these steps:

1 In the left pane, right-click **OpCMsg Calls** from **Collection Components**, and then click **Add New OpCMsg Call** or click **Insert** → **Add New OpCMsg Call** from the menu bar. A new OpCMsg Call appears in the list in the left pane.

2 Fill the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| OpCMsg Call Set Name | Type an appropriate name. |
| Application | Type an appropriate name of the application that will be affected. You can view this text in the HPOM message browser by opening the Message Properties dialog box. You can leave this field blank. |
| Object | Type an appropriate name of the object of the application that will be affected. You can view this text in the HPOM message browser by opening the Message Properties dialog box. You can leave this field blank. |
| Severity | Select the severity level of the event. |
| Message Text | Type the message that you want to generate. |
| MetricSet Ref | Select an available MetricSet from the list. |
| Metric Ref | Select an available metric from the list. |
| Select Arithmetic Operator | Select an available arithmetic operation from the list. |
| Select Logical Operator to combine with Previous Rule | This field is enabled only when you choose more than one limiting value or condition for the chosen metrics. Select AND or OR to combine the rules that you create based on the available arithmetic operators. |
| Value to compare | Select the limiting (threshold) value of the selected metric. |

3 Click **Add** to add the rules.




4 Click **Apply Changes** to save the OpCMsg Call. The added OpCMsg Call GetQueue is listed with the other OpCMsg Calls.

## Adding an OpCMon Call

An OpCMon Call sets a limiting value for metric data through a measurement threshold policy. The Microsoft Exchange SPI retrieves the details like message text and severity from the measurement threshold policy.

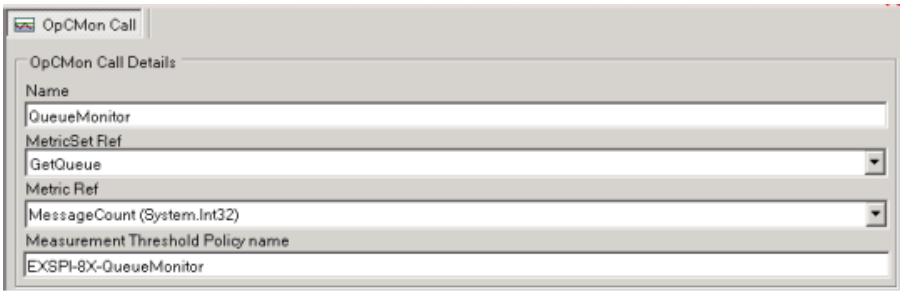
You can use OpCMon Calls only for numeric metric values.

To add a new OpCMon Call, follow these steps:

1 In the left pane, right-click **OpCMon Calls** from **Collection Components**, and the click **Add New OpCMon Call** or click **Insert** → **Add New OpCMon Call** from the menu bar. A new OpCMon Call appears in the list in the left pane.

2 Fill the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| Name | Type an appropriate name for the OpCMon Call. |
| MetricSet Ref | Select an available MetricSet. |
| Metric Ref | Select the metric name for which you want to set the OpCMon Call. |
| Measurement Threshold Policy Name | Type the name of a measurement threshold policy to which you want to associate this OpCMon Call. |




3 Click **Apply Changes** to save the OpCMon Call. The added OpCMon Call TransportQueueCount is listed with the other OpCMon Calls.

## Adding a DataStore

Data Stores define the way in which you can store metric data. After the Microsoft Exchange SPI collects metric data by using collectors, you can store the collected data either in the HP Operations agent's data store (CODA) or in the HP Performance Agent, if you have it installed it in the HPOM environment.

To add a new DataStore, follow these steps:

1 In the left pane, right-click **DataStores** from **Collection Components**, and the click **Add New DataStore** or click **Insert** → **Add New DataStore** from the menu bar. A new DataStore appears in the list in the left pane.

2 Fill the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| Name | Type an appropriate name for the DataStore. |
| Capacity | Type the number of rows for the DataStore. |
| Data Source | Type EX2007_DATA/EXSPI_DATA. |
| Data Table | Type EX2007_<table name>/EX2010_<table name>, where <table name> is an appropriate name for the table. |
| Index By | Set the index on daily, weekly, or monthly schedules. |
| Roll By | Type the interval at which the data should be flushed out of the data store. You can specify DAY, WEEK, or MONTH. You cannot store data for more than a month. |

3 From the Select MetricSet reference list, select the appropriate **MetricSet**.

4 From the Select Metric reference list, select the one or more appropriate metrics.

5 In the Select Data column reference box, type a name for the data column in which the DataStore will store the selected metrics. Do not leave this field blank if you want to add more than one metric.

6 Click **Add**. You can add only one MetricSet whereas more than one metrics can be added but all the metrics should belong to the same MetricSet.

7 Click **Apply Changes** to save the DataStore. The added DataStore QueueInfo is listed with the other DataStores.

After you create a new Data Store, you must add it to an existing collection configuration. See Adding a Collection Configuration to add a collection configuration. After adding the newly created Data Store to an existing collection configuration, perform the following steps:

1 Go to the newly created DataStore.

2 In the right pane, click **Generate SPEC**. The Spec File Generator dialog box opens.

3 In the Spec File Generator dialog box, type an appropriate label name in the Table Label text box, and then click **Create**. The details of the SPEC file appear in the Preview of the SPEC File section.

4 Click **Save**. A pop-up box opens to confirm the successful creation of the spec file.

5 Close the Spec File Generator dialog box.

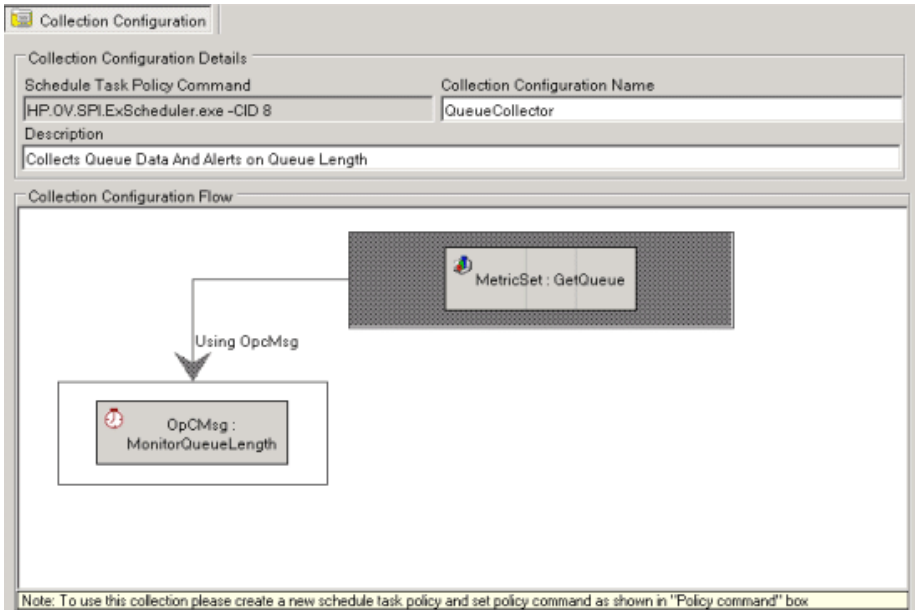
If you create a new DataStore and generate a spec file by using the PowerShell collection configuration utility, ensure that the spec file is made available at the instrumentation directory of the managed node. This can be done by saving the spec file in `Instrumentation Category` folder of the Microsoft Exchange SPI. Save the spec file in `%ovsharedir%\Instrumentation\Categories\Exchange2k7_Core` or `Exchange2k10_Core` on the HPOM Server. Then deploy the Exchange2k7_Core and Exchange2k10_Core category on the node. After this launch the Create Data Source tool on that node to add the data store. Launch the Create Data Source tool on the nodes before you deploy the EXSPI-8X/14X SPIMetaData Versioning policy.

## Adding a Collection Configuration

A collection defines the complete mechanism of metric data collection. A collector can collect metric data, log it to a data store, or send a message to the HPOM message browser if a threshold is violated. A collection configuration consists of all the elements that collectively describe the complete lifecycle of the collection mechanism for a MetricSet.

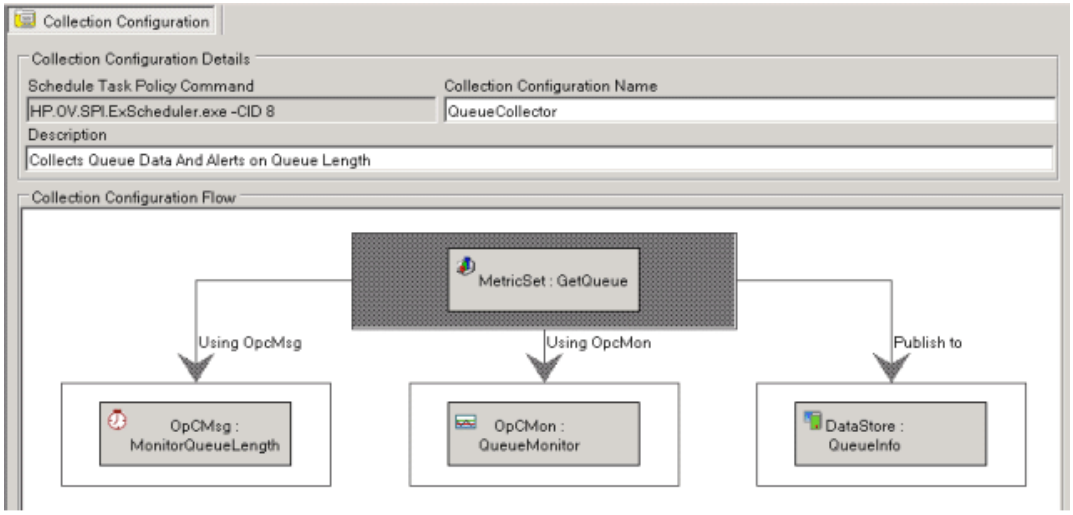
To add a new collection configuration, follow these steps:

1. In the left pane, right-click **Collection Configurations**, and then click **Add New Collection** or click **Insert** → **Add New Collection**. A window appears to add MetricSet to the new collection.
2. Select the MetricSet from the Component Name box from the list.
3. To add an OpCMsg Call to this collection, click **Add OpCMsg** in the right pane. A window appears to add the OpCMsg Call to the new collection.
4. Select an OpCMsg Call from the Component Name box from the list, and then click **Add**. The OpCMsg Call is added to the collection.




5. To add an OpCMon Call to this collection, click **Add OpCMon** in the right pane. A window appears to add the OpCMon Call to the new collection.
6. Select an OpCMon Call from the Component Name box from the list, and then click **Add**. The OpCMon Call is added to the collection.
7. To add a DataStore, click **Add DataStore** in the right pane. A window appears to add the DataStore to the new collection.

8 Select the appropriate DataStore from the Component Name box from the list, and then click **Add**. The DataStore is added to the collection.




9 In the right pane, type an appropriate name in the Collection Configuration Name text box.

10 Click **File** → **Save**. The new collection configuration is listed with the default configurations .

11 Note the command displayed in the Schedule Task Policy Command text box.

12 After you add a new collection configuration, perform the following tasks:

a Create a new scheduled task policy.

b In the newly created scheduled task policy, specify the command that you have noted down.

You must deploy the newly created scheduled task policy (along with the EXSPI-8X/14X SPIMetaData Versioning policy) on the nodes where you want the changed data collection mechanism to take effect.

## Modifying a Collection

The EXSPI Configuration utility tool enables you to modify the newly added configuration collections:

- MetricSet
- OpCMsg Call
- OpCMon Call
- DataStore
- Collection configuration

Do not modify any default MetricSet or data store or both.

## Modifying a MetricSet

To modify the MetricSet, perform the following:

1. Click the MetricSet (for example, GetQueue) which requires changes. The MetricSet details are displayed in the right pane.
2. Change one or more of the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| MetricSet Name | Change to an appropriate name. |
| Powershell Command | Select a command from the list of available commands. |

3. Click **Apply Changes** to save the change.

If you change the PowerShell command, all the previously added metrics will be removed.

*Do not delete any default MetricSet that is present in the EXSPI Configuration Utility.* To delete a MetricSet that you have added to the EXSPI Configuration Utility, right-click the MetricSet in the left pane, and then click **Delete Selected MetricSet**.

### Modifying a Metric

To modify an existing metric, follow these steps:

Do not modify the metric order in the existing default MetricSets. You can modify the order of metrics only in the MetricSets that you have added to the EXSPI Configuration Utility.

1. In the left pane, click the metric that you want to modify.
2. Change one or more of the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| Metric Name | Select a metric name from the list of available metrics. |
| Metric Description | Type a description of the metric. |
| Metric Data Type | After you choose the metric, suitable data type appears by default. Do not change the default setting. |
| Category | Select this option to specify the unit of measure of the metric. |
| Scale | To convert the metric value to a unit of your choice, specify the multiplying factor. For example, if the metric value is in the form of KB and you want to collect the metric in the form of bytes, specify 1024 in this field. |
| Suffix | Specify the element of the metric value that you want to eliminate. For example, if the metric value is appended with the unit B (as in 1200B), you can eliminate B by typing B in the Suffix text box. |

3. Click **Apply Changes**.

*Do not delete any default metric that is present in the EXSPI Configuration Utility.* To delete a metric that you have added to the EXSPI Configuration Utility, right-click the metric in the left pane, and then click **Remove this...**.

4 Click **Apply Changes**.

5 Click **File** → **Save**.

## Modifying OpCMsg Call

To modify an existing OpCMsg Call, follow these steps:

1 In the left pane, expand **Collection Components**, and then click the OpCMsg Call that you want to modify.

2 Change one or more of the following options (shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| OpCMsg Call Set Name | Type an appropriate name. |
| Application | If necessary, modify the name of the application that will be affected. You can view this text in the HPOM message browser when you open the Message Properties dialog box. You can leave this field blank. |
| Object | If necessary, modify the name of the object of the application that will be affected. You can view this text in the HPOM message browser when you open the Message Properties dialog box. You can leave this field blank. |
| Severity | Select the severity level of the event. |
| Message Text | Type the message that you want to generate. |
| MetricSet Ref | Select an available MetricSet from the list. |
| Metric Ref | Select an available metric from the list. |
| Select Arithmetic Operator | Select an available arithmetic operation from the list. |
| Select Logical Operator to combine with Previous Rule | This field is enabled only when you choose more than one limiting value or condition for the chosen metrics. Select AND or OR to combine the rules that you create based on the available arithmetic operators. |
| Value to compare | Select the limiting (threshold) value of the selected metric. |

3 Click **Apply Changes**.

To delete an existing OpCMsg Call, right-click the OpCMsg Call in the left pane, and then click **Remove from Collection**.

### Editing Existing Rules

You can edit the existing rules of OpCMsgCall. To edit the rules, perform the following:

1 Click **Edit**.

2 In the section Update Rule, change one or more of the following options:

— Metric Ref

— Arithmetic Operator

To delete any existing rule, select the rule in the Available Rules box, and then click **Delete**.

## Modifying OpCMon Call

To modify an existing OpCMon Call, follow these steps:

1. In the left pane, click the OpCMon Call that you want to modify.
2. Change one or more of the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| Name | Type an appropriate name for the OpCMon Call. |
| Metric Ref | Select the metric name for which you want to set the OpCMon Call. |

3. In the Measurement Threshold Policy name text box, type the name of a measurement threshold policy to which you want to associate this OpCMon Call.
4. Click **Apply Changes**.
5. To delete an existing OpCMon Call, right-click the **OpCMon Call** in the left pane, and then click **Remove from Collection**.

## Modifying a Data Store

To modify an existing DataStore, follow these steps:

1. In the left pane, click the DataStore that you want to modify.
2. Change one or more of the following options (as shown in the table) appearing in the right pane.

| Option | Description |
|---|---|
| Name | Type an appropriate name for the DataStore. |
| Capacity | Type the number of rows for the DataStore. |
| Data Source | Type EX2007_DATA or EXSPI_DATA. |
| Data Table | Type EX2007_<table name> or EXSPI_DATA, where <table name> is an appropriate name for the table. |
| Index By | Type DAY. |
| Roll By | Type the interval at which the data should be flushed out of the data store. You can specify DAY, WEEK, or MONTH. You cannot store data for more than a month. |

3. From the **Select MetricSet Reference** list, select a MetricSet.
4. From the **Select Metric Reference** list, select a metric.
5. In the **Select Data Column Reference** box, type a name for the data column in which the DataStore will store the metric selected.

   Do *not* leave this field blank if you want to add more than one metric.

6 Click **Add**. You cannot add more than one MetricSet. You can however add more metrics in that MetricSet.

7 To add a new MetricSet and a new metric to this DataStore, in the Add Reference section, select new MetricSet and metric, and then click **Add**.

8 To delete existing MetricSets and metrics from this DataStore, select an entry from the Available Metric References list, and then click **Delete**.

9 Click **Apply Changes**.

### Regenerating Spec File

After you modify an existing DataStore, you must re-generate the spec file. To re-generate the spec file for the modified DataStore, perform the following steps:

1 Go to the modified DataStore.

2 In the right pane, click **Generate SPEC**. The Spec File Generator dialog box opens.

3 In the Spec File Generator dialog box, type an appropriate label name in the Table Label text box, and then click **Create**. The details of the SPEC file appear in the Preview of the SPEC File section.

4 Click **Save**. A pop-up box opens to confirm the successful creation of the spec file.

5 Close the Spec File Generator dialog box..

If you create a new DataStore and generate a spec file by using the PowerShell collection configuration utility, ensure that the spec file is made available at the instrumentation directory of the managed node. This can be done by saving the spec file in `Instrumentation Category` folder of the Microsoft Exchange SPI. Save the spec file in `%ovsharedir%\Instrumentation\Categories\Exchange2k7_Core` or `Exchange2k10_Core` on the HPOM Server. Then deploy the Exchange2k7_Core/ Exchange2k10_Core category on the node. After this launch the Create Data Source tool on that node to add the data store. Launch the Create Data Source tool on the nodes before you deploy the EXSPI-8X/14X SPIMetaData Versioning policy.

Do *not* delete any default Data Store that is present in the EXSPI Configuration Utility. To delete a DataStore that you have added to the EXSPI Configuration Utility, right-click the DataStore in the left pane, and then click **Remove from Collection**. If the DataStore is associated with an existing collection configuration, the utility removes the DataStore from the collection.

## Modifying Collection Configuration

To modify an existing collection configuration, follow these steps:

Do *not* modify the existing default collection configurations. You can modify a collection configuration that you have added.

1 In the left pane, click the collection configuration that you want to modify.

2 In the right pane, right-click the collection configuration block or any other component block to edit.

3 After making changes, click **File** → **Save**.

Do not delete any default collection configuration that is present in the EXSPI Configuration Utility. To delete a collection configuration that you have added to the EXSPI Configuration Utility, right-click the collection in the left pane, and then click **Remove Collection**.

## Using Additional Cmdlets

You can create customized cmdlets and use those cmdlets to monitor metric data on a managed node. You can create customized cmdlets to return additional metrics, and configure the Microsoft Exchange SPI to monitor these additional metrics. Perform the following tasks to achieve this:

### Task 1: Identify the Microsoft Exchange Server 2007/2010 Node

Identify the Microsoft Exchange Server 2007/2010 node on which you want to add customized cmdlets to observe additional metric data.

### Task 2: Create Cmdlets

Create customized cmdlets on the identified nodes.

### Task 3: Install Snap-ins

Install customized snap-ins for the newly created cmdlets on the nodes on which you have created new cmdlets.

### Task 4: Update the Exspi-exshell.psc1 File

To update the `Exspi-exshell.psc1` file with the new snap-in information, perform these steps:

1. Open the `Exspi-exshell.psc1` file by using a text editor from the location `%OvAgentDir%/bin/instrumentation`.
2. Add the following within the PSSnapin tag:

   <PSSnapIn Name="new_snap-in_name" />

   where new_snap-in_name is the name of newly added snap-in.

Perform this change on the managed node where the snapin is installed. If the snapin is installed on all managed nodes then the `Exspi-exshell.psc1` can be updated at the management server itself.

3. Save the file.

### Task 5: Create New Collection Definitions for New Cmdlets

Use the EXSPI Collection Configuration utility and create new collections with the newly added cmdlets. While creating the new collection configuration, note the command displayed in the Schedule Task Policy Command text box.

### Task 6: Create a New Scheduled Task Policy

After creating a new collection configuration, perform these steps:

1. Create a new scheduled task policy.
2. In the newly created scheduled task policy, specify the command as mentioned in Task 5.

### Task 7: Deploy the EXSPI-8X/14X SPIMetaData Versioning Policy on Nodes

Deploy the EXSPI-8X/14X SPIMetaData Versioning policy on the nodes where you have created the new cmdlets.

### Task 8: Deploy the Scheduled Task Policy

Deploy the created scheduled task policy on the nodes where you have created the new cmdlets.

# Configuring Microsoft Exchange SPI for Exchange Server Cluster Environment (only for Exchange 2007 Nodes)

You can use Microsoft Exchange Server 2007 in a cluster environment where the fail-over capability of Exchange Servers ensures uninterrupted Exchange availability. In the event of a cluster node failure, the Microsoft Exchange SPI automatically switches monitoring activity from the failed node to the active node.

The Microsoft Exchange SPI recognizes Exchange instances in an Exchange cluster by using XML configuration files (`apminfo.xml` and `msexchange.apm.xml`). In the event of failure, these XML files enable the HP Operations agent to automatically perform the following functions:

- Disable instance monitoring on the inactive node
- Enable instance monitoring on the currently active node

To configure the Microsoft Exchange SPI for a cluster environment, perform the following tasks in the order given.

### Task 1: Add the Exchange Cluster Nodes to HPOM Console

Identify the cluster nodes of your Exchange environment, and then add those nodes to HPOM console.

If policy auto deployment is disabled, you must launch the necessary polices on newly added cluster nodes.

Edit the Discovery policy to run it with the special user privileges. Deploy the policy groups depending on the Server role hosted by the managed node. See Editing Discovery Policy on page 43 (Table 3) for the specific policy group.

The discovery policy discovers the Microsoft Exchange cluster and updates the map with cluster topology.

### Task 2: Generate Cluster Application Configuration File

You must generate the `apminfo.xml` file to describe the cluster instances (Exchange virtual servers). To start the Cluster Configuration tool, follow these steps:

1. Start the **Exchange Cluster Configuration** tool on the managed nodes.

   The **Tool Status** window appears and displays the output.
2. Remove any content above `<?xml version="1.0"?>`.
3. Select the text content under the Tool Output section, and then copy it to a text editor.
4. Save the text as `apminfo.xml` in the `%OvAgentDir%\conf\conf\` location on cluster nodes.

   Before copying the `apminfo.xml` file, you must manually create the `%OvAgentDir%\conf\conf\` folder if it does not exist.

5 Stop and start the agents on the nodes by using the following commands:

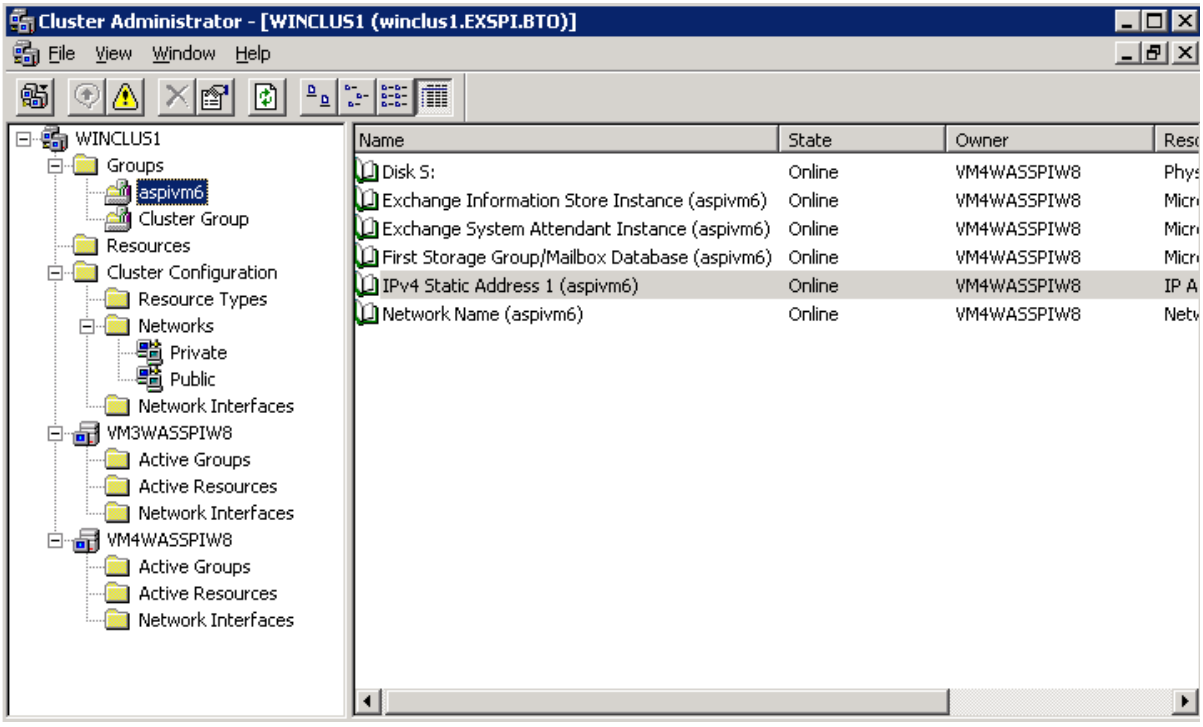
```
opcagt -kill
opcagt -start
```

### Example apminfo.xml File

In the following example, `aspivm6` is the names of the Exchange resource groups corresponding to the `aspivm6` instance (virtual server):

```
<?xml version="1.0" ?>
<APMClusterConfiguration>
 <Application>
  <Name>msexchange</Name>
    <Instance>
      <Name>ASPIVM6</Name>
      <Package>aspivm6</Package>
    </Instance>
  </Application>
</APMClusterConfiguration>
```

**Figure 5 Example of Exchange Resource Group**




## Task 3: Copy the Cluster-Aware Policy XML File

Perform the following steps:

1 Deploy the SPI for Exchange instrumentation on the node.

2 Create the `\conf\` folder under `%OvAgentDir%\bin\instrumentation\.`

3 Copy the `msexchange.apm.xml` file from the `%OvAgentDir%\bin\instrumentation\` folder to `%OvAgentDir%\bin\instrumentation\conf\`.

4 Restart the agent.

5 Repeat step 1through step 4 for all the Exchange nodes.

Make sure to deploy the policy EXSPI-8X Exchange Cluster Discovery SysLog on Windows Server 2003 cluster nodes and the policy EXSPI-8X Exchange Cluster Discovery AppLog 2K8 on Windows Server 2008 cluster nodes, to handle failovers.

## Additional Configuration for Policy Name Change

The Microsoft Exchange SPI disables all polices from a cluster node if the node fails, and then enables all polices on the active cluster node. While switching its operation from disabled node to active node, the Microsoft Exchange SPI retrieves policy information from the `msexchange.apm.xml` file. If you change any policy name (or add a new policy) and deploy the changed policy on a managed cluster node, you must reflect the change in the `msexchange.apm.xml` file as well. To update the `msexchange.apm.xml` file with changed policy information, follow these steps:

1 On the management server, open the `msexchange.apm.xml` file from the `%OvShareDir%\Instrumentation\Categories\SPI for Exchange\Windows\6.0\X64` location by using a text editor.

2 Edit the changed policy names in this file. Add new policy names (within the `Template` markup), if required.

3 For the managed nodes, follow these steps:

a Redeploy the SPI for Exchange instrumentation on the node.

b Create the `\conf\` folder under `%OvAgentDir%\bin\instrumentation\`.

c Copy the `msexchange.apm.xml` file from the `%OvAgentDir%\bin\instrumentation\` folder to `%OvAgentDir%\bin\instrumentation\conf\`.

d Restart the agent.

e Repeat step a through step d for all nodes.

While redeploying the instrumentation on Microsoft Exchange Server 2007 nodes, see Assigning Instrumentation Categories to Exchange Nodes and Deploying Configuration.

## Map View for Exchange Cluster Services

The Microsoft Exchange SPI represents Exchange clusters in the map view. Map view creates one node for each virtual server in the cluster. Because the cluster is properly modeled in the service map, Microsoft Exchange SPI instrumentation and Quick Start polices are auto-deployed to all managed Exchange cluster nodes.

Messages for the Exchange virtual server show up under the Exchange virtual server name in the maps.

For the Exchange Virtual server an EXSPI service discovery hosted-on hierarchy is created within a Clusters container. This allows messages to be sent to the hosted-on hierarchy.

This same hierarchy is also created as virtual nodes under the Exchange Virtual Server. A dependency is created from each Virtual Exchange Server virtual node to its corresponding Cluster hosted-on node. Messages and status will then propagate to the correct Virtual Exchange Server virtual node.

When a fail-over happens, dependencies to the failed node will be removed and replaced with new dependencies to the newly active node.

When a failover happens, messages that occurred before the failover will not be propagated to the virtual node.

# Configuring Microsoft Exchange SPI for Monitoring Exchange 2010

To configure the Microsoft Exchange SPI for monitoring the Exchange Server 2010, perform the following steps:

1. Manage Exchange 2010 nodes from the management server.
2. If the management server is HP-UX or Linux, assign the Exchange 2010 nodes to the *Exchange_Server_2010* node group.

   For more information on assigning nodes to node groups, see Assigning Microsoft Exchange Nodes to Node Group on page 29.
3. Apply the latest **opcle** module hotfix for HP Operations Agent version you are using. Contact HP Support to obtain the hotfix.
4. If the management server is Linux, apply the OML 9 Admin UI hotfix for QCCR1A107609 on the server.
5. Deploy the following instrumentation categories to the managed Exchange 2010 nodes:
   - Exchange2k10_Core
   - Exchange2k10_Discovery
   - SPIDataCollector

   For more information on assigning instrumentation categories to Exchange nodes, see Assigning Instrumentation Categories to Exchange Nodes on page 30.
6. If the management server is HP-UX or Linux, assign the *Exchange 2010* tool group to the operator.

   For more information on assigning tool group to operator, see Assigning Tool Group to Operator on page 32.
7. If the management server is HP-UX or Linux, assign the *Exchange_Server_2010* node group and *EXSPI_2010* and *EXSPI_2010_Errors* message groups to the operator.

   For more information on assigning node group and message groups to the operator, see Assigning Exchange Node Group and Message Groups to the Operator on page 33.
8. Run the following tools on the Exchange 2010 nodes:
   - **SPI for Exchange → Exchange 2010 → Edit XPL Configuration File**
   - **SPI for Exchange → Exchange 2010 → Create Data Sources**
   - **SPI for Exchange → Exchange 2010 → Register DataCollector**

9 Modify the policies listed in Table 7 to run as user with the following privileges:

- Local Administrator of Exchange Server 2010
- Server Management
- View-Only Organization Management
- Records Management

The following table lists the policies to modify.

**Table 7 Policies**

| Policy Names |
|---|
| EXSPI-14X-Dc-HubAgentLogBlockedData |
| EXSPI-14X-Dc-HubAgentLogBlocked |
| EXSPI-14X-HubGetBlockedMailsCount |
| EXSPI-14XCheck If Mailbox Circular Logging Disabled |
| EXSPI-14X Check If Public Folder Circular Logging Disabled |
| EXSPI-14X Check Mailbox Circular Logging Enabled |
| EXSPI-14X Check Outlook Anywhere Enabled |
| EXSPI-14X Check Outlook Anywhere Not Enabled |
| EXSPI-14X Check If Public Folder Circular Logging Enabled |
| EXSPI-14X Check Tracking Log Settings |
| EXSPI-14X Dc-Get Top Destination Details |
| EXSPI-14X Dc-Get Top Recipient Details |
| EXSPI-14X Dc-Get Top Sender Details |
| EXSPI-14X Dc-Get Top Source Details |
| EXSPI-14X Dc-GetMailFlowLatency |
| EXSPI-14X Dc Replication Summary |
| EXSPI-14X Get Configuration of The Transport Agent |
| EXSPI-14X Get Exchange Availability |
| EXSPI-14X Get Mailbox Details |
| EXSPI-14X Get Mailbox IS Sum Data |
| EXSPI-14X Get Public Folder Details |
| EXSPI-14X Get Public IS Sum Data |
| EXSPI-14X Get Queue Data |
| EXSPI-14X Get UMHuntGroup Details |
| EXSPI-14X Get UMMailbox Pin Details |
| EXSPI-14X Get UMServer Details |

**Table 7 Policies**

| Policy Names |
|---|
| EXSPI-14X Get Unified Messaging Mailbox Details |
| EXSPI-14X GetUM IPGatewayDetails |
| EXSPI-14X Test Mapi Connectivity |
| Exchange 2010 Discovery |

10 Modify the policies listed in Table 8 to run as user with the following privileges:

— Local Administrator of Exchange Edge Server 2010

The following table lists the policies to modify.

**Table 8 Policies**

| Policy Names |
|---|
| EXSPI-14X-Dc-EdgeAgentLogBlockedData |
| EXSPI-14X-Dc-EdgeAgentLogBlockedRcpts |
| EXSPI-14X-EdgeGetBlockedMailsCount |
| EXSPI-14X Edge Check Tracking Log Settings |
| EXSPI-14X Edge Get Configuration of Transport Agent |
| EXSPI-14X Edge Get Queue Data |
| Exchange 2010 Discovery |

11 Deploy the appropriate policies based on the roles hosted by the Exchange Server.

The following table lists the appropriate policies for the roles hosted by the Exchange Server.

**Table 9 Server Roles and Policy Groups**

| Server Role | Policy Group |
|---|---|
| Any role | • **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Discovery**<br>• **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Availability**<br>• **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Collector Definition**<br>• **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → ExBPA Integration** |
| Mailbox Server | **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Mailbox Server** |
| Hub Transport Server | **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Hub Transport Server** |

**Table 9 Server Roles and Policy Groups**

| Server Role | Policy Group |
|---|---|
| Edge Transport Server | **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Edge Server** |
| Client Access Server | **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Client Access Server** |
| Unified Messaging Server | **SPI for Exchange → Exchange 2010 → Manual Deploy Groups → Unified Messaging Server** |

12 Use the EXSPI Configuration Utility tool from HP-UX or Linux management server using the following steps:

a Copy the file `<OV_INSTALL_DIR>/install/EXSPI/<PatchID>EXSPI_Console_2010.zip` to a Windows operating system, which has .NET Framework 3.x or above versions .

b Extract the contents of `EXSPI_Console_2010.zip`.

c On the management server, open the `EXSPI-14X_Spimetadata_Versioning_data` file, available at `/opt/OV/install/EXSPI_2010/C/POLICIES`.

d Copy the contents of `EXSPI-14X_Spimetadata_Versioning_data` file, from the line starting with `<?xml....>` till the end and save it as an XML file.

e Copy the XML file to the folder on the Windows operating system where the `EXSPI_Console_2010.zip` is extracted.

f Open the folder where `EXSPI_Console_2010.zip` is extracted and double-click `HP.OV.SPI.Composer.exe` to start using the EXSPI Configuration Utility tool.

g Edit the XML file using EXSPI Configuration user interface.

h Copy the updated XML file to the management server.

i On the management server, open the `EXSPI-14X_Spimetadata_Versioning_data` file.

j Delete the lines starting with `<?xml....>` till the end and replace it with the contents of the updated XML file.

k Save the policy and redeploy it on the managed nodes.

# 4 Using Policies

Policies monitor the Microsoft Exchange 2007 Server environment and run according to rules and schedule specifications. Scheduled Tasks policies contain the rules for interpreting Microsoft Exchange Server 2007 states or conditions. The *SPI for Microsoft Exchange Reference Guide* provides the description of all Microsoft Exchange SPI policies.

## Policy Group and Policy Type

The policies of the Microsoft Exchange SPI in the HPOM console are available as policy groups and policy types.

### Policy Groups

A policy group organizes policies according to the deployment method and area to be targeted for discovery or monitoring. Deployment in Microsoft Exchange SPI is manual. To view the manually deployed policies in the Microsoft Exchange SPI, click **Policy Bank → SPI for Exchange → Exchange 2007/Exchange 2010 → Manual Deploy Groups**.

The policies are displayed in each sub-groups of the Microsoft Exchange SPI.

To customize policies, see Customizing Policies on page 41.

The Microsoft Exchange SPI has the following policy groups depending on the Exchange server roles:

- Availability
- Client Access Server
- Collector Definition
- Discovery
- Edge Server
- ExBPA Integration
- Hub Transport Server
- Mailbox Server
- Unified Messaging Server

## Policy Types

Agent policies grouped by type organize policies according to type. The Microsoft Exchange SPI has the following policy types:

- Service Auto-Discovery
- Scheduled Task
- Measurement Threshold
- Windows Event Log
- Windows Management Interface
- ConfigFile
- Open Message Interface
- LogFile Entry

To know the policies in each policy group and their policy type in detail, see *HP Operations Smart Plug-in for Microsoft Exchange Reference Guide.*

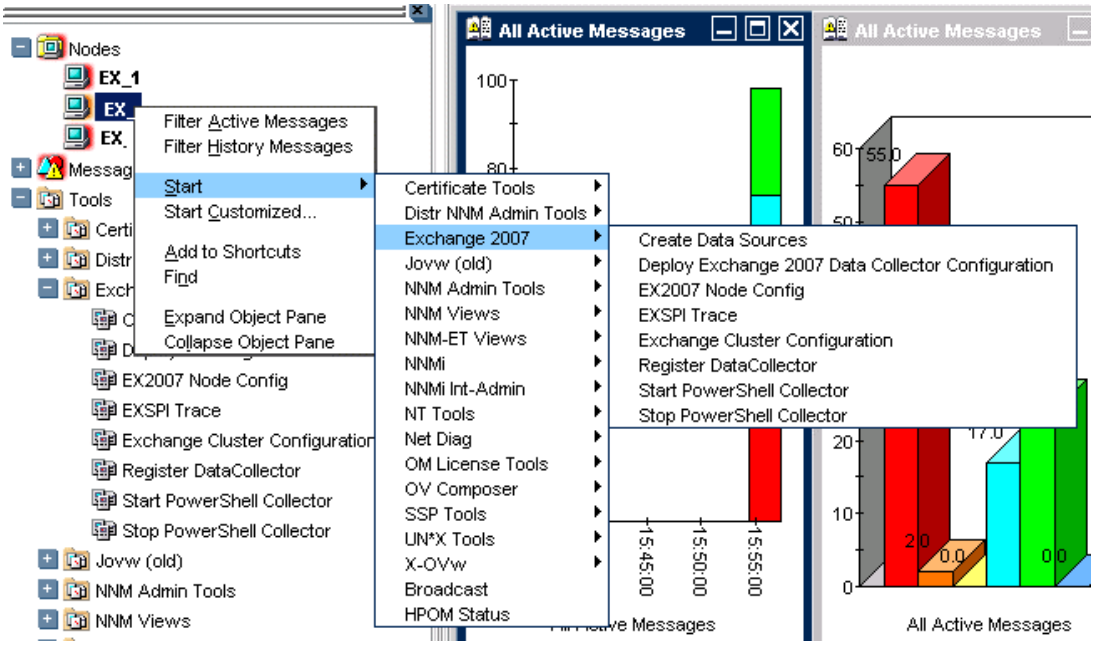
# 5 Using Tools

The Microsoft Exchange SPI uses different tools to monitor the Microsoft Exchange Server 2007 environment. For more information on the functioning of the tools, see the *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide*.

## Starting Microsoft Exchange SPI Tools

You must start the tool from the operator interface. To start a tool, follow these steps:

1. Right-click the node where the tool is to be started.
2. Select **Start → SPI for Exchange → Exchange 2007/Exchange 2010 → <Tool name>**. The following figure shows the Tools available.




A message "`Tool Started. Please wait`." indicates the start of the selected tool.

### HP Operations Topology Viewer

The HP Operations Topology Viewer provides a quick means to seeing an Exchange environment, providing a hierarchical view in a tree (left pane), and a topological view in a map (right pane). The left pane shows the organization/admin groups/Microsoft Exchange servers/connectors/routing groups components, while the map in the right pane graphically represents servers/routing groups/connectors links and connections.

After you launch the HP Operations Topology Viewer and enter domain controller access information, the tool gathers data from the domain controller and Microsoft Exchange servers. From this information a map is created, displaying servers, connectors, and routing groups.

The Topology Viewer provides a view that reflects the Active Directory site/server replication information/Exchange organization information at the time you connect to a server. The view remains static until you refresh it. To update the view, select from the menu **File** → **Refresh Data**. The map is then updated.

In the Topology Viewer window right pane, the map initially shows Routing group connectors, external mail connectors. You can display the server labels and modify the display by selecting **View** → **Properties**. The Properties page allows you many options for how to display the map: you can show or hide connectors between routing groups, server labels and roles, DC Roles.

## Using the HP Operations Topology Viewer

After you complete steps mentioned to connect to a Microsoft Active Directory domain controller, the Topology Viewer tool can gather information. This information is organized into a tree, showing Microsoft Exchange Server components on the left and a map graphically representing the Microsoft Exchange Server organization on the right.

You can modify the default display by using the **View** menu and selecting **Properties...**. The Properties page has three tabbed pages that show additional information and allow you to change the display (**Visibility** and **Colors and Lines**).

To start the Topology Viewer:

1. Copy the file on a 32-bit Windows system which is located in:

   `<INSTALLDIR>/install/EXSPI/ovtv.zip`

2. Extract the `OVTV.zip`.
3. Double-click on `OVTV-Console.msi`.
4. Browse to `C:\Program Files\HP\HP BTO Software\install\ADSPI-Console\InstallScripts` and double-click **postinstall-console.vbs**. This registers the required DLLs.
5. Browse to `C:\Program Files\HP OpenView\bin\OVTV` and double-click `ovtv.exe` to start using OVTV.

If the logged-in user account has proper access to the DC to which you are attempting to connect, no alternate credentials are necessary.

## HP Operations Topology Viewer Toolbar

The following table lists the HP Operations Topology Viewer toolbar functions and the icons. HP Operations Topology Viewer Toolbar

| Icon | Function |
|---|---|
|  | Starts a new file, which appears as an empty grid; you can then click the Add Forest button to populate the empty view. The **New** button allows you to transition to a new view (for example, an Add a Forest), without adding to or changing the current view if the current view has been saved. |
|  | Allows you to open a file of a previously saved view. |
|  | Saves the current view to a file. |
|  | Exports the current view and saves it to a graphic format of your choice, such as .png or .bmp. (The default format is .png. |
|  | Allows you to add a forest by opening the Add Forest dialog, where you enter server connection information. |
|  | Refreshes the data by checking information on the current connection. |
|  | Zooms out the map view to the maximum degree. |
|  | Zooms out the map view incrementally. |
|  | Resets the map view to the default. |
|  | Zooms in the map view incrementally. |
|  | Zooms in the map view to the maximum degree. |
|  | Shows the next available top-level view in the forest. |
|  | Displays the navigator, which shows a thumbnail of the entire map, surrounding the area of focus with a blue square. You can change the map focus by repositioning the blue square in the Navigator. |
|  | Displays the Topology Viewer online Help. |

## HP Operations Topology Viewer Menus

The following table lists the HP Operations Topology Viewer menu commands.

**Table 10 HP Operations Topology Viewer Menus**

| Menu | Command | Function |
|---|---|---|
| File | New... | Opens a new file (empty grid); allows you to transition from the current view to a new view. |
| | Open... | Opens a selected, saved file that shows the layout as it was saved. |
| | Save | Saves the layout as the default layout. |
| | Save as... | Saves the layout to a file so that you can load it when desired. |
| | Export View... | Saves the currently displayed map in a graphical format of your choice. |
| | Add Forest... | Opens the Add Forest dialog, where successful connection to a server generates the replicated information within that forest and displays the information in the HP Operations Topology Viewer tree and map. |
| | Refresh Data | Reconnects to the server and updates the view with changes, if any, since the last connection. |

| Menu | Command | Function |
|---|---|---|
| View | Zoom | Allows you to zoom-in closer for greatest magnification or zoom-out farther for overall view. Minimum is at greatest degree zoomed out. Maximum is at greatest degree zoomed in. |
| | Next View | Shows the next view available in the right pane. |
| | Navigator | Shows a thumbnail of the entire map (including any area outside the current display) with a blue box indicating the current visible display. |
| | Legend | Displays the legend, which explains the meaning of the symbols used in the map located next to each server. |
| | Clear Find | When enabled, means that a server or site in the tree or the map has been right-clicked and Find in View or Find in Tree selected, resulting in selecting the corresponding item; clicking Clear Find returns the display to its default status with no elements selected. |
| View | Toolbar | Toggles on/off the display of the Topology Viewer toolbar buttons. |
| | Status Bar | Toggles on/off the display of the Topology Viewer status bar (located at the bottom of the Topology Viewer window). |
| | Properties... | Opens the Site Topology Properties dialog, which allows you to hide/show elements in the map and to modify the map appearance. |
| Window | Title Page | Displays the HP Operations Topology Viewer title page. |
| | Site Topology | Displays the Active Directory topology of the current forest. |
| | Exchange Topology | Displays the Exchange messaging view (with routing groups) of the current forest. |
| Help | HP Operations Topology Viewer Help | Displays online Help for HP Operations Topology Viewer. |
| | About HP Operations Topology Viewer... | Displays the HP Operations Topology Viewer version number. |

## HP Operations Topology Viewer Map

Map connection lines labels: You can choose which connection lines to display and whether to display server, routing group, and external mail connector labels by right-clicking the map, selecting **View** → **Properties...**. In the Exchange Topology View Properties page, select the Colors and Lines tabbed page. The connections are represented in default colors as follows:

- Routing Group (Represented in green): This acts as a connector that connects one routing group to the other logically. The Routing Group shows a logical routing of mail within the organization

- External Mail Connectors (Represented in blue): This represents the different send connectors which are configured in an organization having a Microsoft Exchange setup. An external connector shows the logical connection between a source server and a destination server. These connectors describe the way the nodes are running in a Microsoft Exchange 2007 environment and how the nodes which have the Edge Transport server or the Hub Transport server installed communicate:
  - With each other
  - With the Internet
  - With servers that are running Exchange 2000 or Exchange 2003
  - With other messaging systems

  The Send connectors send outbound messages. To enable communication, set one or more source servers on a Send connector. The source servers act as transport servers which are responsible to handle message delivery along with that connector. When a Microsoft Exchange Server 2007 receives messages for a remote destination, they are sent to the source server of a Send connector. This Send connector is configured to send the e-mail to the destination domain. Send connectors are not applied to a single source.
- Routing Groups (Represented in green): This represents the logical grouping of different components which play a role a routing a message to the recipients. These components control the flow of the messages between various servers like Hub Transport servers, Edge Transport servers, servers which are running on Microsoft Exchange 2000 or 2003, and other SMTP servers. You can control the flow of the messages between these servers by configuring the settings of these components.

The Topology Viewer provides a view that reflects the Active Directory site/server replication information/Exchange organization information at the time you connect to a server. The view remains static until you refresh it. To update the view, select from the menu **File** → **Refresh Data**. The map is then updated.

# 6 Integrating Microsoft Exchange SPI with HP Reporting and Graphing Solutions

Reports and graphs provide you with a complete view of the performance of the components of the Microsoft Exchange Server 2007/Microsoft Exchange Server 2010.

## Reports and Graphs

Report- and graph-generating templates are installed after you install the Microsoft Exchange SPI. They cover updates on the availability or the activity or both in Microsoft Exchange Server 2007/Microsoft Exchange Server 2010 such as SMTP, MTA, processes for activity and status, and IS Public or Private Mailbox.

**Time Interval for Exchange SPI Reports or Graphs**

The Microsoft Exchange SPI reports and graphs are not available until data has been gathered to the management server from the managed nodes. This occurs each night, so at least one day of activity is needed for the reports to populate. Where a report or graph type requires data from a Sat/Sun collection, those reports or graphs or both require a weekend to pass.

## Integrating Microsoft Exchange SPI with HP Reporter

You must install EXSPI Reporter package on HP Reporter Server to use the Microsoft Exchange SPI reports. For this, run the **`EXSPI-Reporter.msi`** setup. This setup installs the Microsoft Exchange SPI Report Package within the Reporter server. After you complete the installation, configure the Reporter to generate reports.

### Installing or Upgrading Report Package

Complete the steps mentioned in step 6 on page 26 in Upgrading Microsoft Exchange SPI on a Standalone HPOM for UNIX 9.0x or 9.10 Server on page 25 before installing the Report package.

To install or upgrade the Microsoft Exchange SPI Report Package on a stand-alone Reporter server:

1. Insert the HP Operations Smart Plug-ins DVD.
2. Browse to the folder `<SPIDVD>/WINDOWS/OV_REPORTER/EXCHANGE_SPI`.
3. Double-click the file `EXSPI-Reporter.msi`. Follow the instructions as they appear.
4. Click **Finish** to complete the installation.

For HP Performance Manager on HP–UX, Solaris, or Linux: Copy the graph templates to the required location if HP Performance Manager is installed on a separate system (skip this task if HP Performance Manager is on an HPOM management server system).

When you install the Microsoft Exchange SPI on the HPOM management server, the HP Performance Manager also gets installed. If you want to generate a graph successfully, you must identify which of the three scenarios fits your installation and then proceed accordingly.

The following are the three possible scenarios of installation requirement

The first scenario requires no action, while the other two require that you copy files from one system to another.

- **Scenario 1 — English/Japanese environments, where the HPOM management server and HP Performance Manager are installed on the same system:** No further installation is necessary.
- **Scenario 2 — English environments, where the HPOM management server and HP Performance Manager are installed on separate systems:** Copy the HP Performance Manager files from the HPOM management server directories to the identical directories of the HP Performance Manager HP–UX, Solaris, or Linux system. Directories and files are:

  `/opt/OV/newconfig/OVPM/VPI_GraphsEXSPI2K7.txt` (for Microsoft Exchange 2007)

  `/opt/OV/newconfig/OVPM/VPI_GraphsEXSPI2K10.txt` (for Microsoft Exchange 2010)
- **Scenario 3 — Japanese environments, where the HPOM management server and HP PM are installed on separate systems:** Complete the following steps:

  Copy the HP PM files from the HPOM management server directories to the identical directories on the HP Performance Manager HP–UX, Solaris, or Linux system. Directories and files are:

  `/opt/OV/newconfig/OVPM/jpn/VPI_GraphsEXSPI2K7.txt`(for Microsoft Exchange 2007)

  `/opt/OV/newconfig/OVPM/jpn/VPI_GraphsEXSPI2K10.txt` (for Microsoft Exchange 2010)

## Configuring Report Package

To configure the Microsoft Exchange SPI Report Package, follow these steps:

1. Open the Reporter main window and check the status pane to note the changes to the Reporter configuration, which include uploading the Microsoft Exchange SPI reports.

   The Microsoft Exchange SPI Reports are automatically assigned to the **ALL** group in the Reporter main window. (See for HPOM Report list.)
2. Add group and single system reports by assigning reports as desired.

Reports are available for viewing the following day.

Identify the Microsoft Exchange SPI reports of group and single systems by their full name; for example, **abc.xyz.com** is acceptable while **abc** is not.

Instructions are available in the HP Reporter Help for assigning Microsoft Exchange SPI reports to the targeted nodes. To access Help, select **Reports** or **Discovered Systems** in the left panel of the HP Reporter main window and right-click it. Select **Report Help** or **Discovered**

**Systems Help** from the sub-menu that appears. See the topic "To assign a report definition to a Discovered Systems Group." Reporter also includes two online documents: the *Concepts Guide* and the *Installation / Special Configurations Guide* for further information.

## Generating Reports

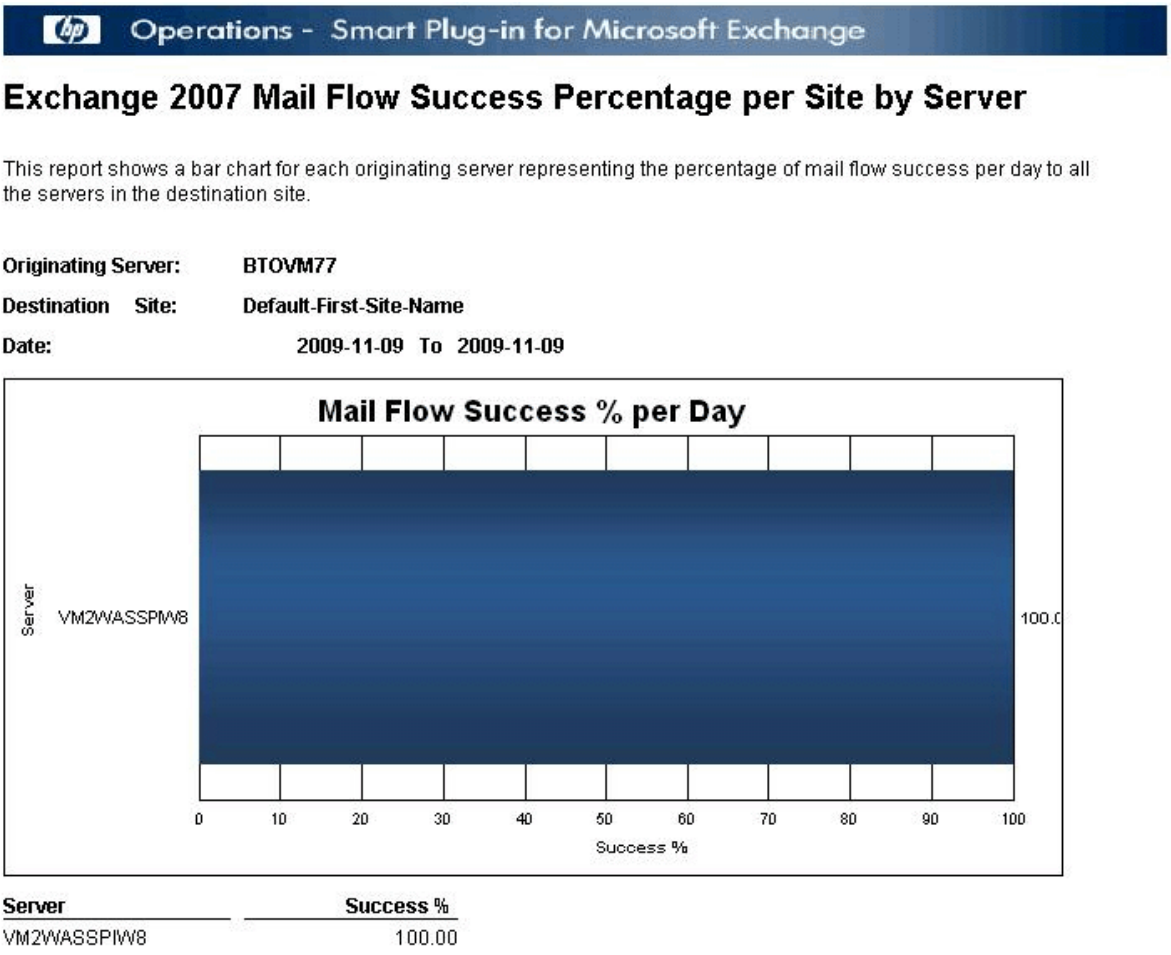
After you install the Microsoft Exchange SPI, the HPOM generates reports using the SPI-collected data for Microsoft Exchange Server 2007/ Microsoft Exchange Server 2010. HPOM runs the reports regularly on a nightly schedule. You can see the updated reports every day because the HPOM, by default, re-generates reports every night with the day's data.

If you want to customize your reports you must install HP Reporter. The documentation on HP Reporter on modifying the reports is available in *Concepts Guide*, *Installation Guide* and *Special Configuration Guide*, Online Help, and Release Notes.

The report data of Microsoft Exchange SPI is collected based on metrics used for each report. The HP Reporter identifies the data through metric variables. This data is stored in the MS SQL Reporter database.

You can access the reports of Microsoft Exchange SPI from the **Report**s area of the HPOM console. You can find complete description of all the reports in *Microsoft Exchange SPI Online Help*. Figure 12 shows reports being generated.

**Figure 6 Generating Reports**



# Integrating Microsoft Exchange SPI with HP Performance Manager

The Microsoft Exchange SPI comes with a set of preconfigured graph templates. Ensure that these graph templates are installed on an HP Performance Manager system, and that the data store (CODA or HP Performance Agent) runs on the managed node.

To integrate the Microsoft Exchange SPI with HP Performance Manager, follow these steps:

1. Install and configure the Microsoft Exchange SPI.
2. Install the graph package.

   On a Windows system that has HP Performance Manager, follow these steps:

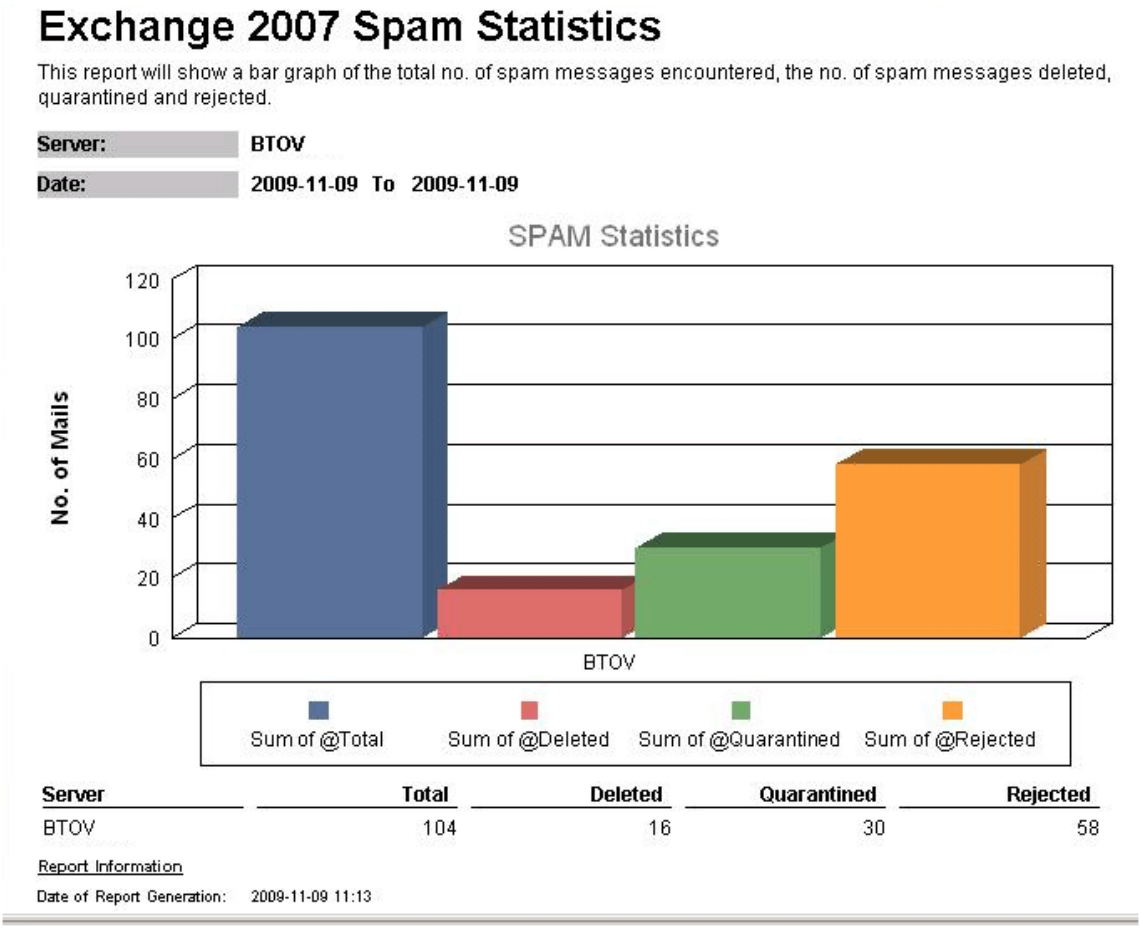
   a. Insert the Smart Plug-ins DVD-ROM (that contains the graph packages) into the DVD-ROM drive, and in Windows Explorer, double-click `\WINDOWS\OV_PM\EXCHANGE_SPI\HPOvSpiExGc.msi`.

For more information see the HP Performance Manager documentation.

## Generating Graphs

You can generate the Microsoft Exchange SPI graphs on OVPM on a stand-alone Windows Server.

**Figure 7 Generating Graphs**



Few messages that arrive at the message browser have operator-initiated actions to launch graphs. Ensure to configure HPOM for UNIX 9.0x or 9.10 server to use a HP Performance Manager server to view the graphs.

Execute the following command on HPOM for UNIX 9.0x or 9.10 server to use the HP Performance Manager server to view the graphs:

```
/opt/OV/contrib/OpC/OVPM/install_OVPM.sh <new OVPM server>:8081
```

# 7 Troubleshooting

This chapter includes troubleshooting some areas of the Microsoft Exchange SPI and provides solutions thereof. The methods described may or may not require support assistance.

## Discovery

The following sections describe the possible cause and suggested action for the failed discovery of the Microsoft Exchange Server services.

### Insufficient Privileges

In some cases the Microsoft Exchange SPI fails to discover the Microsoft Exchange Server services. The possible cause and suggested action are as follows:

- *Possible cause:* The account with which the Discovery policy (**Policy Management** → **Policy Groups** → **SPI for Exchange** → **en** → **Exchange 2007/Exchange 2010** → **Manual Deploy Groups** → **Discovery**) is run by the HP Operations Agent does not have the privileges to connect to the Microsoft Exchange Server and retrieve data.
- *Suggested action:* Ensure that administrator credentials are provided in the Discovery policy and then redeploy the policy.

### Failed Binary on the Managed Node

In some cases the HP Operations Agent fails to update the discovered services to the HPOM management server. The possible cause and suggested action are as follows:

- *Possible cause:* The output of the Microsoft Exchange SPI discovery policy is not a properly formatted `xml` file.
- *Suggested action:* Run the Microsoft Exchange SPI discovery binary on the managed node. To run the Microsoft Exchange SPI discovery binary on the managed node, follow these steps:
  a. Log on to the managed node as an administrator.
  b. From the command prompt, open the instrumentation directory.
  c. Run the **`Exchange_discovery.exe > out.xml`** command.
  d. Check the `out.xml` is in the required xml format by opening it in the web browser.

## Discovery Binary times-out on Managed Node

Sometimes, the Microsoft Exchange SPI discovery binary takes a lot of time to complete. In such cases, the discovery agent (agtrep) forcefully terminates the Microsoft Exchange SPI discovery binary before it completes. This causes the Microsoft Exchange SPI discovery failure.

You can identify the Microsoft Exchange SPI discovery binary termination by agtrep through the following statements in the `System.txt` of the managed node:

- `0: ERR: Thu Nov 12 10:52:01 2009: agtrep (4732/5412): (agtrep-151) Timeout occurred when executing action "C:\Windows\system32\cmd.exe /C ""C:/ProgramData/HP/HP BTO Software/bin/instrumentation/Exchange_Discovery.exe""" - will be terminated.`
- `0: ERR: Thu Nov 12 10:52:01 2009: agtrep (4732/5412): (agtrep-133) No output received from discovery policy action`

The possible cause and suggested action for discovery failure are as follows:

- *Probable cause:* The Microsoft Exchange SPI discovery binary does not complete within the ACTION_TIMEOUT period of agtrep.
- *Suggested Action:* Increase the ACTION_TIMEOUT of agtrep to give sufficient time for the Microsoft Exchange SPI discovery binary to complete.

  To increase ACTION_TIMEOUT of agtrep:

  a. Open the command prompt on managed node.

  b. Run the command **`ovconfchg -edit`** to edit the agent configuration file. The default value is ACTION_TIMEOUT=3

  c. Increase the value of the ACTION_TIMEOUT. For example, ACTION_TIMEOUT=10

  d. Save and close the file.

  e. Re-run the Microsoft Exchange SPI discovery.

# Tracing

To troubleshoot through tracing, run the EXSPI Trace tool on the managed nodes.

With the help of the EXSPI Trace tool, you can obtain troubleshooting information from managed nodes. The Microsoft Exchange SPI stores the troubleshooting information as trace files in the `%OvDataDir%\bin\exspi\log` location on a managed node.

This tool enables you to set the following two trace levels:

- <T1Value> specifies trace level for Scheduler and Collector Server. The value is either 0 or 1.
- <T2Value> specifies trace level for power shell script file. The value ranges from 0 to 2, where 2 is the maximum possible value.

Each trace statement proceeds with a unique ID to distinguish between the different instances of the same collection which run simultaneously.

# Reports and Graphs

The following sections describe the possible cause and suggested action for the failed generation of data in Microsoft Exchange SPI reports and graphs.

## Reports and Graphs are not generated

In some cases, the reports and graphs are not generated. The possible cause and suggested action are as follows:

- *Possible cause:* The appropriate policies are not deployed to the respective Microsoft Exchange SPI reports and graphs. The policy, therefore, fails to collect the data which the HP Reporter generates as report. Failure to deploy the appropriate policy also disables the HP PM to generate graphs.
- *Suggested action:* See Appendix B Report, Report Table, Data Store, and Policy Mapping Details in *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide* to know the appropriate policy for each Microsoft Exchange SPI report. See also Graphs, Data Store, and Policy Mapping Details in *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide* to know the appropriate policy for each Microsoft Exchange SPI. Deploy the policy accordingly.

For more details on troubleshooting Microsoft Exchange SPI reports and specific reports, see *Troubleshooting Microsoft Exchange SPI Reports* in *HP Operations Smart Plug-in for Microsoft Exchange Server Reference Guide*.

## Data Logging Policies cannot log Data

In some cases the data logging policies cannot log data. The possible cause and the suggested action are as follows:

- *Possible cause:* The data source is not created in the data stores—CODA or OVPA or both.
- *Suggested action:* Check if the data source EX2007_DATA/EXSPI_DATA is created. To do this:
  a. Login to the managed node as an administrator.
  b. From the command prompt run the ovcodautil -obj > out.txt command.
  c. Check the `out.txt` file to ensure that the data source EX2007_DATA/EXSPI_DATA is created.

## Browser Crashes while Viewing the HTML Report

While viewing the reports in HTML format, the browser crashes. The possible cause and the suggested action are as follows:

- *Possible cause:* The browser cannot handle huge amount of data.
- *Suggested action:* View the reports in PDF format.

## Reports Fail with Oracle Database

Some of the reports fail due to invalid Reporter ODBC driver.

- *Possible cause:* The versions of Oracle client to access Oracle database do not match.
- *Suggested action:* Use Oracle client 9.2.0 to access Oracle 9.2.0 database and 10gR2 client to access 10gR2 database.

# Modifying Policy Names

If you change the default name of the following Microsoft Exchange SPI policies, ensure to change the SPIMetaData.xml also:

- EXSPI-8X/14X_ReplicationCopyQueueLength
- EXSPI-8X/14X_ReplicationReplayQueueLength
- EXSPI-8X/14X-HubMonitorBlockedMails
- EXSPI-8X/14X-EdgeMonitorBlockedMails
- EXSPI-8X/14X_Check_IMAP4ServiceStatus
- EXSPI-8X/14X_Check_POP3ServiceStatus
- EXSPI-8X/14X_Check_ADTopologyServiceStatus
- EXSPI-8X/14X_Check_CASFileDistributionServiceStatus

Change all references to these policies to new policy names in the policy command line and in the SPIMetaData.xml.

# 8 Removing Microsoft Exchange SPI

To remove the Microsoft Exchange SPI you must first remove all the existing policies and Instrumentation from all the managed nodes. Then you can uninstall the Microsoft Exchange SPI from the management server.

## Removing Microsoft Exchange SPI from HPOM

### For HP–UX

To remove the Microsoft Exchange SPI on the HPOM management server from the command line interface, execute the following commands:

For an HP-UX 11.11 management server:

```
swremove EXSPI
```

The installer removes Microsoft Exchange SPI on the management server.

### For Solaris and Linux

You can remove the Microsoft Exchange SPI on the Solaris or Linux management server, using any of the following interfaces:

- Graphical User Interface
- Command Line Interface

### Removing the Microsoft Exchange SPI using Graphical User Interface

To remove the Microsoft Exchange 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 Solaris or Linux management server DVD drive. 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:

   For Solaris:

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

   For Linux:

   ```
   ./HP_Operations_Smart_Plug-ins_Linux_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`** and click **`Next`**.

When you have, more than a SPI installed on the Solaris or Linux management server and you want to remove only a SPI out of the installed SPIs, select the Modify option and then select the SPI you want to retain. Do not select the SPI that you want to remove.

The Pre-Uninstall Summary window opens.

7 Click **`Uninstall`**.

The Uninstall window opens.

8 When the Microsoft Exchange SPI is uninstalled, click **Done**.

## Removal of the Microsoft Exchange SPI using Command Line Interface

To remove the Microsoft Exchange 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 Solaris or Linux management server DVD drive. Mount the DVD, if necessary.

3 To start the removal of the Microsoft Exchange SPI, type the following command and press **Enter**:

For Solaris:

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

For Linux:

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

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

The HP Software Installer content appears.

5 Press **Enter** to continue.

The Maintenance Selection content appears.

6 Enter the appropriate option (number) to start the removal of the SPI and Press **Enter**.

If you have more than one SPI installed on the HPOM for Solaris or Linux server and you want to remove some of the SPIs, select the Modify (1) option from the installer and select the SPIs you want to retain. Do not select the SPIs that you want to remove.

The Pre-Installation Summary content appears.

7 Press **Enter** to continue.

The selected features are removed.

A message appears stating that the removal of Microsoft Exchange SPI is completed successfully.

# Removing Other Components of Microsoft Exchange SPI

The following sections describe the processes to remove other components of Microsoft Exchange SPI - message group, user profile, report, and graph package.

## Removing Microsoft Exchange SPI Message Group

To remove the message groups, follow these steps:

1. Click **Browse** →**All Message Groups**. All the existing message groups are displayed.
2. Select the message groups check box.
3. Select **Delete** from the list and click » to delete the Microsoft Exchange SPI message group.

## Removing All User Profiles

To remove the user profile, follow these steps:

1. Click **Browse** → **All User Profiles**. All the existing operators are displayed.
2. Select the appropriate user profile check box.
3. Select **Delete** from the list and click » to delete the user profile.

## Removing Reporter Package

The Reporter Package can be uninstalled either through Control Panel or through msi file.

### Removing Reporter Package using the Control Panel

To uninstall the Reporter Package using the Control Panel:

1 Click **Start** → **Control Panel**.

2 Click **Add or Remove Programs** from the **Pick a Category** list.

3 Click **Remove** and **Yes** to confirm the removal.

### Removing Reporting Package using .msi file

To remove the Reporter package using `.msi` file, perform the following steps:

1. Browse to:

   `<SPI DVD>\SPIs\Exchange SPI Reporter Package\EXSPI-Reporter.msi`
2. Right-click `EXSPI-Reporter.msi`, and then click **Uninstall**.
3. Confirm the removal of the reporting package by clicking **Yes**.

## Removing Graph Package

The Graph Package can be uninstalled either through Control Panel or through msi file.

### Removing Graph Package using Control Panel

To uninstall the Graph Package using Control Panel:

1 Click **Start** → **Control Panel**.

2 Click **Add or Remove Programs** from the **Pick a Category** list.

3 Click **Remove** and **Yes** to confirm the removal.

### Removing Graphing Package using .msi File

To remove the graphing package using the `.msi` file, perform the following steps:

1. Browse to:

   `<SPI DVD>\SPIs\EX SPI OVPM ConfigurationPackage\HPOvSpiExGc.msi`

2. Right-click `HPOvSpiExGc.msi`, and then click **Uninstall**.
3. Confirm the removal of the graphing package by clicking **Yes**.

# A List of Microsoft Exchange SPI Instrumentation Files

Appendix A provides instrumentation category details of the Microsoft Exchange SPI in the following tables.

## Exchange2k7_Collector

**Table 11 Instrumentation Category Details**

| Category | Description |
|---|---|
| HP.OV.SPI.ExCollectorServer.exe | Daemon which runs on the node and starts the powershell script (exspi2007.ps1) for each collection. |
| HP.OV.SPI.ExCollectorServer.exe.config | Configuration file for HP.OV.SPI.ExCollectorServer.exe |
| HP.OV.SPI.EXCustomCmdlets.dll | Defines the Microsoft Exchange SPI custom cmdlets |
| exspi2007.ps1 | PowerShell script which formulates and executes the Microsoft Exchange cmdlets and logs data or sends alerts, or does both. |

## Exchange 2k7_Core

**Table 12 Instrumentation Category Details**

| Category | Description |
|---|---|
| HP.OV.SPI.ExspiTraceUtil.exe | Sets the trace levels for the scheduler and the collector server. |
| HP.OV.SPI.ExScheduler.exe | Requests the collector server to launch a collection with the required parameters. |
| HP.OV.SPI.ExScheduler.exe.config | Configuration file for HP.OV.SPI.ExScheduler.exe |
| HP.OV.SPI.Terminator.exe | Stops the collector server |
| HP.OV.SPI.ExBPAScheduler.exe | Calls the ExBPA (Exchange Best Practices Analyzer) command line utility |
| CheckServiceState.exe | Returns the state of a particular service |
| exspidatasource.exe | Creates the datasource for Microsoft Exchange SPI and sets certain registry entries which are utilized by the collector server. |
| EX2007_AVAILABILITY.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass Ex2007_AVAILABILITY |

| Category | Description |
|---|---|
| ex2007_attachfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_attachfilter |
| ex2007_connfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_connfilter |
| ex2007_contfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_contfilter |
| ex2007_hubtransdsn.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_hubtransdsn |
| ex2007_recpfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_recpfilter |
| ex2007_senderid.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_senderid |
| ex2007_sendfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_sendfilter |
| ex2007_prtagt.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_prtagt |
| ex2007_fdsoab.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_fdsoab |
| ex2007_fdsum.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_fdsum |
| ex2007_isperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_isperf |
| ex2007_mbsummary.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_mbsummary |
| ex2007_pfsummary.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_pfsummary |
| ex2007_mbdetail.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_mbdetail |
| ex2007_pfdetail.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_pfdetail |
| ex2007_isclient.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_isclient |
| ex2007_umipgway.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umipgway |
| ex2007_pfperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_pfperf |
| ex2007_pop3perf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_pop3perf |
| ex2007_mbperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_mbperf |

| Category | Description |
|---|---|
| ex2007_umhunt.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umhunt |
| ex2007_ummbox.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_ummbox |
| ex2007_imap4perf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_imap4perf |
| ex2007_replsumm.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_replsumm |
| ex2007_umpin.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umpin |
| ex2007_smtprecv.spec | Specifies the column names and data types for the EXSPI dataclass ex2007_smtprecv |
| ex2007_umsrv.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umsrv |
| ex2007_qinfo.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_qinfo |
| ex2007_smtpsend.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_smtpsend |
| ex2007_agcfg.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_agcfg |
| ex2007_umplcy.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umplcy |
| EX2007_DEST.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EX2007_DEST |
| EX2007_RECP.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EX2007_RECP |
| EX2007_SENDER.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EX2007_SENDER |
| EX2007_SOURCE.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EX2007_SOURCE |
| ex2007_transq.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_transq |
| ex2007_umautoattendent.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umautoattendent |
| ex2007_umavailability.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umavailability |
| ex2007_umcallanswer.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umcallanswer |
| ex2007_umfax.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umfax |

| Category | Description |
|---|---|
| ex2007_umgeneral.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umgeneral |
| ex2007_umsubaccess.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_umsubaccess |
| ex2007_blockedmails.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_blockedmails |
| ex2007_blockedrcpts.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_blockedrcpts |
| ex2007_spamstats.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass ex2007_spamstats |
| ex2007_MailFlowLatency.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EX2007_MFLAT |
| CmdletCommands.xml | Lists the datatypes of the properties of all the Microsoft Exchange cmdlets used in the Microsoft Exchange SPI. |
| spimetadata.xml | Defines the various default and user-defined Microsoft Exchange SPI collections. |
| spi_msexch.xml | Defines the various modes under which SHS collector can run. |
| spi_msexch_chkexch.vbs | Checks the operating system and Microsoft Exchange server information for use by SHS collector. |
| spi_msexch.cmd | Calls shs_collector.pl which launches the SHS collector. |
| spi_msexch_runSHSCollector.cmd | Used by the self-healing client to run the SHS collector. |
| spi_msexch_shs_install.xml | Contains the Microsoft Exchange SPI installation folder details. |
| spi_msexch_shs_input.xml | Contains the input parameters for spi_msexch.cmd |
| register.bat | Registers HP.OV.SPI.EXCustomCmdllets.dll |
| Exspi_exshell.psc1 | Defines the Microsoft Exchange SPI custom PS snap-in. |
| exbpa_wrapper.vbs | Wrapper script which calls ExBPACmd.exe |
| exspi_e2k7_clust_config.js | Generates the apminfo.xml file which describes the cluster instances |
| ovosysdetect_exspi.pl | Checks whether the Microsoft Exchange SPI is installed |
| license.vbs | Checks the license validity of the Microsoft Exchange SPI |

## Exchange 2k10_Core

**Table 13 Instrumentation Category Details**

| Category | Description |
|---|---|
| HP.OV.SPI.ExspiTraceUtil.exe | Sets the trace levels for the scheduler and the collector server. |
| HP.OV.SPI.ExScheduler.exe | Requests the collector server to launch a collection with the required parameters. |
| HP.OV.SPI.ExScheduler.exe.config | Configuration file for HP.OV.SPI.ExScheduler.exe |
| HP.OV.SPI.Terminator.exe | Stops the collector server |
| HP.OV.SPI.ExBPAScheduler.exe | Calls the ExBPA (Exchange Best Practices Analyzer) command line utility |
| CheckServiceState.exe | Returns the state of a particular service |
| exspidatasource.exe | Creates the datasource for Microsoft Exchange SPI and sets certain registry entries which are utilized by the collector server. |
| EXSPI_AVAILABILITY.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_AVAILABILITY |
| exspi_attachfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_attachfilter |
| exspi_connfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_connfilter |
| exspi_contfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_contfilter |
| exspi_hubtransdsn.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_hubtransdsn |
| exspi_recpfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_recpfilter |
| exspi_senderid.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_senderid |
| exspi_sendfilter.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_sendfilter |
| exspi_prtagt.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_prtagt |
| exspi_fdsoab.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_fdsoab |
| exspi_fdsum.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_fdsum |

| Category | Description |
|---|---|
| exspi_isperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_isperf |
| exspi_mbsummary.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_mbsummary |
| exspi_pfsummary.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_pfsummary |
| exspi_mbdetail.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_mbdetail |
| exspi_pfdetail.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_pfdetail |
| exspi_isclient.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_isclient |
| exspi_umipgway.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umipgway |
| exspi_pfperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_pfperf |
| exspi_pop3perf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_pop3perf |
| exspi_mbperf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_mbperf |
| exspi_umhunt.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umhunt |
| exspi_ummbox.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_ummbox |
| exspi_imap4perf.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_imap4perf |
| exspi_replsumm.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_replsumm |
| exspi_umpin.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umpin |
| exspi_smtprecv.spec | Specifies the column names and data types for the EXSPI dataclass exspi_smtprecv |
| exspi_umsrv.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umsrv |
| exspi_qinfo.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_qinfo |
| exspi_smtpsend.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_smtpsend |
| exspi_agcfg.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_agcfg |

| Category | Description |
|---|---|
| exspi_umplcy.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umplcy |
| EXSPI_DEST.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_DEST |
| EXSPI_RECP.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_RECP |
| EXSPI_SENDER.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_SENDER |
| EXSPI_SOURCE.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_SOURCE |
| exspi_transq.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_transq |
| exspi_umautoattendent.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umautoattendent |
| exspi_umavailability.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umavailability |
| exspi_umcallanswer.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umcallanswer |
| exspi_umfax.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umfax |
| exspi_umgeneral.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umgeneral |
| exspi_umsubaccess.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_umsubaccess |
| exspi_blockedmails.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_blockedmails |
| exspi_blockedrcpts.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_blockedrcpts |
| exspi_spamstats.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass exspi_spamstats |
| exspi_MailFlowLatency.spec | Specifies the column names and data types for the Microsoft Exchange SPI dataclass EXSPI_MFLAT |
| CmdletCommands.xml | Lists the datatypes of the properties of all the Microsoft Exchange cmdlets used in the Microsoft Exchange SPI. |
| spimetadata.xml | Defines the various default and user-defined Microsoft Exchange SPI collections. |
| spi_msexch.xml | Defines the various modes under which SHS collector can run. |
| spi_msexch_chkexch.vbs | Checks the operating system and Microsoft Exchange server information for use by SHS collector. |

| Category | Description |
|---|---|
| spi_msexch.cmd | Calls shs_collector.pl which launches the SHS collector. |
| spi_msexch_runSHS Collector.cmd | Used by the self-healing client to run the SHS collector. |
| spi_msexch_shs_inst all.xml | Contains the Microsoft Exchange SPI installation folder details. |
| spi_msexch_shs_inp ut.xml | Contains the input parameters for spi_msexch.cmd |
| register.bat | Registers HP.OV.SPI.EXCustomCmdllets.dll |
| Exspi_exshell.psc1 | Defines the Microsoft Exchange SPI custom PS snap-in. |
| exbpa_wrapper.vbs | Wrapper script which calls ExBPACmd.exe |
| exspi_e2k7_clust_con fig.js | Generates the apminfo.xml file which describes the cluster instances |
| ovosysdetect_exspi.pl | Checks whether the Microsoft Exchange SPI is installed |
| license.vbs | Checks the license validity of the Microsoft Exchange SPI |

## Exchange2k7_Discovery/Exchange2k10_Discovery

**Table 14 Instrumentation Category Details**

| Category | Description |
|---|---|
| interop.opcauto lib.dll | dll used in the Microsoft Exchange SPI discovery |
| Exchange_Disc overy.exe.config | Configuration file for Exchange_Discovery.exe |
| discoverresult.d ll | Used by Exchange_Discovery.exe to create the Microsoft Exchange SPI service discovery tree. |
| Exchange_Disc overy.exe | Discovers the Microsoft Exchange topology and services. |
| msexchange.ap m.xml | Contains the list of the Microsoft Exchange SPI policies that are to be disabled on a passive cluster node |
| ex2k7_rundisco very.js | Runs the Microsoft Exchange SPI discovery policy (Exchange 2007 Discovery/Exchange 2010 Discovery) on a cluster node after a cluster failover happens. |

# Index

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